CHILDREN'S EDUCATION SOCIETY (Regd.)
THE OXFORD COLLEGE OF ENGINEERING
(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi.
Approved by A.I.C.T.E. New Delhi.
Recognised by UGC Under Section 2(f)
Bommanahalli, Hosur Road, Bangalore - 560 068.
Ph: 080-61754601/602, Fax: 080 - 25730551
E-mail: engprincipal@theoxford.edu Web: www.theoxfordengg.org

Affiliating University letter stating implementation of CBCS and Structure of the program clearly indicates courses, credits/Electives as approved by the competent board.

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PRINCIPAL
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The Oxford College of Engineering
Bommanahalli, Hosur Road
Bengaluru-560 068

Visvesvaraya Technological University

Jnana Sangama", Belagavi-590 018, Karnataka State

Registrar

Phone: (0831) 2498100
Fax: (0831) 2405467

Ref. VTU/ACA-LIC/2020-21/SO/ 1001 A/15

Date: 30 JUN 2020

AFFILIATION NOTIFICATION

Sub: Continuation/Extension of Affiliation for the Academic Year 2020-21

Ref:

1. **Executive Council Resolution No. 2.1.4 of 151st meeting dated 27-5-2020 and approval by the Executive Council through circulation on 30-6-2020**
2. **Vice Chancellor's order dated 30-12-2020**

In Exercise of the powers conferred to the University vide Section 40(9) of Visvesvaraya Technological University Act 1994, your college is granted Continuation / Extension of Affiliation for the Academic Year 2020-21 to offer the following Courses. This permission is subject to the fulfillment of the conditions stipulated by the LIC Committee (refer Annexure A). You are required to comply with the same prior to 30-09-2020.

Courses

Course	Year of Starting	Shift	Present Intake	Proposed Intake	VTU Intake	VTU Recommendation	Applicable From	Applicable To
Automotive Engineering - PG	2013	First	18	18	18	TA	2020-21	2020-21
Computer Network Engineering - PG	**2009**	**First**	**18**	18	**9**	**TA**	**2020-21**	**2020-21**
Computer Science and Engineering - PG	2009	First	18	18	18	TA	2020-21	2020-21
Digital Communication & Networking - PG	**2010**	**First**	**18**	18	**9**	**TA**	**2020-21**	**2020-21**
Digital Electronics & Communication - PG	**2009**	**First**	**18**	**18**	**9**	**TA**	**2020-21**	**2020-21**
Machine Design - PG	2011	First	18	18	18	TA	2020-21	2020-21
Master of Computer Applications - PG	2001	First	120	120	120	TA	2020-21	2020-21
Master of Computer Applications - PG	**2015**	**Direct Lateral Entry**	**60**	**60**	**0**	**TA**	**2020-21**	**2020-21**
MBA - PG	2001	First	180	180	180	TA	2020-21	2020-21
Power Electronics - PG	2008	First	18	18	18	TA	2020-21	2020-21

Structural Engineering - PG	2011	First	18	18	18	TA	2020-21	2020-21
Thermal Power Engineering - PG	2008	First	18	18	18	TA	2020-21	2020-21
VLSI Design and Embedded System - PG	2012	First	18	18	18	TA	2020-21	2020-21
Automobile Engineering - UG	2011	First	60	60	60	TA	2020-21	2020-21
Biotechnology - UG	2003	First	60	60	60	TA	2020-21	2020-21
Civil engineering - UG	2008	First	120	120	120	TA	2020-21	2020-21
Computer Science & Engineering - UG	2000	First	120	120	120	TA	2020-21	2020-21
Electrical & Electronics Engineering - UG	2001	First	120	120	120	TA	2020-21	2020-21
Electronics & Communication Engineering - UG	2000	First	120	120	120	TA	2020-21	2020-21
Information Science & Engineering - UG	2000	First	120	120	120	TA	2020-21	2020-21
Mechanical Engineering - UG	2002	First	120	120	120	TA	2020-21	2020-21
Mechatronics - UG	2011	First	60	60	60	TA	2020-21	2020-21

NOTE:
1. All the courses for which government notification is not obtained either for starting of a new course or for permanent affiliation, this notification is subject to the approval of State Government of Karnataka. If already obtained, send a copy to the University.
2. TA- Temporary Affiliation, PA/PR - Permanent Affiliation

Further, the college is also informed to follow any other Notification/Circular/Norms Issued by AICTE / UGC / State Government / VTU in this regard.

REGISTRAR

Encl: Annexure A

To,
The Principal,
THE OXFORD COLLEGE OF ENGINEERING, BENGALURU
BOMMANAHALLI HOSUR ROAD

Copy Fwc's to:
1. Hon'ble Vide-Chancellor, through the Secretary to VC, VTU, Belagavi.
2. The Principal Secretary, Department of Higher Education, Government of Karnataka.
3. The Under Secretary, Department of Higher Education, Government of Karnataka.
4. The Director, Technical Education, Bengaluru.
5. Chairman/Secretary,CHILDREN'S EDUCATION SOCIETY (R), CA SITE NO. 40, 1ST PHASE J P NAGAR, BENGALURU

BENGALURU Bengaluru Urban

6. The Registrar (Evaluation), VTU, Belagavi.
7. The I/c Regional Director, VTU,

5871
2018/19

Visvesvaraya Technological University

Jnana Sangama", Belagavi-590 018, Karnataka State

Registrar

Phone: (0831) 2498100
Fax: (0831) 2405467

Ref. VTU/ACA-LIC/2019-20/SO/ 3181/129

Date: 14 AUG 2019

NOTIFICATION

Sub: Grant of Recognition / Continuation (Extension) of Research Centers to offer Ph.D/M.Sc. (Engg.) by research reg...
Ref: Executive Council Resolution No. 2.3.6 , dated 30-05-2019

Pursuant to the Resolution of Executive Council referred to the above, it is hereby notified that the following Departments are Recognized as Research Centre/s to offer Ph. D / M.Sc. (Engg) by Research programs under section (41) of the VTU Act 1994, in accordance with the Regulations and Guidelines in force (visit our VTU website www.vtu.ac.in for Regulations & Guidelines). The College / Institution may apply for the continuation of recognition against the University Notification after completion of Recognition period of the Research Centre/s.

Name of the college: THE OXFORD COLLEGE OF ENGINEERING, BENGALURU

Type of Recognition	Departments	Recognition	Period of the Recognition
Continuation Research Center	Computer Science & Engineering	Recommended	2019-20 and 2020-21
Continuation Research Center	Information Science & Engineering	Recommended	2019-20 and 2020-21
Continuation Research Center	Mathematics	Recommended	2019-20 and 2020-21
Continuation Research Center	Electrical & Electronics Engineering	Recommended	2019-20 and 2020-21
Continuation Research Center	Electronics & Communication Engineering	Recommended	2019-20 and 2020-21
Continuation Research Center	Physics	Recommended	2019-20 and 2020-21
Continuation Research Center	Master of Business Administration	Recommended	2019-20 and 2020-21
Continuation Research Center	Civil engineering	Recommended	2019-20 and 2020-21
Continuation Research Center	Biotechnology	Recommended	2019-20 and 2020-21
Continuation Research Center	Mechanical Engineering	Recommended	2019-20 and 2020-21
Continuation Research Center	Chemistry	Not Recommended	

-HODs
-P.U. Director

05.8.2019
REGISTRAR
VTU, Belagavi

To,
The Principal,
THE OXFORD COLLEGE OF ENGINEERING, BENGALURU

Please Note: Though the Notification is issued for 1 ...

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List of programs in which CBCS/Elective course system implemented in the last completed academic year certified by the Principal

Programme Code	Programme name	Year of Introduction	Status of implementation of CBCS / elective course system (Yes/No)	Year of implementation of CBCS / elective course system
CSE	Computer Science Engineering	2000	YES	2015
CSE	Computer Science Engineering	2009	YES	2015
ISE	Information Science Engineering	2000	YES	2015
ISE	Computer Network Engineering	2010	YES	2015
MT	Mechatronics	2011	YES	2015
CIV	Civil Engineering	2008	YES	2015
CIV	Structural Engineering	2011	YES	2015
EEE	Electrical & Electronics Engineering	2001	YES	2015
EPE	Power Electronics Engineering	2008	YES	2015
AU	Automobile Engineering	2011	YES	2015
AU	Automobile Engineering	2014	YES	2015
BT	Biotechnology Engineering	2003	YES	2015
B.E	Mechanical	2000	YES	2015
B.E	Machine Design	2011	YES	2015
B.E	Thermal Power Engineering	2008	YES	2015
ECE	Electronics & Communication Engineering	2000	YES	2015
ECE	Digital Communication & Networking	2010	YES	2015
ECE	Digital Electronics & Communication	2009	YES	2015
ECE	VLSI Design & Embedded Systems	2012	YES	2015
MCA	Post Graduate	2001	YES	2015
MBA	Post Graduate	2001	YES	2015

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Bangalore-560 068

CHOICE BASED CREDIT SYSTEM (CBCS)
REGULATIONS GOVERNING
THE DEGREE OF BACHELOR OF ENGINEERING / TECHNOLOGY
(B.E./B.Tech.)

DEFINITIONS OF KEY WORDS:

1. **University:** Visvesvaraya Technological University, Belagavi.
2. **Academic Year:** Two consecutive (one odd + one even) semesters constitute one academic year.
3. **Semester:** Each semester will consist of 15-18 weeks of academic work equivalent to 90 actual teaching days. The odd semester may be scheduled from August to January and even semester from February to July.
4. **Choice Based Credit System (CBCS):** The CBCS provides choice for students to select from the prescribed courses *(core, elective and Foundation Courses).*
5. **Credit Based Semester System (CBSS):** Under the CBSS, the requirement for awarding a degree or certificate is prescribed in terms of number of credits to be earned by the students.
6. **Programme:** An educational programme leading to award of a Degree or certificate.
7. **Course:** Usually referred to, as 'papers' is a component of a programme. All courses need not carry the same weightage. The courses should define learning objectives and learning outcomes. A course may be designed to comprise lectures/ tutorials/laboratory work/ field work/ outreach activities/ project work/ vocational training/viva/ seminars/ term papers/assignments/ presentations/ self-study etc. or a combination of some of these.
8. **Branch:** Specialization or discipline of B.E./B.Tech. Degree Programme, like Civil Engineering, Textile Engineering, etc.
9. **Letter Grade:** It is an index of the performance of students in a said course. Grades are denoted by letters S, A, B, C, D, E and F.
10. **Grade Point:** It is a numerical weightage allotted to each letter grade on a 10-point scale.
11. **Credit:** A unit by which the course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (lecture or tutorial) or two hours of practical work/field work per week.
12. **Credit Point:** It is the product of grade point and number of credits for a course.
13. **Semester Grade Point Average (SGPA):** It is a measure of academic performance of student/s in a semester. It is the ratio of total credit points secured by a student in various courses registered in a semester and the total course credits

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taken during that semester. It shall be expressed up to two decimal places.

1. **Cumulative Grade Point Average (CGPA):** It is a measure of overall cumulative performance of a student over all semesters. The CGPA is the ratio of total credit points earnedby a student in various courses in all semesters and the sumof the total credits of all courses in all the semesters. It is expressed up to two decimal places.
2. **First Attempt:** If a student has completed all formalities and become eligible to attend the examinations and has attended at least one head of passing, such attempt (first sitting) shall be considered as first attempt.
3. **Transcript or Grade Card or Certificate:** Based on the grades earned, a grade certificate shall be issued to all the registered students after every semester. The grade certificate will display the course details (code, title, number of credits, grade secured) along with SGPA of that semester and CGPA earned till that semester.

Choice Based Credit System (CBCS): The CBCS provides choice for students to select from the prescribed courses.

Sequencing Plan for the B.E. / B.Tech. Degree Curriculum

Semesters	***Course Coverage***
I –II	HSS, BS and ES; Common for all Branches; Mandatory Courses
III-IV	BS Common for all Branches and ES; PS – Core/Elective
V-VII	PS- Core & Electives; Other Electives; Branch-wise Orientation
VIII	PS-Electives/Elective ; Other Electives, Internship, Project work

Abbreviations:

HSS - Humanities and Social Sciences
BS - Basic Sciences
ES - Engineering Sciences
PS - Professional Subjects

Credit Structure for Course Work

Lectures (hrs/wk /Sem)	Tutorial (hrs/wk/ Sem)	Lab. Work (hrs/wk/Sem)	*Credits* (Lec:instruction:Lab)	*Credits* (Total)
4	0	0	4:0:0	4
3	0	0	3:0:0	3
0	1	2	0:1:2	2

CHOICE BASED CREDIT SYSTEM (CBCS)
REGULATIONS GOVERNING
THE DEGREE OF BACHELOR OF ENGINEERING / TECHNOLOGY
(B.E./B.Tech.)

15OB 1	**TITLE AND DURATION OF THE PROGRAMME OF STUDY**
15OB 1.1	The program of study shall be called the degree Program of study in Bachelor of Engineering / Technology, abbreviated as B.E. / B.Tech.
15OB 1.2	The program shall be of four academic years duration divided into eight semesters, each semester having duration of 16 weeks. Forevening courses the contact hours are to be satisfied by working extra on afternoons of Saturdays and Sundays.
15OB 1.3	The calendar of events in respect of the program of study shall be fixed by the University from time to time.
15OB 1.4	The examination in all programs of study shall be conducted at the end of each semester for all eight semesters.
15OB 2	**ELIGIBILITY FOR ADMISSION** (The Government orders issued from time to time in this regard shall prevail).
15OB 2.1	Admission to I year / I semester Bachelor Degree in Engineering / Technology shall be open to the students who have passed the second year Pre-University or XII standard or equivalent examination recognized by the University. For the prerequisite qualification earned from foreign countries, Equivalence certificate from the Association of Indian Universities is Mandatory. The decision of the Equivalence committee shall be final in establishing the eligibility of student.
15OB 2.2	In addition to 15OB 2.1, the student shall have secured not less than forty five percent (45%) marks in the aggregate with Physics and Mathematics as compulsory subjects, along with any one of the following subjects, namely, Chemistry, Bio-Technology, Computer Science, Biology and Electronics or as decided by the Government of Karnataka. Provided that, the minimum marks for the purpose of eligibility shallbe forty percent (40%) in optional subjects in case of students belonging to SC/ST and OBC students from Karnataka or as decided by the Government of Karnataka. Provided further that, the student shall have studied and passed English as one of the subjects.
15OB 2.3	Admission to II year/ III semester Bachelor Degree in Engineering/ Technology (Lateral Entry) shall be open to the students **Diploma Holders** • Must have passed diploma or equivalent qualification as recognized by University and secured not less than forty five percentage (45%) marks in the final year examination (fifth and

	sixth semesters) in the appropriate branch of engineering. In case of SC/ST and OBC students from Karnataka the minimum marksfor eligibility shall be forty percent (40%). • Who have completed their Diploma from other than Karnatakastate shall provide the Equivalence/ Eligibility Certificate from the Director of Technical Education, Karnataka. • Who are seeking admission under lateral entry shall also clear prescribed Bridge courses (Advanced Mathematics – III and IV) and Mandatory subjects (CPH and CIV) as specified by the University. **B.Sc. Graduates** • **Must have** passed B.Sc. degree from a recognized University as defined by the UGC or equivalent qualification as recognized by University and secured not less than forty five percentage (45%) marks in aggregate (including all six semesters). In case of SC/ST and OBC students from Karnataka the minimum marks for eligibility shall be forty percent (40%). Should have studied Mathematics as subject of study at XII Standard. • Further, all the B.Sc. students seeking admission to lateral entry shall also clear the following subjects before entering into V Semester I. Computer Aided Engineering Drawing (CAED) and II. Programming in C and Data Structures III. CPH and CIV (if not studied at B.Sc. Level).
15OB 2.4	Admission to Evening Programme of study shall be open to a student Who on the first day of the term notified by the University for the year of admission has at least one-year professional experience in the branch of engineering / technology, in which the student holds a diploma. Explanation: Professional experience means employment on regular basis a. in Government, Government undertaking, Public Sector undertaking, Corporations or b. in a private company registered under the Directorate of Industries and Commerce or the Directorate of Small Scale Industries or c. In Government, Government recognized institutions as technical staff. Provided that the period of apprenticeship undergone shall also be treated as professional experience, if sponsored by the Board of Apprenticeship Training, Southern Region Chennai or by any Government, Government undertaking or Public Sector undertaking. Provided further that employment shall be in an establishment situated within the urban agglomeration of city in which the professional institution is situated.
15OB 2.5	Those students, who have passed a qualifying examination other than

	the PUC II examination of the Pre-University Education Board of Karnataka, have to obtain eligibility certificate for seeking admission to B.E./B.Tech. Degree Programme from Visvesvaraya Technological University, Belagavi or from the Principal of concerned Engineering College of Karnataka State.
15OB 3	**ATTENDANCE REQUIREMENT**
15OB 3.1	Each semester is considered as a unit and the student has to put in a minimum attendance of 85% in each Course with a provision of condonation of 10% of the attendance by the Vice-Chancellor on the specific recommendation of the Principal of the college where the student is studying, showing reasonable cause such as medical grounds, participation in University level sports, cultural activities, seminars, workshops, paper presentation, etc.
15OB 3.2	The basis for the calculation of the attendance shall be the number of hours prescribed by the University by its calendar of events. For the first semester students, the same shall be reckoned from the date of admission to the course as per CET allotment.
15OB 3.3	The students shall be informed about their attendance status periodically by the colleges so that the students shall be cautioned tomake up the shortage. The Principals of the affiliated Colleges shall submit the list of students who have been detained for shortage of attendance by the end of the semester to the Registrar (Evaluation) with a copy to the Registrar. Provided that mere omission by the college to inform the student about the shortage of attendance shall not entitle him to appear for examination.
15OB 3.4	A student having shortage of attendance in one or more subjects shall have to repeat the whole semester and such students shall not be permitted to take admission to next higher semester. Such students shall take readmission to the same semester in the subsequent academic year.
15OB 3.5	**TEMPORARY DISCONTINUATION OF THE PROGRAM:** A student, who wishes to temporarily discontinue the program and continue the same subsequently, has to obtain prior permission from the University by applying through the Principal. Such students have to take readmission to the same semester/year in the subsequent academic year. However, the student shall complete the course as per 15OB 6.2.
15OB 4	**INTERNAL ASSESSMENT MARKS**
15OB 4.1	There shall be a maximum of 20 Internal Assessment Marks in each theory or practical paper. For seminars, the Internal Assessment marks shall be 50.

15OB 4.2	The Internal Assessment marks in a theory paper shall be based on two tests generally conducted at the end of 6th and 12th week of each semester. An additional test may be conducted for the desirous students before the end of the semester to give an opportunity to such students to improve their Internal Assessment Marks, subject to the provisions of 15OB 4.13. The test shall be answered in Blue Bookswith pages serially numbered. These blue books shall be kept in the custody of the Principal of the College until after one month from the date of announcement of the result by the University. These shall be made available to University authorities for verification as per the directions of the Registrar (Evaluation)/ Registrar.
15OB 4.3	Average of the better marks obtained from any two tests shall be the Internal Assessment Marks for the relevant subject.
15OB 4.4	If a student remains absent for all the Internal Assessment tests conducted, the Internal Assessment Marks shall be marked as AB for the subject against the University Seat Number (USN) of the student in the marks sheet submitted to the University by the Principal of the College.
15OB 4.5	In the case of a Practical, the IA marks shall be based on the laboratory journals/reports and one practical test.
15OB 4.6	The IA marks for I year Computer Aided Engineering / Drawing: a) 12 marks for class work (sketching and Computer Aided engineering drawing). b) 08 marks for test in the same pattern as that of the main examination (better of the two tests) ii) The IA marks for other Drawings and Design Drawings offered by various branches shall be based on the evaluation of the sheets and one test in the ratio 60:40.
15OB 4.7	The IA marks in the case of projects and seminars in the final year shall be based on the evaluation at the end of 8th semester by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the project / seminar guide.
15OB 4.8	The final list, incorporating corrections (if any) of IA marks awarded to the students in the Theory/Practical/Internship/Project work/ Seminar, shall be displayed on the notice board of the college at least seven days before the closure of the semester and a certified copy ofthe same shall be sent by the Principals to the University Examination Section within the stipulated date. Every page of the IA marks sheet shall bear the signatures of the concerned Teacher/Teachers, Head of the Department and Principal.
15OB 4.9	Any corrections or over writing of IA marks shall bear the signature(s) of concerned Teacher(s) and in such cases the Head of the Department shall on every sheet indicate the number of corrections and attest it with his signature.

15OB 4.10 (a)	A student failing to secure a minimum of 50% of the IA marks in Practical/Internship/Project work shall not be eligible for the Practical /Internship/Project of the University examination.
15OB 4.10 (b)	For seminars, the minimum requirement of IA marks shall be 40% of the maximum.
15OB 4.11	Such students as mentioned in 15OB 4.10 shall repeat the laboratory work/Internship/project work during the subsequent semester(s) and secure at least the minimum marks prescribed.
15OB 4.12	For theory subjects, there shall not be any minimum requirements of IA marks.
15OB 4.13	Improvement of IA marks shall not be allowed a. In theory subjects and b. In Laboratory/Workshop/Seminar/ Internship / Project where the student has already secured the minimum required marks.
15OB 4.14	IA marks of those students to whom 15OB 4.11 is applicable, shall be sent separately to the Registrar (Evaluation).
15OB 4.15	IA marks shall reach the University before the commencement of examination as per the notification from the office of the Registrar (Evaluation) from time to time. After the submission of Internal Assessment marks to the University, any request for change of IA marks shall not be considered under any circumstances.
15OB 5	**ELIGIBILITY FOR PASSING** A student who obtained Grades O to E shall be considered as passed and if a student secured "F" grade in any of the head of passing he /she has to reappear for the examination**.**
15OB 5.1 (a)	For a pass in a theory subject/drawing, the student shall secure minimum of 35% of the maximum marks prescribed in the University examination and 40% of marks in the aggregate inclusive of the IA marks. i.e. Minimum Passing Grade is "E".
15OB 5.1 (b)	For a pass in a Practical/Internship/Project/Viva-voce examination, a student shall secure a minimum of 40% of the maximum marks prescribed for the University Examination in the relevant Practical/Internship/Project/Viva-voce. i.e. Minimum Passing Grade in a course is "E".
15OB 5.1 (c)	For a pass in Seminar, a student shall secure a minimum of 40% of the maximum marks prescribed. i.e. Minimum Passing Grade is "E".
15OB 5.2	The students who do not satisfy the condition 15OB 5.1 and the student who remains absent shall be deemed to have failed in that subject and may reappear for the University examination in the subsequent examinations. However, the IA marks awarded to the student/s at first attempt in the concerned theory subject will be carried forward. In case of Practical/Internship/Projects/Seminar revised marks will be taken as per regulations 15OB 4.10 (a & b) and 15OB 4.11.
15OB 5.3	The student who passes a course of a semester as per 15OB 5.1 shall

	not be allowed to appear for the same again, unless he/she opts for rejection of results as per 15OB 5.4, 5.5, 5.6, 5.7 & 5.8.
OB 5.4	A student may, at his/her desire, reject his/her total performance of a semester (including IA marks) or he/she may reject the result of his/her performance in University examination of a semester only. The rejection is permitted only once during the entire course of study.
15OB 5.5	The student who desires to reject the performance as per 15OB 5.4 shall reject performance in all the courses of the semester, irrespectiveof whether the student has passed or failed in any subject. However, the rejection of performance of 8th semester project result shall not be permitted.
15OB 5.6	A student, who desires to reject the total performance of the semester including Internal Assessment, has to take readmission for the relevant semester. Application for such readmission shall be sent tothe Registrar through the Principal of College within 30 days from the date of the announcement of the results. Late submission of application shall not be accepted for any reasons. Readmission to First semester in such cases shall not be considered as fresh admission i.e., the student will continue to have the same University Seat Number, which was allotted earlier. The course duration permitted (as per 15OB 6) will be counted as per old USN.
OB 5.7	The student, who desires to reject only the results of University examination of a semester and does not desire readmission, shall be permitted to re-appear for examinations of all the subjects of the semester in the subsequent examinations. However, the IA marks obtained by the student in the rejected semester shall be retained. Applications for such rejection shall be sent to the Registrar (Evaluation) through the Principal of the College within 30 days from the date of announcement of the results. Late submission of applications shall not be accepted for any reasons. If the rejection of the University examination results of the semester happens to be of the odd semester, the student shall be allowed to take admission to the immediate next even semester. However, if therejection of the University result is of the even semester, the studentshall not be allowed to take admission to the next odd semester (as per 15OB 7.2).
15OB 5.8	Such students who opt for rejection at final year are eligible for the award of class and distinction at the B.E./ B.Tech. degree level, but are not eligible for the award of ranks.
15OB 5.9	A student shall be declared to have completed the program of B.E. / B.Tech., degree, provided the student has undergone the stipulated course work as per the regulations and has earned at least 200 Credits.
15OB 6	**MAXIMUM DURATION FOR COURSE COMPLETION**
15OB 6.1	A student who has not obtained the eligibility for third semester after a

	period of three academic years from the date of first admission shall discontinue the course. However, the student is eligible for readmission for first year B.E./B.Tech. in respective College of the University and he/ she shall be allotted a University Seat Number (USN) without any change in the year of admission in the USN but the serial number of the student shall start with six hundred (6XX) series in the same branch.
15OB 6.2	The student admitted to 1st year B.E/ B.Tech. shall complete the course within a period of eight academic years from the date of first admission, failing which he/she has to discontinue the course. The students admitted under lateral entry scheme (2nd Year B.E./B.Tech.) shall complete the course within a period of six academic years from the date of first admission, failing which he/she has to discontinue the course.
15OB 7	**PROMOTION AND ELIGIBILITY FOR THE EXAMINATIONS**
15OB 7.1	There shall not be any restriction for promotion from an odd semester to the next even semester, provided the student has fulfilled the attendance requirement.
15OB 7.2	A student shall be eligible for promotion from an even semester to the next odd semester (i.e. of the next academic year) if the student has not failed in more than four heads of passing of the immediately preceding two semesters and has passed in all the subjects of all thelower semester examinations. A theory or practical shall be treated asa head of passing. **Illustrations** a. A student seeking eligibility to 3rd semester should not have failed in more than 4 heads of passing of first and second semesters taken together. b. A student seeking eligibility to 5th semester should have passed in all the subjects of 1st and 2nd semesters and should not have failed in more than 4 heads of passing of third and fourth semesterstaken together. c. A student seeking eligibility to 7th semester should have passed in all the subjects up to 4th semester and should not have failed in more than 4 heads of passing of 5th and 6th semesters taken together. **The Subjects:** 1. Constitution of India, Professional Ethics and Human Rights, and 2. Environmental Studies are Mandatory Non-Credit Courses; these subjects shall not be considered for the Eligibility for promotion, award of Class, calculation of SGPA and CGPA. However, a pass in the above subjects is mandatory before the completion of Degree.
15OB 8	**COURSES**

15OB 8.1	There will be Four types of courses (i) **Core Courses**: This is the course which is to be compulsorily studied by a student as a core requirement to complete therequirements of a program in a said discipline of study. These courseswill have 4 credits per course. (ii) **Foundation Courses**: The Foundation Courses are of two kinds: *Compulsory Foundation* and *Elective foundation*. "Compulsory Foundation": These courses are the courses based upon the content that leads to Knowledge enhancement. They are mandatory for all disciplines. These courses will have 4 credits per course. "Foundation Electives": These are value based courses aimed at man making education. These courses will have 3 credits per course. **(iii)Elective Courses:** This is course, which can be chosen from the pool of papers. It may be supportive to the discipline/ providing extended scope/enabling an exposure to some other discipline / domain / nurturing student proficiency skills. These courses will have 3 credits per course. **(iv)Mandatory Non-Credit Courses**: These courses are mandatory for students joining B.E./B.Tech. Program and students have tosuccessfully complete these courses before the completion of degree.
15OB 8.2	The minimum number of students to be registered for an Elective to be offered shall be not less than ten.
15OB 8.3	A student shall exercise his option in respect of the electives and register for the same at the beginning of the concerned semester. The student may be permitted to opt for change of elective subject within15 days from the date of commencement of the semester as per the calendar of the University.
15OB 9	**INTERNSHIP**
15OB 9.1	**Internship:** The student shall undergo an Internship for 8 weeks i.e. starting from the end of 7th semester Examination after availing one week vacation and completing during the initial period of 8th semester. 1. The college shall nominate a faculty for a group of students to prepare the students for internship. 2. The students shall report the progress of the internship to the guide in regular intervals and may seek his/her advise. 3. The Internship shall be completed between 7th and 8th semesters. 4. After completion of 7th semester Theory and Practical examinations, the students shall have one week vacation. 5. Immediately after availing one week vacation, the students shall undergo internship (without waiting for the results) which may be a period of 4/5 weeks.

	6. The remaining period of internship; i.e. 4/3 weeks shall be completed during the initial period of the 8th semester. 7. After completion of Internship, students shall submit a report to the college with the approval of both internal and external guides. 8. There will be 50 IA and 50 External marks for Internship. 9. The guide shall be the internal examiner and IA marks out of 50 are to be awarded by the internal guide after evaluating the Internship Report submitted by the student. 10. Viva-Voce on internship shall be conducted at the college and the date of Viva-Voce shall be fixed in consultation with the external Guide. 11. Viva-Voce on internship shall be conducted by both internal and external guides and jointly evaluate the internship report for 50 marks. The expenses of external guide are to be borne by the student/college. 12. In case of the non availability of external guide for the conduct of viva-voce, the Principal shall appoint a senior faculty of the department to conduct viva-voce along with the internal guide, and they jointly evaluate the internship report for 50 marks. 13. The students are permitted to carry out the internship outside India with the following conditions: a. The entire expenses are to be borne by the student or college and the University will not give any financial assistance. b. The Internal Guide has to visit at least once during the student's internship; the expenses of the visit are to borne by the student/college. c. The external guide from the industry has to be an examiner for the viva voce on Internship, and the expenses are to be borne by the student/ college. d. The University will not provide any kind of Financial Assistance to any student for internship and for the conduct of Viva-Voce on internship.

<table>
<tr><td>15OB9.2</td><td>Report on Internship: The College shall facilitate and monitor the student internship program. The internship report of each student shall be submitted to the Head of the Department of the college with the approval of the Guide.</td></tr>
<tr><td>15OB9.3</td><td>Failing to undergo Internship: Completion of internship is mandatory; if any student fails to complete internship, he/she will notbe eligible for the award of degree.</td></tr>
<tr><td>15OB9.4</td><td>Non-completion of Internship: In such cases, the student has to redo the internship.</td></tr>
<tr><td>15OB 10</td><td>SEMINAR AND PROJECT</td></tr>
<tr><td>15OB 10.1</td><td>Seminar topic shall be selected from the emerging technical areas only.</td></tr>
<tr><td>15OB 10.2</td><td>Project work at 8th semester shall be completed batch wise, each batch consisting of minimum of two students and maximum four students.</td></tr>
<tr><td>15OB 10.3</td><td>Viva-voce examination in project work shall be conducted batch-wise.</td></tr>
<tr><td>15OB 11</td><td>COMPUTATION OF SGPA AND CGPA</td></tr>
<tr><td></td><td>i. The VTU adopts absolute grading system wherein the marks are converted to grades, and every semester results will be declared with semester grade point average (SGPA) and Cumulative Grade Point Average (CGPA). The CGPA will be calculated every semester, except the first semester.
ii. The grading system is with the following letter grades as given below:
Grades and Grade Points
<table>
<tr><th>Level</th><th>Out-standing</th><th>Excellent</th><th>Very Good</th><th>Good</th><th>Above Average</th><th>Average</th><th>Poor</th><th>Fail</th></tr>
<tr><td>Letter Grade</td><td>O</td><td>S</td><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td></tr>
<tr><td>Grade Points</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>00</td></tr>
</table>
iii. A student obtaining Grade “F” shall be considered failed and will be required to reappear in the examination.
Such students after passing the failed subject in subsequent examination/s will be awarded with “E” grade irrespective of marks he/she scores in the subsequent examination/s.
Number of attempts taken to clear a subject/s shall be shown in the transcripts.</td></tr>
</table>

Grade Points Scale

Level	Out-standing	Excellent	Very Good	Good	Above Average	Average	Poor	Fail
Letter Grade	O	S	A	B	C	D	E	F
Grade Points	10	9	8	7	6	5	4	00
Score (Marks) Range (%)	≥ 90	<90	< 80 ≥70	< 70 ≥60	< 60 ≥50	< 50 ≥45	<45 ≥40	< 40

Computation of SGPA and CGPA

The following procedure to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA):

i. The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student, i.e

SGPA (Si) = ∑(Ci x Gi) / ∑Ci

where Ci is the number of credits of the ith course and Gi is the grade point scored by the student in the ith course.

ii. The CGPA is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a programme, i.e.

CGPA = ∑(Ci x Si) / ∑ Ci

where Si is the SGPA of the ith semester and Ci is the total number of credits in that semester.

iii. The SGPA and CGPA shall be rounded off to 2 decimal places and reported in the transcripts.

Illustration for Computation of SGPA and CGPA

Computation of SGPA

Illustration No.1

Course	Credit	Grade letter	Grade point	Credit Point (Credit x Grade)
Course 1	4	A	8	4x8 = 32
Course 2	4	C	6	4x6 = 24
Course 3	4	B	7	4x7 = 28
Course 4	3	O	10	3x10= 30
Course 5	3	D	4	3x4 = 12
Course 6	3	C	6	3x6 = 18
Course 7	2	S	9	2x9 = 18
Course 8	2	C	6	2x6 = 12
	25			174

Thus, **SGPA= 174/25=6.96**

Illustration No.2

Course	Credit	Grade letter	Grade point	Credit Point (Credit x Grade)
Course 1	4	A	8	4x8 = 32
Course 2	4	C	6	4x6 = 24
Course 3	4	B	7	4x7 = 28
Course 4	3	O	10	3x10= 30
Course 5	3	F	0	3x0 = 00
Course 6	3	C	6	3x6 = 18
Course 7	2	S	9	2x9 = 18
Course 8	2	C	6	2x6 = 12
	25			162

Thus, **SGPA= 162/25=6.48**

Illustration No.2(a)

Course	Credit	Grade letter	Grade point	Credit Point (Credit x Grade)
Course 5	3	E	4	3x4 =12
	25			Ci (First Attempt)162 +Ci (subsequent attempt) 12= 174

Thus, **SGPA= 174/25=6.96**

Illustration No.3

Course	Credit	Grade letter	Grade point	Credit Point (Credit x Grade)
Course 1	4	A	8	4x8 =32
Course 2	4	C	6	4x6 =24

Course 3	4	B	7	4x7 =28
Course 4	3	O	10	3x10=30
Course 5	3	S	9	3x9 =27
Course 6	3	C	6	3x6 =18
Course 7	2	S	9	2x9 =18
Course 8	2	C	6	2x6 =12
	25			189

Thus, **SGPA= 189/25=7.56**

$$\text{CGPA}=\frac{25x6.96+25x7.56}{50}=7.26$$

CGPA after Final Semester

Sem.- 1	Sem. - 2	Sem. - 3	Sem. - 4	Sem. - 5	Sem. - 6	Sem. - 7	Sem. - 8
Credit : 24 SGPA:7	Credit:24 SGPA:8.5	Credit : 27 SGPA:9.2	Credit : 27 SGPA:6.86	Credit :24 SGPA:8.18	Credit : 24 SGPA:7.73	Credit : 24 SGPA:8.68	Credit : 26 SGPA:9.4

Thus, **CGPA=** $\frac{24x7+24x8.5+27x9.2+27x6.86+24x8.18+24x7.73+24x8.68+26x9.4}{200}$ **=8.2**

Transcript (Format): Based on the above recommendations on Letter grades, grade points, SGPA and CCPA, the transcript for eachsemester and a consolidated transcript indicating the performance in all semesters may be issued.

15OB 12	**CONVERSION OF GRADES INTO PERCENTAGE:** Conversion formula for the conversion of GPA into Percentage is [CGPA Earned - 0.75] x 10= Percentage of marks scored. **Illustration**: [CGPA Earned 8.2 - 0.75]x 10 = 74.5%
15OB 13	**AWARD OF PRIZES, MEDALS & RANKS**
15OB 13.1	For the award of Prizes and Medals, the conditions stipulated by the Donor may be considered subject to the provisions of the statutes framed by the University for such awards.
15OB 13.2	For award of ranks in a branch, a minimum of 10 students should have appeared in the 8th semester examination. The total number of ranks awarded shall be 10% of total number of students appeared in 8th semester or 10 students, whichever is less in that branch. Illustration: 1. If 1028 students appeared for the 8th semester in Electronics and Communication Engineering Branch, the number of ranks to be awarded for Electronics and Communication Engineering will 10. 2. If 90 students appeared for the 8th semester in Biomedical Engineering Branch, the number of ranks to be awarded for Biomedical Engineering will be 09.
15OB 13.3	For award of rank in a branch of Engineering / Technology, the CGPA secured by the student from a) 1st to 8th semester for the students admitted to B.E./B.Tech. Program from 1st year, and

	b) 3rd to 8th semester for the students admitted to B.E./B.Tech. Program from 2nd year (Lateral Entry) shall be considered. A student shall be eligible for a rank at the time of award of degree in each branch of Engineering / Technology, provided the student a. Has passed 1st to 8th (students joining from 1st semester) or 3rd to8th (in case of lateral entry) semester in all the subjects in first attempt only b. Has not repeated/rejected any of the lower semesters.
15OB 13.4	If two students get the same *CGPA*, the tie should be resolved by considering the number of times a student has obtained higher *SGPA;* but, if it is not resolved even at this stage, the number of times a student has obtained higher grades like O, S, A, B etc shall be taken into account in rank ordering of the students in a program.
15OB 14	**TRANSFER OF STUDENTS**
15OB14.1	Transfer of students from one college to another college within Karnataka state shall be permitted only at the beginning of third, fifth,and seventh semesters, subject to availability of seats within the permitted intake in respective Colleges and subject to the prior approval of the University and the provisions of 15OB 7.2. In the case of students from Universities other than VTU the students should have passed in all the courses of 1st & 2nd semesters for admission to 3rd semester and all the courses of 1st to 4th semesters for admission to 5th semester and all the courses of 1st to 6th semesters for admission to 7th semester. The students seeking admission from Universities other than VTUshall have to a. apply for establishment of equivalence with prescribed fees as notified by the VTU and b. Obtain No Objection for admission from the university before commencement of term as notified by VTU.
15OB14.2	Transfer of students within the College from one branch to another branch at 3rd semester shall be permitted with the prior approval of the VTU and subject to the provisions made by the Government of Karnataka and AICTE in this behalf.
15OB14.3	The University may prescribe fee for administrative purpose (for updating of the records), which shall be notified from time to time, for transfer from one college to another (Change of College) or one branch to another branch (change of branch within the college).

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NOTE: These regulations governing the Degree of Bachelor of Engineering/Technology of Visvesvaraya Technological University shall be binding on all and may be modified from time to time.

Visvesvaraya Technological University, Belagavi

REGULATIONS GOVERNING

THE DEGREE OF BACHELOR OF ENGINEERING/ TECHNOLOGY (B.E/B.Tech)

UNDER CHOICE BASED CREDIT SYSTEM (CBCS)

Effective from the academic year 2017 – 18

AUGUST2017

Visvesvaraya Technological University, Belagavi

REGULATIONS GOVERNING
THE DEGREE OF BACHELOR OF ENGINEERING/ TECHNOLOGY (B.E/B.Tech)
UNDER CHOICE BASED CREDIT SYSTEM (CBCS)
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Visvesvaraya Technological University, Belagavi

REGULATIONS GOVERNING
THE DEGREE OF BACHELOR OF ENGINEERING/ TECHNOLOGY (B.E/B.Tech)
UNDER CHOICE BASED CREDIT SYSTEM (CBCS)
Effective from the academic year 2017 – 18

Definitions of Keywords

The following are the definitions/descriptions that have been followed for the different terms used in the Regulations of B.E/B.Tech. Programmes:

1) **Programme:** Is an educational programme in a particular stream/ branch of Engineering/branch of specialization leading to award of Degree. It involves events/activities, comprising of lectures/ tutorials/ laboratory work/ field work, outreach activities/ project work/ vocational training/ viva/ seminars/ Internship/ assignments/ presentations/ self-study etc., or a combination of some of these.
2) **Branch:** Means Specialization or discipline of B.E/B.Tech. Degree Programme, like Civil Engineering, Mechanical Engineering, Textile Engineering, etc.
3) **Semester:** Refers to one of the two sessions of an academic year (vide: serial number 4), each session being of sixteen weeks duration (with working days greater than or equal to ninety).The odd semester may be scheduled from August and even semester from February of the year.
4) **Academic Year:** Refers to the sessions of two consecutive semesters (odd followed by an even) including periods of vacation.
5) **Course:** Refers to usually referred to as 'papers' and is a component of a programme. All Courses need not carry the same weight. The Courses should define learning objectives and learning outcomes. A Course may be designed to comprise lectures/ tutorials/ laboratory work/ field work/ outreach activities/project work/ vocational training/ viva/ seminars/ term papers/assignments/ presentations/ self-study etc., or a combination of some of these.
6) **Credit:** Referstoa unit by which the Course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of lecture or two hours of laboratory/practical Courses/ tutorials/ fieldwork per week etc.
7) **Audit Courses:** Means Knowledge/ Skill enhancing Courses without the benefit of a grade or credit for a Course.
8) **Choice Based Credit System (CBCS):** Refers to customizing the Course work, through Core, Elective and soft skill Courses, to provide necessary support for the students to achieve their goals.
9) **Course Registration:** Refers to formal registration for the Courses of a semester (Credits) by every student under the supervision of a Faculty Advisor (also called Mentor, Counselor etc.,) in each Semester for the Institution to maintain proper record.
10) **Course Evaluation:** Means Continuous Internal Evaluation (CIE) and Semester End Examinations (SEE) to constitute the major evaluations prescribed for each Course. SEE and CIE to carry 60% and 40% respectively, to enable each Course to be evaluated for 100 marks, irrespective of its Credits.
11) **Continuous Internal Evaluation (CIE):** Refers to evaluation of students' achievement in the learning process. CIE shall be by the Course Instructor and includes tests, homework, problem solving, group discussion, quiz, mini-project and seminar throughout the Semester, with weightage for the different components being fixed at the University level.

Visvesvaraya Technological University, Belagavi
Regulations Governing the Degree of Bachelor of Engineering/ Technology (B.E/B.Tech)
Under Choice Based Credit System (CBCS)
(Effective from the academic year 2017 – 18)

12) **Semester end examinations (SEE):** Refers to examination conducted at the University level covering the entire Course Syllabus. For this purpose, Syllabi to be modularized and SEE questions to be set from each module, with a choice confined to the concerned module only. SEE is also termed as university examination.

13) **First Attempt:** Refers to a student who has completed all formalities and has become eligible to attend the SEE and has attended at least one head of passing, such attempt shall be considered as first attempt.

14) **Credit Based System (CBS):** Refers to quantification of Course work, after a student completes teaching – learning process, followed by passing in both CIE and SEE. Under CBS, the requirement for awarding degree is prescribed in terms of total number of credits to be earned by the students.

15) **Credit Representation:** Refers to Credit Values for different academic activities considered, as per the Table.1. Credits for seminar, project phases, project viva–voce and internship shall be as specified in the Scheme of Teaching and Examination (Annexure -1).

Table 1: Credit Values

Theory/Lectures (L) (hours/week/Semester)	Tutorials (T) (hours/week/Semester)	Laboratory/Practical (P) (hours/week/Semester)	Credits (L:T:P)	Total Credits
4	0	0	4:0:0	4
3	0	0	3:0:0	3
2	2	0	2:1:0	3
2	0	2	2:0:1	3
2	2	2	2:1:1	4
0	0	6	0:0:3	3

NOTE: Activities like, practical training, study tour and participation in Guest lectures not to carry Credits.

16) **Letter Grade:** It is an index of the performance of students in a said Course. Grades are denoted by letters S, A, B, C, D, E and F.

17) **Grading:** Grade refers to qualitative measure of achievement of a student in each Course, based on the percentage of marks secured in (CIE plus SEE). Grading is done by Absolute Grading [Refer: 17OB6.0]. The rubric attached to letter grades are as follows:
S – Outstanding, A – Excellent, B – Very Good, C – Good, D – Above Average, E – Average and F – Fail.

18) **Grade Point (GP):** Refers to a numerical weightage allotted to each letter grade on a 10-point scale as under.

Letter Grade and corresponding Grade Points on a typical 10 – Point scale							
Letter Grade	S	A	B	C	D	E	F
Grade Point	10	09	08	07	06	04	00

19) **Passing Standards:** Refers to passing a Course only when getting GP greater than or equal to 04 (as per serial number 18).

20) **Credit Point:** Is the product of grade point (GP) and number of credits for a Course i.e.,
Credit Point (CrP) = GP $\times$ Credits for the Course

21) **Semester Grade Point Average (SGPA):** Refers to a measure of academic performance of student/s in a semester. It is the ratio of total credit points secured by a student in various Courses of a semester and the total Course credits taken during that semester. [Refer:17OB6.0]

22) **Cumulative Grade Point Average (CGPA):** Is a measure of overall cumulative performance of a student over all semesters. The CGPA is the ratio of total credit points earned by a student in various Courses in all semesters and the sum of the total credits of all Courses in all the semesters. It is expressed up to two decimal places. [Refer: 17OB6.0]

23) **Transcript or Grade Card or Certificate:** Refers to a certificate showing the grades earned by a student. A grade certificate shall be issued to all the registered students after every semester. The grade certificate will display the programme details (Course code, title, numberof credits, grades secured) along with SGPA of that semester and CGPA earned till that semester.

24) **University:** Visvesvaraya Technological University (VTU), Belagavi.

Visvesvaraya Technological University, Belagavi
Regulations Governing the Degree of Bachelor of Engineering/ Technology (B.E/B.Tech.)
Under Choice Based Credit System (CBCS)
(With effective from the academic year 2017 – 18)

17OB 1.0	**Title, Duration and Credits of the Programme of Study**
17OB 1.1	The programme of study shall be called the degree of Bachelor of Engineering (Subject of Specialization) /Bachelor of Technology (Subject of Specialization), abbreviated as B.E. / B.Tech. (Subject of Specialization).
17 OB1.2	The program to which students are admitted to I semester of the programme shall be of four academic year duration divided into eight semesters and each semester is of 16 weeks duration. The programme to which students are admitted to III semester of the programme under lateral entry shall be of three academic year duration divided into six semesters and each semester is of 16 weeks duration. The programme (conducted during evening) to which students are admitted to III semester of the programme under lateral entry shall be of three academic year duration divided into six semesters and each semester is of 16 weeks duration. The deficit contact hours of the programme, conducted during evening on all working days, shall be compensated on all Sundays (except on general holidays).
17 OB 1.3	The calendar of events in respect of the program of study shall be notified by the University in advance.
17 OB 1.4	The University examination in all programs of study shall be conducted at the end of each semester for all the eight semesters.
17 OB 1.5	**Maximum Duration for Programme Completion:** a) i. Students admitted to I year B.E/ B.Tech shall complete the programmewithin a period of eight academic years from the date of first admission, failing which they have to discontinue the Course. ii. Students admitted II Year B.E./B.Tech. under lateral entry scheme shall complete the Programme within a period of six academic years from the date of first admission, failing which he/she has to discontinue the Course. b) i. A student who has not obtained the eligibility for III semester even after three academic years from the date of admission to I semester shall discontinue the Programme or get readmitted to I semester of first year B.E./B.Tech. with a new University Seat Number but retaining the sameyear of admission. ii. A student (under lateral entry scheme) who has not obtained the eligibility for V semester even after three academic years from the date of admission toIII semester shall discontinue the Programme or get readmitted to III semester of II year B.E./B.Tech. with a new University Seat Number but retaining the same year of admission.
17 OB 1.6	Prescribed Number of Credits for the Programme: (a) The number of credits to be completed by students admitted I semester of B.E./B.Tech. programme shall be 200 (b) The number of credits to be completed by students admitted to III semester of B.E./B.Tech. programme under lateral entry scheme shall be 152

17 OB2.0	**Eligibility for Admission(As per the Government orders issued from time to time)**
17 OB2.1	Admission to I year/ I semester Bachelor Degree in Engineering/ shall be open to the students who have passed the II PUC/ XII Standard/ Equivalent Examination with English as one of the Languages and obtained a Minimum of 45% of Marks in aggregatein Physics and Mathematics along with Chemistry / Bio-Technology / Biology / Electronics / Computer. In case of SC/ST, Category -1 and OBC (2A, 2B, 3A and 3B) category students from Karnataka (Karnataka candidates) the minimum marks for eligibility shall be 40 %. With regard to the qualification earned from foreign countries, Equivalence certificate from the Association of Indian Universities is Mandatory for admission to B.E./B.Tech. programme. In case of any dispute about the equivalence in qualification earned from foreign countries, the decision of the Equivalence committee shall be the final in establishing the eligibility of the student. Admission to II year/ III semester Bachelor Degree in Engineering/ Technology (Lateral Entry) shall be open to the Diploma holders and B.Sc. graduates.
17 OB2.2	**(i) Diploma Holders** (a) Must have passed diploma or equivalent examination as recognized by University and secured not less than forty five percentage (45%) marks in the final year examination (fifth and sixth semesters) in the appropriate branch of engineering. In case of SC/ST and OBC students from Karnataka the minimum marks for eligibility shall be forty percent (40%). (b) Those candidates who have completed Diploma from other than Karnataka state shall provide the Equivalence/ Eligibility Certificate from the Director of Technical Education, Karnataka. **(ii) B.Sc. Graduates** Must have passed B.Sc. degree from a recognized University under the UGC or equivalent qualification as recognized by University and secured not less than forty five percentage (45%) marks in aggregate (considering the marks ofall six semesters). In case of SC/ST and OBC students from Karnataka (Karnataka candidates) the minimum marks for eligibility shall be forty percent (40%). Candidates must have studied Mathematics as subject of study at XII Standard.
	(i) Diploma Holders for the programme conducted during evening A candidate who has passed diploma examination or equivalent examination and obtained an aggregate minimum of 45 % marks taken together in all the subjects of the final year (fifth and sixth semesters) diploma exanimation is eligible to B.E Courses, and 40 % of marks in case of SC/ST and backward classes of Karnataka candidates. In addition to this a candidate after passing the diploma, must have minimum of two years full time professional experience as on first September of the year of admission, in a registered firm/company/industry/ educational / Government / Autonomous organizations in the branch of Engineering/ Technology, in which the candidates hold a diploma, and in which admission is sought by him/her.

17 OB2.2 (continued)	Further that employment shall be in an establishment situated within the 15 km from the place of the institution to which the candidate is seeking admission. Professional experience refers to the experience earned as an employee on regular basis in, (a) Government, Government Undertaking, Public Sector Undertaking, Corporation or, (b) In a private company registered under the Directorate of Industries and Commerce or the Directorate of Small Scale Industries or, (c) Government, Government recognized Institutions as technical staff. Provided that the period of apprenticeship undergone shall also be treated as professional experience, if sponsored by the Board of Apprenticeship Training, Southern Region, Chennai or by Government, Government undertakings and Public Sector undertakings. Further, those candidates who have completed Diploma from other than Karnataka state shall provide the Equivalence/ Eligibility Certificate from the Director of Technical Education, Karnataka.
17 OB2.3	Those students, who have passed a qualifying examination other than the PUC II examination of the Pre-University Education Board of Karnataka, have to obtain eligibility certificate for seeking admission to B.E./B.Tech. Degree Programme from Visvesvaraya Technological University, Belagavi.
17 OB3.0	**Courses**
17 OB3.1	There shall be the following types of Courses: a) Humanities and Social Sciences (HSS) including Management. These are mandatory for all disciplines. b) Basic Sciences (BS): Physics, Chemistry and Mathematics. These are mandatory for all disciplines. c) Engineering Sciences (ES): Materials, Workshop, Drawing, and Basics of Electrical/ Electronics/ Instrumentation/ Civil/ Mechanical/ Computer Engineering. These are mandatory for all disciplines. d) Professional Subjects (PS) - Core: Are the professional Core (PC) Courses, relevant to the chosen specialization/ branch. The core Courses are to be compulsorily studied by a student and are mandatory to complete them to fulfill the requirements of a programme. e) Professional Subjects (PS) - Elective: Are the professional Electives (PE), relevant to the chosen specialization/ branch and can be chosen from the pool of papers. It shall be supportive to the discipline providing extended scope/enabling an exposure to some other discipline /domain and nurturingstudent proficiency skills. f) Open Subjects - Electives (OE): Are from other technical areas and/ or from emerging fields. g) Mini project and Main Project: Carried out at the Institution or at an Industry. h) Seminar: Deliverable at the Institution under the supervision of a Faculty. i) Internship: Preferably at an industry/R and D organization/IT company/ Government organization of significant repute for a specified period mentioned in the Scheme of Teaching and Examination. j) Mandatory Courses (MC): These Courses are mandatory, without the benefit of a grade or credit, for students admitted to B.E./B.Tech. program. A pass in each mandatory Course is required to qualify for Degree award from the University.

17 OB3.1 (continued)	k) Audit Courses (AC): Knowledge/ skill enhancement Courses without the benefit of a grade or credit for a Course. i) The Audit Course/s (other than the Course/s considered for completing the prescribed program credits) can be any Course offered by the program to which the student is admitted to other programs offered in the institution, where the student is studying. ii) The students who are interested in audit Courses can register for one audit Course at a time during III to VIII semesters. Students, who have opted for audit Courses and considered on par with students registered for credit Courses, have to satisfy the attendance and CIE requirements. However, they need not have to appear for SEE. The number of registrations to an audit Course is restricted to 10 % of the AICTE intake. iii) Registration for any audit Course, in writing, shall be completed at the beginning of semesters. The Institution should intimate the Registrar (Evaluation) about the registration at the beginning of the semester andobtain a formal approval for inclusion of the audit Course/s in the Grade cards/ Transcripts issued to the students.
17 OB3.2	The minimum number of students registered to any Elective offered by the Departments shall be not less than ten.
17 OB3.3	A student shall exercise his option in respect of Elective Courses and register for the same at the beginning of the concerned semester. The student may be permitted to opt for a change of Elective Course within 15 days from the date of commencement of the semester as per the calendar of the University.
17 OB3.4	**Course Registration:** Every student shall register for the Courses of a semester (Credits) under the supervision of a Faculty Advisor (also called Mentor, Counselor etc.,) in each Semester for the Institution to maintain proper record.
17OB4.0	**Internship/Professional Practice**
17OB4.1	**Internship / Professional Practice:** 1) The Internship shall be completed during the period specified in the Scheme of Teaching and Examination. 2) The internship can be carried out in any industry/R and D Organization/Research Institute/ Educational institute of repute. 3) (a) The Department/college shall nominate staff member/s to facilitate, guide and supervise students under internship. (b) The Internal Guide has to visit place of internship at least once during the student's internship. 4) The students shall report the progress of the internship to the guide in regularintervals and seek his/her advice. 5) After the completion of Internship, students shall submit a report with completion and attendance certificates to the Head of the Department with the approval of both internal and external guides. 6) There will be 50 marks for CIE (Seminar: 25, Internship report: 25) and 50 marks for Viva – Voce conducted during SEE. The minimum requirement of CIE marks shall be 50% of the maximum marks. [To be read along with 17 OB 8.6] 7) The internal guide shall award the marks for seminar and internship report after evaluation. He/she will also be the internal examiner for Viva – Voce conducted during SEE.

	8) The external guide from the industry shall be an examiner for the viva voce on Internship. Viva-Voce on internship shall be conducted at the college and the date of Viva-Voce shall be fixed in consultation with the external Guide. The Examiners shall jointly award the Viva - Voce marks. 9) In case the external Guide expresses his inability to conduct viva voce, the Chief Superintendent of the institution shall appoint a senior faculty of the Department to conduct viva-voce along with the internal guide. The same shall be informed in writing to the concerned Chairperson, Board of Examiners (BOE). 10) The students are permitted to carry out the internship anywhere in India or abroad. The University will not provide any kind of financial assistance to any student for carrying out the Internship.
17OB4.2	**Failing to undergo Internship:** Internship is one of the head of passing. Completion of internship is mandatory. If any student fails to undergo /complete the internship, he/she shall be considered as failed in that Course and shall not be permitted to appear for SEE in that Course. However, student shall appear for SEE after satisfying the conditions prescribed for Internship. The reappearance shall be considered as an attempt.
17OB5.0	**Seminar and Project**
17OB5.1	**Seminar:** Seminar is one of the head of passing. i) Each candidate shall deliver seminar as per the Scheme of Teaching and Examination on the topics chosen from the relevant fields for about 30 minutes. ii) The Head of the Department shall make arrangements for conducting seminars through concerned faculty members of the Department. The committee constituted for the purpose by the Head of the Department shall award the CIE marks for the seminar. The committee shall consist of three faculty from the Department and the senior most acting as the Chairman/Chairperson. [To be read along with 17 OB 8.6].
17OB5.2	**Project Work:** Project is one of the head of passing. Project work shall preferably be batch wise, the strength of each batch shall not exceed maximum of four students.
17OB5.3	Viva-voce examination in project work shall be conducted batch-wise.
17OB 6.0	**Computation of SGPA and CGPA**
17OB 6.1	(i) The University adopts absolute grading system wherein the marks are converted to grades, and every semester results will be declared with semester grade pointaverage (SGPA) and Cumulative Grade Point Average (CGPA). The CGPA will becalculated for every semester, except for the first semester. (ii) The grading system with the letter grades and the assigned range of marks under absolute grading system are as given below:

Level	**Outstanding**	**Excellent**	**Very Good**	**Good**	**Above Average**	**Average**	**Fail**
Letter Grade	S	A	B	C	D	E	F
Grade Points	10	9	8	7	6	4	00
Percentage of Marks Scored in a Course	≥ 90	<90 ≥80	< 80 ≥70	< 70 ≥60	< 60 ≥ 45	< 45 ≥40	< 40
	(90 -100)	(80 - 89)	(70 - 79)	(60 - 69)	(45 - 59)	(40 - 44)	(0 - 39)

	(iii) A student obtaining Grade 'F' in a Course shall be considered failed and is required to reappear in subsequent SEE. Whatever the letter grade secured by the student during his / her reappearance shall be retained. However the number of attempts taken to clear a Course shall be indicated in the grade cards/ transcripts.
17OB 6.2	**Computation of SGPA and CGPA (as per UGC Guidelines)** The following procedures shall be used to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA) respectively: i) The SGPA is the ratio of sum of the product of the number of credits with the grade points secured by a student in all the Courses taken by him/her and the sum of the number of credits of all the Courses undergone by a student, i.e., $$SGPA = \frac{\sum (C_i \times G_i)}{\sum C_i}$$ Where C_i is the number of credits of the ith Course and G_i is the grade point scored by the student in the ith Course. ii) The CGPA is also calculated in the same manner taking into account all the Courses undergone by a student over all the semesters of a programme, i.e., $$CGPA = \frac{\sum (C_i \times S_i)}{\sum C_i}$$ Where S_i is the SGPA of the ith semester and C_i is the total number of credits in that semester. The SGPA and CGPA shall be rounded off to 2 decimal places and reported in the transcripts.

17OB 6.2 (continued)

Illustration for Computation of SGPA and CGPA

Computation of SGPA

Illustration No.1

Course	Credit	Grade letter	Grade point	$Credit\ Point = (Credit \times Grade)$
Course 1	4	B	08	4 × 08 = 32
Course 2	4	D	06	4 × 06 = 24
Course 3	4	C	07	4 × 07 = 28
Course 4	3	S	10	3 ×10 = 30
Course 5	3	E	04	3 × 04 = 12
Course 6	3	D	06	3 ×06 = 18
Course 7	2	A	09	2 × 09 = 18
Course 8	2	D	06	2 × 06 = 12
Total	25	--	--	174

Thus, **SGPA= 174/25 = 6.96**

Illustration No.2

Course	Credit	Grade letter	Grade point	$Credit\ Point = (Credit \times Grade)$
Course 1	4	B	08	4 × 08 = 32
Course 2	4	D	06	4 × 06 = 24
Course 3	4	C	07	4 × 07 = 28
Course 4	3	S	10	3 × 10 = 30
Course 5	3	F	00	3 × 00 = 00
Course 6	3	D	06	3 × 06 = 18
Course 7	2	A	09	2 × 09 = 18
Course 8	2	D	06	2 ×06 = 12
Total	25	--	--	162

Thus, **SGPA= 162/25=6.48**

If a Student secures letter grade C during reappearance then the SGPA is Calculated as shown below.

Illustration No. 2(a)

Course	Credit	Grade letter	Grade point	$Credit\ Point = (Credit \times Grade)$
Course 5	3	C	07	7× 03 = 21

Total Credit Points = Credit Points of first Attempt) + Credit Points of subsequent attempt =162 + 21 = 183

Total credits of the semester = 25

Thus, **SGPA= 183/25=7.32**

Illustration No.3

Course	Credit	Grade letter	Grade point	Credit Point = (Credit x Grade)
Course 1	4	B	08	4 x 08 = 32
Course 2	4	D	06	4 x 06 = 24
Course 3	4	C	07	4 x 07 = 28
Course 4	3	S	10	3 x10 = 30
Course 5	3	A	09	3 x 04 = 18
Course 6	3	D	06	3 x 06 = 18
Course 7	2	A	09	2 x 09 = 18
Course 8	2	D	06	2 x 06 = 12
Total	25	--	--	189

Thus, **SGPA= 189/25=7.56**

$$CGPA\ (from\ illustrations\ 2\ and\ 3) = \frac{25 \times 7.32 + 25 \times 7.56}{50} = 7.44$$

17OB 6.2 (continued)

Semester	I	II	III	IV	V	VI	VII	VIII
Credits of the semester	24	24	27	27	24	24	24	26
SGPA	7.00	8.50	9.20	6.86	8.18	7.73	8.68	9.40

Thus CGPA

$$= \frac{(24 \times 7.00 + 24 \times 8.50 + 27 \times 9.20 + 27 \times 6.86 + 24 \times 8.18 + 24 \times 7.73 + 24 \times 8.68 + 26 \times 9.40)}{200} = 8.20$$

17OB 6.3 **Transcript Format:** Based on the secured letter grades, grade points, SGPA and CGPA, the transcript for each semester and a consolidated transcript indicating the performance in all semesters shall be issued.

17OB 7.0 **Conversions of Grades into Percentage and Declaration of Class**

17OB 7.1 Conversion Formula For The Conversion Of CGPA Into Percentage Is Given Below

Percentage Of Marks Secured, $P = [\text{CGPA Earned} - 0.75] \times 10$

Illustration For A CGPA Of 8.20:

$P = [\text{CGPA Earned } 8.2 - 0.75] \times 10 = 74.5\ \%$

17OB 7.2 **Class Declaration:**

After the conversion of final CGPA into percentage of marks (P), a graduating student is declared to have passed in

(i) First Class with Distinction (FCD) if $P \geq 70\%$

(ii) First Class (FC) if $P \geq 60\%$ but <70% and

(iii) Second Class (SC) if $P < 60\%$.

17OB8.0 **Continuous Internal Evaluation**

17OB8.1 For each theory and practical paper, the CIE marks shall be 40.
For Technical seminar, the CIE marks shall be 100.
For Internship/ Professional Practice, the CIE marks shall be 50.
For Project Phase –I and Project seminar and Project Phase –II, the CIE shall be 100 respectively.

17OB8.2 CIE Marks in each theory Course shall be the sum of marks prescribed for test and assignment.

Marks prescribed for test shall be 30 and that for assignment is 10.

The CIE marks for test in a theory Course shall be based on three tests generally conducted at the end of fifth, tenth and fourteenth week of each semester. Each test shall be conducted for a maximum of 30 marks and the final marks shall be the average of three tests.

The remaining 10 marks shall be awarded based on the evaluation of Assignments/Unit tests/written Quizzes that support to cover some of the Course/program outcomes. Final CIE marks awarded shall be the sum of these two out of maximum of 40 marks.

The candidates shall write the Internal Assessment Tests and Assignments/Unit- tests/written Quizzes in Blue Books which shall be preserved by the Principal/ Headof the Department for at least three years after the announcement of University results and shall be made available for verification at the direction of the Registrar (Evaluation).

17OB8.3	In the case of a Practical, the CIE marks shall be based on the laboratory journals/ records (30 Marks on continuous evaluation based on conduct of experiment, viva and report writing) and one practical test (10 Marks) to be conducted at the end of the semester.
17OB8.4	(i) The CIE marks for I year Computer Aided Engineering / Drawing: a) 24 marks for class work (sketching and Computer Aided engineering Drawing). b) 16 marks for test conducted in the same pattern as that of SEE (The marks secured can be taken as best of the two tests). (ii) The CIE marks for other Drawings/ Design Drawings offered by various branches shall be based on the evaluation of the sheets and one test in the ratio 60:40.
17OB8.5	The CIE marks in the case of projects and seminars in the final year shall be based on the evaluation at the end of VIII semester by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the project / seminar guide.
17OB8.6	i. For theory Courses, there shall not be any minimum requirements of CIE marks. ii. Minimum requirement of CIE marks for Practical/ Internship/Project work shall be 50% of the maximum marks. iii. For seminar, the minimum requirement of CIE marks shall be 40% of the maximum marks.
17OB8.7	i) Students failing to secure a minimum of 50% of the CIE marks in Practical/ Internship/Project work shall not be eligible for the Practical / Internship/Project examination conducted by the University and they shall be considered as failed in that/those Course/s. However, they can appear for University examinations conducted in other Courses of the same semester and backlog Courses if any. Students after satisfying the prescribed minimum CIE marks in the Course/s when offered during subsequent semester shall appear for SEE. ii) If any student fails to secure a minimum of 40% of the maximum CIE marks in seminar/ fails to deliver the seminar, he/she shall be considered as failed in that Course and shall not be eligible for the award of degree. However, the student shall become eligible for the award of degree after satisfying the requirements prescribed for seminar during the subsequent semester/s. iii) The Course/s under 17OB8.6 (ii) and (iii), when repeated are considered as attempts.
17OB8.8	CIE marks of those students, who come under 17OB8.7, shall be sent separately to the Registrar (Evaluation).
17OB8.9	If a student remains absent for all the CIE tests conducted, the CIE Marks shall be marked as AB for the Courses against the University Seat Number (USN) of the student in the marks sheet submitted to the University by the Principal of the College.
17OB8.10	Improvement of CIE marks shall not be allowed in a. Theory Courses and b. Laboratory/Workshop/Seminar/Internship/Project where the student has already secured the minimum required marks.
17OB8.11	The final list, incorporating corrections (if any) of CIE marks awarded to the students in the Theory/Practical/Internship/Project work/ Seminar, shall be displayed on the notice board of the college at least seven days before the closure of the semester and a certified copy of the same shall be sent by the Principal to the University Examination Section within the stipulated date. Every page of the CIE marks sheet shall bear the signatures of the concerned Teacher/Teachers, Head of the Department and Principal.
17OB8.12	Any corrections or overwriting of CIE marks shall bear the signature(s) of concerned Teacher(s) and in such cases the Head of the Department shall indicate the number ofcorrections on every sheet and attest it with his/her signature.

17OB8.13	CIE marks shall reach the University before the commencement of examination as per the notification issued from the office of the Registrar (Evaluation) from time to time. After the submission of CIE marks to the University, any request under any circumstances for change of CIE marks shall not be considered.
17OB 9.0	**Eligibility for Passing and Award of Degree(To be read along with 17OB4.2, 5.1, 5.2, 8.6 and8.7)**
17OB 9.1	(a) For a pass in a theory Course/Drawing, the student shall secure minimum of 35% of the maximum marks prescribed in the University examination and in total 40% of the maximum marks (i.e., prescribed for SEE and CIE) including the CIE marks secured by the student. (b) The Minimum Passing letter grade in a Course is 'E'. (c) For a pass in a Practical/Internship/Project/Viva-voce examination, a student shall secure a minimum of 40% of the maximum marks prescribed for the University Examination. The Minimum Passing Grade in a Course is 'E'.
17OB 9.2	1) A student who obtain any grade from 'S' to 'E' shall be considered as passed. 2) If a student secure F grade in any of the head of passing (17 OB 4.2, 17 OB 5.1, 17 OB 5.2 and 17 OB 11.2) he/she has to reappear in that head for the SEE. 3) A student will be declared successful at the end of academic year if he/she has not more than four 'F' grades in the immediate preceding two semesters. 4) A student will be declared successful at the end of program, when he/she has none of the Courses remaining with F grade and shall have CGPA of greater than or equal to 5.00. 5) In case, the CGPA falls below 5.00 at the end of the program, the student shall be permitted to appear again for SEE in full or part of the previous semester Courses by rejecting the performance for required number of Course/s (other than seminar, Projectand Practical's) and times, subject to the provision of 17OB1.5, to make up CGPA equalto or greater than 5.0. The student should reject the SEE results of the previous attemptand obtain written permission from the Registrar (Evaluation) to reappear in the subsequent SEE.
17OB 9.3	The students who do not satisfy the provision 17OB9.2 (1) and the students who remainabsent for the University examinations shall be deemed to have failed in that Course/s. They have to reappear for the University examination in the subsequent examinations. The CIE marks awarded to the student/s at first attempt in the concerned theory Course/s will becarried forward. Revised CIE marks are considered only in cases under the provisions of 17OB8.7.
17OB 9.4	Students who pass a Course of a semester as per 17OB 9.1 and has earned CGPA equal to or greater than 5.00 shall not be allowed to appear for any individual Course/s again, unless they opt for rejection of results of entire semester as per 17OB 9.5.
17OB9.5	A student may, at his/her desire, reject the total performance of a semester (including CIE marks) or reject only the result of his/her performance in University examination of a semester. The rejection is permitted only once during the entire programme of study.
17OB9.6	The student who desires to reject the results of a semester shall reject performance in all the Courses of the semester, irrespective of whether the student has passed or failed in any Course. However, the rejection of performance of VIII semester project shall not be permitted.

17OB9.7	A student, who desires to reject the total performance of a semester including CIE marks, has to take readmission for that semester. Application for approval of readmission shall be sent to the Registrar through the Principal of College within 30 days from the date of the announcement of the results. Late submission of application shall not be accepted for any reasons. Readmission to First semester in such cases shall not be considered as fresh admission and therefore the student will continue to have the same University Seat Number, which was allotted earlier. The Course duration (as per 17OB1.5) will be counted with reference to old USN.
17OB9.8	The student, who rejects only the results of University examination of a semester, shall be permitted to re-appear for University examinations of all the Courses of that semester in the subsequent examinations. However, the CIE marks obtained by the student in the rejected semester shall be retained. Applications for rejection and approval to reappear for University examination shall be sent to the Registrar (Evaluation) through the Principal of the College within 30 days from the date of announcement of the results. Late submission of applications shall not be accepted for any reasons. If the rejection of results of University examination is of odd semester, the student shall be allowed to take admission to the immediate next even semester. However, if the rejection of results of University examination is of even semester, then the student shall not be allowed to take admission to the next odd semester (as per 17OB11.2).
17OB9.9	Students who opt for rejection of results of University examination are eligible for the award of class and distinction, but are not eligible for the award of ranks.
17OB9.10	A student shall be declared to have completed the program of B.E. / B.Tech. degree, provided the student has undergone the stipulated Course work as per the Scheme of Teaching and Examination and has earned the prescribed number of credits as per the provision 17OB1.6, having CGPA ≥ 5 with none of the registered courses remaining with 'F' grade.
17OB10.0	**Attendance Requirement**
17OB10.1	Courses of each semester shall be treated as a separate unit for calculation of the attendance. The candidate has to put in a minimum attendance of 85% in each Course with a provision to condone 10% of the attendance by the Vice-Chancellor on the specific recommendations of the Principal of the college where the candidate is studying, based on medical grounds, participation in University/State/ National/ International level sports and cultural activities, seminars, workshops, paper presentation etc., of significant value.The supporting documents for condoning the shortage of attendance are to be submitted alongwith the recommendations.
17OB 10.2	The datum for the calculation of attendance shall be the number of Teaching hours prescribed for a Course [50 hours for 04 credit Courses (theory), and 40 hours for 03 credit Courses (theory) counted from the date of commencement of the semester. In case of Laboratories, the number of classes (deemed as teaching hours) is equal to the number of experiments prescribed under main heading]. In case of late admission, approved by competent authority (DTE/VTU), to I semester/III semester (lateral entry scheme)/ III semester (lateral entry scheme) of Engineering programme conducted during evening the attendance shall be reckoned from the date of admission to the programme.

17OB10.3	The Course Instructor/ Mentor/College shall inform the students as well as their parents about the attendance status periodically. Students who are facing the shortage of attendance be mentored to make up the shortage. Principals shall also notify every month, the list ofcandidates who are under short of attendance.
17OB10.4	A candidate, who does not satisfy the attendance requirement (in one or more Courses)as mentioned in 17OB10.1 shall not be eligible to appear for the SEE of that semester andshall not be permitted to take admission to next higher semester. The candidate shall be required to repeat that semester during the subsequent year.
17OB 10.5	The list of the candidates falling short of attendance shall be sent to Registrar (Evaluation) at least once in a month and final list shall be sent one week prior to the commencement of the examination. The detained students should obtain permission from Registrar, VTU for readmission to the semester concerned as a repeater.
17OB 11.0	**Promotion and Eligibility**
17OB 11.1	There shall be no restriction for promotion from an odd semester to the next even semester, provided the student has fulfilled the attendance requirement.
17OB 11.2	A student shall be eligible for promotion from an even semester to next odd semester if the student has not failed in more than four heads of passing of the immediately preceding two semesters and has passed in all the Courses of all the lower semester examinations. Each credit Course shall be treated as a head of passing. **Illustrations:** a) A student seeking eligibility to III semester should not have failed in more than 4 heads of passing of I and II semesters considered together. b) A student seeking eligibility to V semester should have passed in all the subjects of I and II semesters and should not have failed in more than 4 heads of passing of III and IV semesters considered together. c) A student seeking eligibility to VII semester should have passed in all the subjects up to IV semester and should not have failed in more than 4 heads of passing of V and VI semesters considered together. **Lateral entry scheme:** a. A student seeking eligibility to V semester should not have failed in more than 4 heads of passing of III and IV semesters considered together. b. A student seeking eligibility to VII semester should have passed in all the subjects of III and IV semesters and should not have failed in more than 4 heads of passing of fifth and sixth semesters considered together.

17OB 11.3	a. All students admitted to I semester and to III semester under lateral entry scheme to B.E./B.Tech. programme have to undergo the Mandatory non – creditCourses viz., Environmental Studies and English Language. However these Courses shall not be considered for the Eligibility criterion prescribed for promotion, award of Class, calculation of SGPA and CGPA. b. The Courses viz., Advanced Mathematics I and II, to be completed by the candidates (diploma holders) admitted to III semester under lateral entry scheme shall not be considered for the eligibility criterion prescribed for promotion, award of Class, calculation of SGPA and CGPA. However, a pass in the above Courses is mandatory for the completion of the programme and award of degree. c. The Courses Viz., (i) Computer Aided Engineering Drawing (ii) Programming in C and Data structure and (iii) Environmental Studies (if not studied at B.Sc. level), to be completed by the candidates who have passed B.Sc. degree and admitted to III semester of the programme, shall not be considered for the award of Class, calculation of SGPA and CGPA. However, a pass in the above Courses is mandatory for the completion of the programme and award of degree.
17OB 12.0	**Temporary Discontinuation/Break in the Program**
17OB 12.1	a) If a candidate, for any reason, temporarily discontinues the Programme or take a break from the programme during any semester intentionally, he/she may be permitted to continue the programme by registering to the same semester of the prevailing scheme. The candidate shall complete all the remaining Course work subject to the provision 17 OB 1.5. Also the Candidatesmay have to complete additional Course/s, if any, as per the decision of concerned Board of Studies and approval of Dean, Faculty of Engineering, on establishing equivalence between two schemes. A Grade card shall be issued to that effect. Additional Course/s shall not be considered for the eligibility criterion prescribed for promotion. However, based on the individual cases, it is considered to decide the SGPA and CGPA to admit the student forthe award of degree. Such candidates shall not be eligible for the award of rank. b) Candidates who takes admission to any semester of the existing scheme from another scheme, as a repeater/fresher because of various reasons have to complete additional Course/s, if any, as per the decision of concerned Board of Studies and approval of Dean, Faculty of Engineering, on establishing equivalence between two schemes. A Grade card shall be issued to that effect. Additional Course/s shall not be considered for the eligibility criterion prescribed for promotion. However, based on the individual cases, it is considered to decide the SGPA and CGPA to admit the student for the award of degree. Such candidate shall not be eligible for the award of rank.

17OB 13.0	**Award of Prizes, Medals and Ranks**
17OB 13.1	For the award of Prizes and Medals, the conditions stipulated by the Donor shall be considered subject to the provisions of the statutes framed by the University for such awards.
17OB 13.2	1) For award of rank in a Specialization of Bachelor of Engineering/ Technology, the CGPA secured by the students from III to VIII semester is considered. 2) A student shall be eligible for a rank at the time of award of degree of Bachelor of Engineering/ Technology, provided the student, a) (i) Has passed I to VIII semester in all the Courses in first attempt only in case of candidates admitted I year. (ii) Has passed III to VIII semester in all the Courses in first attempt only in case of candidates admitted under lateral entry scheme. (iii) Has completed all the prescribed Audit/mandatory Courses. b) Is not a repeater in any semester because of rejection of result of a semester/ shortage of attendance etc. c) Has completed all the semesters without any break/discontinuity. d) Has completed all the semesters (I to VIII/III to VIII) in VTU constituent college or in any VTU affiliated non-autonomous college. e) Has not been transferred from autonomous institution affiliated to VTU or from any other University. 3) The total number of ranks awarded shall be 10% of total number of students appeared in VIII semester subject to a maximum of 10 ranks in a Specialization. 4) For award of ranks in a Specialization, a minimum of 10 students should have appeared in the VIII semester examination. **Illustration:** a. If 1228 students appeared for the VIII semester in Electronics and Communication Engineering programme, the number of ranks to be awarded for Electronics and Communication Engineering shall be 10. b. If 90 students appeared for the VIII semester in Biomedical Engineering, the number of ranks to be awarded for Biomedical Engineering will be 09. 5) In case of fractional number of ranks, it is rounded to higher integer only when the first decimal place value is greater than or equal to 5.
17 OB 13.3	Ranks are awarded based on the merit of the students as determined CGPA. If two or more students get the same CGPA, the tie shall be resolved by considering the numberof times a student has obtained higher SGPA. If it is not resolved even at this stage, the number of times a student has obtained higher grades like S, A, B etc., shall be taken into account to decide the order of the rank.

17OB 14.0	**Transfers of Students**
17OB 14.1	Transfer of students from one college to another college within Karnataka state shall be permitted only at the beginning of third, fifth, and seventh semesters, subject to availability of seats within the permitted intake in respective Colleges and subject to the prior approval of the University. (a) Transfer of students from one non - autonomous to another non – autonomous college affiliated to VTU is permitted with the approval of the Registrar, VTU subject to the provision 17OB11.2. The students seeking transfer shall have to, (i) Obtain No Objection certificate for admission from the University and from both the colleges before the commencement of term as notified by VTU. (ii) Complete the programme subject to the provision 17OB1.5. (b) Transfer of students from an autonomous to non – autonomous college affiliated to VTU is permitted with the approval of the Registrar, VTU provided the candidates have passed in all the Courses of the previous semesters. The students seeking transfer shall have to, (i) Obtain No Objection certificate for admission from the University and from both the colleges before commencement of term as notified by VTU. (ii) Complete additional Course/s, if any, as per the decision of concerned Board of Studies and approval of Dean, Faculty of Engineering, on establishing equivalence between two schemes. A Grade card shall be issued to that effect. Additional Course/s shall not be considered for the Eligibility criterion prescribed for promotion, Class, calculation of SGPA and CGPA. However, a pass in the Additional Courses, if any, is mandatory before the completion of Degree. iii) Complete the programme subject to the provision 17OB1.5. (c) In the case of students from Universities other than VTU, the students must have passed in all the Courses of I and II semesters for admission to III semester and all the Courses of I to IV semesters for admission to V semester and all the Courses of I to VI semesters for admission to VII semester. The students seeking admission from other Universities to VTU shall have to, i) Apply for establishment of equivalence with prescribed fees as notified by the VTU and obtain No Objection certificate for admission from the University before commencement of term as notified by VTU. ii) Produce No Objection certificate for admission from both the colleges before commencement of term as notified by VTU. iii) Complete additional Course/s, if any, as per the decision of concerned Board of Studies and approval of Dean, Faculty of Engineering, on establishing equivalence between two schemes. A Grade card shall be issued to that effect. Additional Course/s shall not be considered for the eligibility criterion prescribed for promotion, Class, calculation of SGPA and CGPA. However, a pass in the additional Courses, if any, is mandatory before the completion of Degree. (ii) Complete the programme subject to the provision 17OB1.5.
17 OB 14.2	Transfer of students within the College from one branch to another branch at the start of III semester shall be permitted with the approval of the Registrar, VTU subject to the provisions made by the Government of Karnataka and AICTE in this behalf.
17OB 14.3	The University may prescribe fee for administrative purpose, which shall be notified from time to time, for transfer from one college to another (Change of College) or one branch to another branch (change of branch within the college).

17 OB 15.0	**Applicability and Power to Modify**
17 OB15.1	The regulations governing the Degree of Bachelor of Engineering/Technology of Visvesvaraya Technological University shall be a binding on all concerned.
17 OB15.2	i) Notwithstanding anything contained in the foregoing, the University shall have the power to issue directions/ orders to address any difficulty. ii) Nothing in the foregoing may be construed as limiting the power of the University to amend, modify or repeal any or all of the above.

Visvesvaraya Technological University, Belagavi
Regulations Governing the Degree of Bachelor of Engineering/ Technology (B.E/B.Tech)
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(w.e.f. the academic year 2017 – 18)

Annexure -1

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2017-2018
Choice Based Credit System (CBCS)

I SEMESTER B.E./B.Tech. (PHYSICS GROUP)

Sl. No	Course Code	Course Title	Teaching Department	Board	Teaching Hours /Week		Examination				Credits
					Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17MAT11	Engineering Mathematics -I	Mathematics	Basic Science	04	--	03	60	40	100	4
2	17PHY12	Engineering Physics	Physics	Basic Science	04	--	03	60	40	100	4
3	17CIV13	Elements of Civil Engineering and Mechanics	Civil Engineering	Civil Engineering	04	--	03	60	40	100	4
4	17EME14	Elements of Mechanical Engineering	Mechanical Engineering	Mechanical Engineering	04	--	03	60	40	100	4
5	17ELE15	Basic Electrical Engineering	E and E Engineering	E and E Engineering	04	--	03	60	40	100	4
6	17WSL16	Workshop Practice	ME, Auto, IP, IEM, Mfg Engineering	Mechanical Engineering	01Hour Instruction 02Hour Practical		03	60	40	100	2
7	17PHYL17	Engineering Physics Laboratory	Physics	Basic Science	01Hour Instruction 02Hour Practical		03	60	40	100	2
8	17ENG18	Language – English (Audit Course)	Humanities	--	01		--	--	--	--	--
				TOTAL	**Theory:21 hours Practical: 06 hours**		**21**	**420**	**280**	**700**	**24**

II SEMESTER B.E./B.Tech. (CHEMISTRY GROUP)

1	17MAT21	Engineering Mathematics -II	Mathematics	Basic Science	04	--	03	60	40	100	4
2	17CHE22	Engineering Chemistry	Chemistry	Basic Science	04	--	03	60	40	100	4
3	17PCD23	Programming in C and Data Structures	Any Engineering Department	Computer Science and Engineering	04	--	03	60	40	100	4
4	17CED24	Computer Aided Engineering Drawing	ME, Auto, IP, IEM, Mfg Engineering	Mechanical Engineering	02Hour Instruction 04-Hour Practice		03	60	40	100	4
5	17ELN25	Basic Electronics	ECE/EEE/TC/E and I.	E and C Engineering	04	--	03	60	40	100	4
6	17CPL26	Computer Programming Laboratory	Any Engineering Department	Computer Science and Engineering	01Hour Tutorial 02Hour Practical		03	60	40	100	2
7	17CHEL27	Engineering Chemistry Laboratory	Chemistry	Basic Science	01Hour Tutorial 02Hour Practical		03	60	40	100	2
8	17CIV28	Environmental Studies (Audit Course)	Civil/ Environmental Engineering	Civil Engineering	01Tutorial		--	30	20	50	--
				TOTAL	**Theory:21 hours Practical: 08 hours**		**21**	**450**	**300**	**750**	**24**

Visvesvaraya Technological University, Belagavi
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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2017-2018
Choice Based Credit System (CBCS)

I SEMESTER B.E./B.Tech (CHEMISTRY GROUP)

Sl. No	Course Code	Course Title	Teaching Department	Board	Teaching Hours /Week		Examination				Credits
					Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17MAT11	Engineering Mathematics -I	Mathematics	Basic Science	04	--	03	60	40	100	4
2	17PHY12	Engineering Chemistry	Chemistry	Basic Science	04	--	03	60	40	100	4
3	17PCD13	Programming in C and Data Structures	Any Engineering Department	Computer Science and Engineering	04	--	03	60	40	100	4
4	17CED14	Computer Aided Engineering Drawing	ME, Auto, IP, IEM, Mfg Engineering	Mechanical Engineering	02Hour Instruction 04Hour Practice		03	60	40	100	4
5	17ELN15	Basic Electronics	ECE/EEE/TC/E and I.	E and C Engineering	04	--	03	60	40	100	4
6	17CPL16	Computer Programming Laboratory	Any Engineering Department	Computer Science and Engineering	01Hour Tutorial 02Hour Practical		03	60	40	100	2
7	17CHEL17	Engineering Chemistry Laboratory	Chemistry	Basic Science	01Hour Tutorial 02Hour Practical		03	60	40	100	2
8	17CIV18	Environmental Studies (Audit Course)	Civil/ Environmental Engineering	Civil Engineering	01HourTutorial		--	30	20	50	--
				TOTAL	**Theory:21 hours Practical: 08 hours**		**21**	**450**	**300**	**750**	**24**

II SEMESTER B.E./B.Tech (PHYSICS GROUP)

1	17MAT21	Engineering Mathematics -II	Mathematics	Basic Science	04	--	03	60	40	100	4
2	17PHY22	Engineering Physics	Physics	Basic Science	04	--	03	60	40	100	4
3	17CIV23	Elements of Civil Engineering and Mechanics	Civil Engineering	Civil Engineering	04	--	03	60	40	100	4
4	17EME24	Elements of Mechanical Engineering	Mechanical Engineering	Mechanical Engineering	04	--	03	60	40	100	4
5	17ELE25	Basic Electrical Engineering	E and E Engineering	E and E Engineering	04	--	03	60	40	100	4
6	17WSL26	Workshop Practice	ME, Auto, IP, IEM, Mfg Engineering	Mechanical Engineering	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
7	17PHYL27	Engineering Physics Laboratory	Physics	Basic Science	01- Hour Instruction 02- Hour Practical		03	60	40	100	2
8	17ENG28	Language – English (Audit Course)	Humanities	--	01		--	--	--	--	--
				TOTAL	**Theory:21 hours Practical: 06 hours**		**21**	**420**	**280**	**700**	**24**

Visvesvaraya Technological University, Belagavi
Regulations Governing the Degree of Bachelor of Engineering/ Technology (B.E/B.Tech.)
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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

Scheme of Teaching and Examination 2017-2018
Choice Based Credit System (CBCS)

B.E./B.Tech_____

III SEMESTER

Sl. No	Course Code	Course	Course Title	Teaching Department	Teaching Hours /Week		Examination				Credits
					Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17MAT31	Core Course	Engineering Mathematics-III		04	--	03	60	40	100	4
2	17XX32	Core Course			04	--	03	60	40	100	4
3	17XX33	Core Course			04	--	03	60	40	100	4
4	17XX34	Core Course			04	--	03	60	40	100	4
5	17XX35	Core Course			04	--	03	60	40	100	4
6	17XX36	Foundation Course			03	--	03	60	40	100	3
7	17XXL37	Laboratory			01- Hour Instruction 02- Hour Practical		03	60	40	100	2
8	17XXL38	Laboratory			01- Hour Instruction 02- Hour Practical		03	60	40	100	2
9	17KL/CPH39/49	Core Course	Kannada/Constitution of India, Professional Ethics and Human Rights	Humanities	01		01	30	20	50	01
				TOTAL	**Theory:24hours Practical: 06 hours**		**25**	**510**	**340**	**850**	**28**

1. Core Course: This is the course, which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study.
2. Foundation Course: The courses based upon the content that leads to Knowledge enhancement.
3. Kannada/Constitution of India, Professional Ethics and Human Rights: 50 % of the programs of the Institution have teach Kannada/ Constitution of India, Professional Ethics and Human Rights in cycle based concept during III and IV semesters.
4. Audit Course:
(i) All lateral entry students (except B.Sc candidates) have to register for Additional Mathematics – I which is 04 contact hours per week.
(ii) Language English (Audit Course) be compulsorily studied by all lateral entry students (except B. Sc candidates)

Visvesvaraya Technological University, Belagavi
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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

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B.E./B.Tech_____

IV SEMESTER

Sl. No	Course Code	Course	Course Title	Teaching Department	Teaching Hours /Week		Examination				Credits
					Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17MAT41	Core Course	Engineering Mathematics-IV		04	--	03	60	40	100	4
2	17XX42	Core Course			04	--	03	60	40	100	4
3	17XX43	Core Course			04	--	03	60	40	100	4
4	17XX44	Core Course			04	--	03	60	40	100	4
5	17XX45	Core Course			04	--	03	60	40	100	4
6	17XX46	Foundation Course			03	--	03	60	40	100	3
7	17XXL47	Laboratory			01- Hour Instruction 02- Hour Practical		03	60	40	100	2
8	17XXL48	Laboratory			01- Hour Instruction 02- Hour Practical		03	60	40	100	2
9	17KL/CPH39/49	Core Course	Kannada/Constitution of India, Professional Ethics and Human Rights	Humanities	01		01	30	20	50	01
				TOTAL	**Theory:24hours Practical: 06 hours**		**25**	**510**	**340**	**850**	**28**

1. Core Course: This is the course, which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study.
2. Foundation Course: The courses based upon the content that leads to Knowledge enhancement.
3. Kannada/Constitution of India, Professional Ethics and Human Rights: 50 % of the programs of the Institution have teach Kannada/ Constitution of India, Professional Ethics and Human Rights in cycle based concept during III and IV semesters.
4.Audit Course:
(i) All lateral entry students (except B. Sc candidates) have to register for Additional Mathematics – II which is 04 contact hours per week.
(ii) Language English (Audit Course) be compulsorily studied by all lateral entry students (except B. Sc candidates)

Visvesvaraya Technological University, Belagavi
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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

Scheme of Teaching and Examination 2017-2018
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B.E./B.Tech_____

V SEMESTER

Sl. No	Course Code	Course	Course Title	Teaching Department	Teaching Hours /Week		Examination				Credits
					Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17XX51	Core Course	Management and Entrepreneurship **Excluding CSE, ISE and EV Programs.** (The course must be related to Management and Entrepreneurship. However, the title and syllabus content can be as per the programme requirement).		04	--	03	60	40	100	4
2	17XX52	Core Course			04	--	03	60	40	100	4
3	17XX53	Core Course			04	--	03	60	40	100	4
4	17XX54	Core Course			04	--	03	60	40	100	4
5	17XX55X	Professional Elective			03	--	03	60	40	100	3
6	17XX56Y	Open Elective			03	--	03	60	40	100	3
7	17XXL57	Laboratory			01- Hour Instruction 02- Hour Practical		03	60	40	100	2
8	17XXL58	Laboratory			01- Hour Instruction 02- Hour Practical		03	60	40	100	2
				TOTAL	**Theory:22hours Practical: 06 hours**		**24**	**480**	**320**	**800**	**26**

Electives

Professional Elective		**Open Elective*** Offered by the Department of**	
Courses under Code 17XX55X	**Course Title**	**Courses under Code 17XX56Y**	**Course Title**
17XX551		17XX561	
17XX552		17XX562	
17XX553		17XX563	
17XX554		17XX564	

*** Students can select any one of the open electives offered by any Department (Please refer to consolidated list of VTU for open electives). Selection of an open elective is not allowed provided;

- The candidate has pre – requisite knowledge.
- The candidate has not studied during I and II year of the programme.
- The syllabus content of open elective is similar to that of Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters.

Registration to electives shall be documented under the guidance of Programme Coordinator and Adviser.

1. Core subject: This is the course, which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study.
2. Professional Elective: Electives relevant to chosen specialization/ branch.
3. Open Elective: Electives from other technical and/ or emerging subject areas.

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

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VI SEMESTER

Sl. No	Course Code	Course	Course Title	Teaching Department	Teaching Hours /Week		Examination				Credits
					Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17XX61	Core Course	Management and Entrepreneurship **Excluding CSE, ISE and EV Programs.** (The course must be related to Management and Entrepreneurship. However, the title and syllabus content can be as per the programme requirement).		04	--	03	60	40	100	4
2	17XX62	Core Course			04	--	03	60	40	100	4
3	17XX63	Core Course			04	--	03	60	40	100	4
4	17XX64	Core Course			04	--	03	60	40	100	4
5	17XX65X	Professional Elective			03	--	03	60	40	100	3
6	17XX66Y	Open Elective			03	--	03	60	40	100	3
7	17XXL67	Laboratory			01- Hour Instruction 02- Hour Practical		03	60	40	100	2
8	17XXL68	Laboratory			01- Hour Instruction 02- Hour Practical		03	60	40	100	2
			TOTAL		**Theory:22hours Practical: 06 hours**		**24**	**480**	**320**	**800**	**26**

Electives

Professional Elective		**Open Elective*** Offered by the Department of _____**	
Courses under Code 17XX65X	**Course Title**	**Courses under Code 17XX66Y**	**Course Title**
17XX651		17XX661	
17XX652		17XX662	
17XX653		17XX663	
17XX654		17XX664	

*** Students can select any one of the open electives offered by any Department (Please refer to consolidated list of VTU for open electives). Selection of an open elective is not allowed provided;

- The candidate has pre – requisite knowledge.
- The candidate has not studied during I and II year of the programme.
- The syllabus content of open elective is similar to that of Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters.

Registration to electives shall be documented under the guidance of Programme Coordinator and Adviser.

1. Core subject: This is the course, which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study.
2. Professional Elective: Electives relevant to chosen specialization/ branch.
3. Open Elective: Electives from other technical and/ or emerging subject areas.

Visvesvaraya Technological University, Belagavi
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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

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VII SEMESTER

Sl. No	Course Code	Course	Course Title	Teaching Department	Teaching Hours /Week		Examination				Credits
					Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17XX71	Core Course			04	--	03	60	40	100	4
2	17XX72	Core Course			04	--	03	60	40	100	4
3	17XX73	Core Course			04	--	03	60	40	100	4
4	17XX74 X	Professional Elective			03	--	03	60	40	100	3
5	17XX75Y	Professional Elective			03	--	03	60	40	100	3
6	17XXL76	Laboratory			01- Hour Instruction 02- Hour Practical		03	60	40	100	2
7	17XXL77	Laboratory			01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17XXP78	Core Course	Project Phase – I and Project seminar			03	--	--	100	100	2
			TOTAL		**Theory:18 hours Practical and Project: 09 hours**		**21**	**420**	**380**	**800**	**24**

Electives

Professional Elective		**Professional Elective**	
Courses under Code 17XX74X	**Course Title**	**Courses under Code 17XX75Y**	**Course Title**
17XX741		17XX751	
17XX742		17XX752	
17XX743		17XX753	
17XX744		17XX754	

1. Core subject: This is the course, which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study.
2. Professional Elective: Electives relevant to chosen specialization/ branch.
3. Project Phase – I andProject seminar: Comprises of Literature Survey, Problem identification, Objectives and Methodology. CIE marks shall be based on the report covering Literature Survey, Problem identification, Objectives and Methodology and seminar presentation skill.

Visvesvaraya Technological University, Belagavi
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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

Scheme of Teaching and Examination 2017-2018
Choice Based Credit System (CBCS)

B.E./B.Tech_____

VIII SEMESTER

Sl. No	Course Code	Course	Course Title	Teaching Department	Teaching Hours /Week		Examination				Credits
					Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17XX81	Core Course			04	--	03	60	40	100	4
2	17XX82	Core Course			04	--	03	60	40	100	4
3	17XX83X	Professional Elective			03	--	03	60	40	100	3
4	17XX84	Core Course	Internship/ Professional Practice		Working hours of the place of Internship		03	50	50	100	2
5	17XXP85	Core Course	Project work Phase -II		--	06	03	100	100	200	6
6	17XXS86	Core Course	Technical Seminar		--	04	--	--	100	100	1
			TOTAL		**Theory:11 hours Project and Seminar: 10 hours**		**15**	**390**	**310**	**700**	**20**

Professional Electives

Courses under Code 17XX83X	Course Title
17XX831	
17XX832	
17XX833	
17XX834	

1. Core subject: This is the course, which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study.
2. Professional Elective: Electives relevant to chosen specialization/ branch.
3. Internship/ Professional Practice: To be completed between the V and VI semester vacation and/or VI and VII semester vacation period.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

Jnana Sangama, Belagavi – 590 018, Karnataka
Phone: 0831 -2498100/2405468 Fax;2405467
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REGULATIONS GOVERNING

THE DEGREE OF BACHELOR OF ENGINEERING/ TECHNOLOGY (BE/B.Tech)

UNDER OUTCOME BASED EDUCATION (OBE)

AND

CHOICE BASED CREDIT SYSTEM (CBCS)

Effective from the academic year 2018 – 19

2018

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Definitions of Keywords

The following are the definitions/descriptions that have been followed for the different terms used in the Regulations of BE/B.Tech Programmes:

1) **Programme:** Is an educational programme in a particular stream/ branch of Engineering/branch of specialization leading to award of the Degree. It involves events/activities, comprising of lectures/ tutorials/ laboratory work/ field work, outreach activities/ project work/ vocational training/ viva voce/ seminars/ internship/ assignments/ presentations/ self-study etc., or a combination of some of these.
2) **Branch:** Means Specialization or discipline of BE/B.Tech Degree Programme, like Civil Engineering, Mechanical Engineering, Textile Engineering, etc.
3) **Semester:**Refers to one of the two sessions of an academic year (vide: serial number 4), each session being of sixteen weeks duration (with working days greater than or equal to ninety).The odd and even semesters shall be as per the University academic calendar.
4) **Academic Year:**Refers to the sessions of two consecutive semesters (odd followed by an even) including periods of vacation.
5) **Course:**Referstousually referred to as 'papers' and is a component of a programme. All Courses need not carry the same weight. The Courses should define learning objectives and learning outcomes. A Course may be designed to comprise lectures/ tutorials/ laboratory work/ field work/ outreach activities/project work/ vocational training/ viva voce/ seminars/ term papers/assignments/ presentations/ self-study etc., or a combination of some of these.
6) **Credit:** Refersto a unit by which the Course work is measured. It determines the number ofhours of instructions required per week. One credit is equivalent to one hour of lecture or twohours of laboratory/practical Courses/ tutorials/ fieldwork per weeketc.
7) **Audit Courses:** Meansthe Knowledge/ Skill enhancing Courses without the benefit of a grade or credit for a Course.
8) **Choice Based Credit System (CBCS):** Refers to customizing the Course work, through Core, Elective and soft skill Courses, to provide necessary support for the students to achieve their goals.
9) **Course Registration:** Refers to formal registration for the Courses of a semester (Credits) by every student under the supervision of a Faculty Advisor (also called Mentor, Counselor etc.,) in each semester for the Institution to maintain proper record.
10) **Course Evaluation:** MeansContinuous Internal Evaluation (CIE)and Semester End Examinations (SEE) to constitute the major evaluations prescribed for each Course.CIE and SEE to carry 40% and 60% respectively, to enable each Course to be evaluated for 100 marks, irrespective of its Credits.
11) **Continuous Internal Evaluation (CIE):** Refers to evaluation of students' achievement in the learning process. CIE shall be by the Course Instructor and includes tests, homework, problem solving, group discussion, quiz, mini-project and seminar throughout the semester, with a weightage for the different components being fixed by the University.
12) **Semester End Examinations(SEE):** Refers to the examinationsconducted by the University covering the entire Course Syllabus. For this purpose, Syllabi to be modularized and SEE questions to be set from each module, with a choice confined to the concerned module only. SEE is also termed as University examination.
13) **First Attempt:**Refers to a student who has completed all formalities and has become eligible to attend the SEE and has attended at least one head of passing, such attempt shall beconsidered as first attempt.
14) **Credit Based System (CBS):**Refers to quantification of Course work, after a student completes teaching – learning process, followed by passing in both CIE and SEE. Under CBS, the requirement for awarding degree is prescribed in terms of total number of credits to be earned by the students.

15) Credit Representation: Refers tothe Credit Values for different academic activitiesconsidered, as per the Table.1. Credits for seminar, project phases, project viva–voce and internship shall be as specified in the Scheme of Teaching and Examination.

16) Letter Grade: It is an index of the performance of students in a said Course. Grades are denoted by letters S, A, B, C, D, E and F.

Table 1: Credit Values

Theory/Lectures (L) (hours/week/Semester)	Tutorials (T) (hours/week/Semester)	Laboratory/Practical (P) (hours/week/Semester)	Credits (L:T:P)	Total Credits
4	0	0	4:0:0	4
3	0	0	3:0:0	3
2	2	0	2:1:0	3
2	0	2	2:0:1	3
2	2	2	2:1:1	4
0	0	6	0:0:3	3

NOTE: Activities like, practical training, study tour and participation in Guest lectures not to carry Credits.

17) Grading: Grade refers to qualitative measure of achievement of a student in each Course, based on the percentage of marks secured in CIE and SEE. Grading is done by Absolute Grading [Refer: 18OB6.0]. The rubric attached to letter grades are as follows:
S – Outstanding, A – Excellent, B – Very Good, C – Good, D – Above Average, E – Average and F – Fail.

18) Grade Point (GP): Refers to a numerical weightage allotted to each letter grade on a 10-point scale as under.

Letter Grade and corresponding Grade Points on a typical 10 – Point scale							
Letter Grade	S	A	B	C	D	E	F
Grade Point	10	09	08	07	06	04	00

19) Passing Standards: Refers to passing a Course only when getting GP greater than or equal to 04 (as per serial number 18).

20) Credit Point: Is the product of grade point (GP) and number of credits for a Course i.e.,
$\text{Credt points (CrP)} = \text{GP} \times \text{Credits for the Course.}$

21) Semester Grade Point Average (SGPA): Refers to the measure of academic performance of student/s in a semester. [Refer:18 OB6.2]

22) Cumulative Grade Point Average (CGPA): Is a measure of overall cumulative performance of a student over all semesters. [Refer:18 OB6.2]

23) Grade Card: Refers to the certificate showing the grades earned by a student. A grade card shall be issued to all the registered students after every semester end examination. The grade card will display the Programme details (Course code, title, number of credits, grades secured) along with SGPA of that semester and CGPA earned till that semester.

24) University: Visvesvaraya Technological University (VTU), Belagavi.

18OB1.0	**Title, Duration and Credits of the Programme of Study**
18OB1.1	The Programme of study shall be called the degree of Bachelor of Engineering /Bachelor of Technology, abbreviated as BE / B.Tech. ■
18OB1.2	(a) The Programme to which students are admitted to First semester of BE / B.TechProgramme shall be of four academic years duration divided into eight semesters. The actual Teaching and Learning days shall be for at least 90 working days in a semester. (b) The Programme to which students are admitted to III semester of BE / B.TechProgramme under lateral entry shall be of three academic years duration divided into six semesters.The actual Teaching and Learning days shall be for at least 90 working days in a semester. (c) The Programme (conducted during evening) to which students are admitted to III semester of BE / B.TechProgramme under lateral entry shall be of three academic years duration divided into six semesters.The actual Teaching and Learning days shall be for at least 90 working days in a semester. The deficit contact hours of the Programme, conducted during evening on all working days, shall be compensated on all Sundays (except on general holidays). ■
18OB1.3	The calendar of events in respect of the programme of study shall be notified by the University in advance. ■
18OB1.4	**Maximum Duration for Programme Completion:** **(a)(i)** Students admitted to First year BE/ B.Tech shall complete the Programme within a period of **eight academic years** from the date of first admission, failing which they have to discontinue the Programme. (**ii)** Students admitted II Year BE/B.Tech under lateral entry scheme shall complete the Programmewithin a period of **six academic years** from the date of first admission, failing which he/she has to discontinue the Programme. (**b)(i)** A student who has not obtained the eligibility to III semester even after **three academic years** from the date of admission to I semester shall **discontinue the Programme or get readmitted** to I semester of first year BE/B.Tech with a new University Seat Number but retaining the same year of admission. **(ii)** If a student does not get eligibility to III semester even after **two academic years** from the date of readmission to I semester [as per 18OB1.4 (b) (i)], he/she shall **discontinue the Programme or seek fresh admission** to I semester of first year BE/B.Tech as the leeway (scope) of satisfying 18OB1.4 (a) (i) is not possible. **(c)(i)**A student (under lateral entry scheme) who has not obtained the eligibility for V semester even after **two academic years** from the date of admission to III semester shall **discontinue the Programmeor get readmitted** to III semester of II year BE/B.Tech with a new University Seat Number but retaining the same year of admission. **(ii)** If a student (under lateral entry scheme) does not get eligibility to V semester even after **two academic year** from the date of readmission to III semester [as per 18OB1.4 (c) (i)] shall **discontinue the Programme or seek fresh admission** to III semester BE/B.Tech as the leeway of satisfying 18OB1.4 (a) (ii)is not
18OB1.5	Prescribed Number of Credits for the Programme [to be read along with 18OB8.14 and 18OB11.2] **(a)** The number of credits to be completed by students admitted to I semester of BE/B.Tech Programme shall be 175. **(b)**The number of credits to be completed by students admitted to III semester of BE/B.Tech Programme under lateral entry scheme shall be 135. ■

18OB1.6	**Definition of Credits:** 1 hour Lecture (L) per week per semester =1 Credit 2 hour Tutorial (T) per week per semester =1 Credit 2 hour Practical/Laboratory/Drawing (P) per week per semester =1 Credit.■
18OB2.0	**EligibilityforAdmissionto BE/B.Tech Programmes(As per the Government orders issued from time to time)**
18OB2.1	**(a)Day Engineering College (Eligibility: Candidates who have Passed in Second PUC/ Twelfth standard)** **(i)** Passed in Second PUC/12th standard/Equivalent examination with English as one of the Languages and obtained a minimum of 45 % of Marks in aggregate in Physics and Mathematics along with Chemistry/Bio-Technology/Biology/Electronics/Computer. 40 % for SC, ST, Category – 1, 2A, 2B, 3A and 3B category candidates. **(ii)** Those students, who have passed a qualifying examination other than the PUC II examination of the Pre-University Education Board of Karnataka, have to obtain eligibility certificate for seeking admission to BE/B.Tech Degree Programme from Visvesvaraya Technological University, Belagavi. **(b) Day Engineering College (Eligibility: Candidates who have Passed 3 year Diploma)** **(i)** A candidate who has passed any diploma examination or equivalent examination and obtained an aggregate minimum of 45 % marks taken together in all the subjects of the final year (Fifth and Sixth semester) diploma examination (qualified examination) is eligible for admission to BE/B.TechProgrammes, and 40 % of marks in qualified examination in case of SC, ST and Backward Classes of Karnataka candidates. **(ii)**Those candidates who have completed Diploma from other than Karnataka state shall provide the Equivalence/ Eligibility Certificate issued from the Director of Technical Education, Karnataka. **(c) Evening Engineering College (Eligibility: Candidates who have Passed 3 year Diploma):** **(i)** A candidate who has passed any diploma examination or equivalent examination and obtained an aggregate minimum of 45 % marks taken together in all the subjects of the final year (Fifth and Sixth semesters) diploma examination (qualified examination) is eligible for admission to BE/B.TechProgrammes, and 40 % of marks in qualified examination in case SC, ST and Backward Classes of Karnataka candidates. In addition to this a candidate after passing the diploma, must have minimum of Two years full-time work experience as on 1st September of the year of admission, in a registered firm/Company/Industry/Educational and/Government Autonomous Organizations in the branch of Engineering/Technology, in which the candidates holds a diploma, and in which admission is sought by him/her. Professional experience refers to the experience earned as an employee on regular basis in • Government, Government Undertaking, Public Sector Undertaking, Corporation or • Private company registered under the Directorate of Industries and Commerce or the Directorate of Small Scale Industries or • Government, Government recognized Institutions as technical staff.

18OB2.1 (continued)	Provided that the period of apprenticeship undergone shall also be treated as professional experience , if sponsored by the Board of Apprenticeship Training, Southern Region, Chennai or by Government, Government Undertakings and Public Sector Undertakings. **Note:**In case where genuinenessof the employment certificate is questionable, such candidates have to produce supportive documents specifying the registration details of the Industry/Company (e.g., SSI Registration) and or identity cards provided to them together with latest salary certificate and provident fund certificate. However, the employer has to fill up the NOC duly signed by the company authority. **(d) Day Engineering College (Eligibility: Candidates who have Passed B.Sc Degree)** Passed B.Sc. Degree from a recognized University as defined by UGC, with at least 45% marks (40% in case of candidates belonging to reserved category) and passed 10+2 examination with Mathematics as a subject. ■
18 OB 2.2	With regard to the qualification earned from foreign countries, Equivalence certificate from the University/ Association of Indian Universities is mandatory for admission to BE/B.Tech Programmes. In case of any dispute about the equivalence in qualification earned from foreign countries, the decision of the University Equivalence Committee shall be the final in establishing the eligibility of the student. ■
18 OB 3.0	**Courses**
18 OB 3.1	There shall be the following types of Courses: **a)** Humanities, Social Sciences and Management (HSMC): These are mandatoryfor all disciplines. **b)** Basic Sciences (BSC): Physics, Chemistry and Mathematics. These are mandatory for all disciplines. **c)** Engineering Sciences (ESC): Materials, Workshop, Drawing, and Basics of Electrical/ Electronics/ Instrumentation/ Civil/ Mechanical/ Computer Engineering etc. These are mandatory for all disciplines. **d)** Professional Courses (PCC) – Core: Are the professional Core Courses, relevant to the chosen specialization/ branch. The core Courses are to be compulsorily studied by students and are mandatory to complete them to fulfill the requirements of a Programme. **e)** Professional ElectiveCourses (PEC): Are the professional Electives, relevant to the chosen specialization / branch and can be chosen from the pool of papers. It shall be supportive to the discipline providing extended scope/enabling an exposure to some other discipline /domain and nurturing student proficiency skills. **f)** Open Elective Courses (OEC): Are the Elective Courses from other technical areas and/ or from emerging fields. **g)** Project Work (PROJ): Mini project and Main Project. Carried out at the Institution or elsewhere without interfering with the regular classwork. **h)** Seminar: Deliverable at the Institution under the supervision of a Faculty. **i)** Internship: Preferably at an industry/R and D organization/IT company/ Government organization or elsewhere of significant repute for a specified period as mentioned in Scheme of Teaching and Examination. **j)** Mandatory Courses (MC): These Courses are mandatory, without the benefit of a grade or credit, for students admitted to BE/B.Tech programme. A pass in each mandatory Course is required to qualify for award the award of degree.■

18 OB 3.2	The minimum number of students registered to any Elective Courseoffered by the Departments shall be not less than ten. However, the above condition shall not be applicable to programmes having a class strength less than 10. ■
18 OB 3.3	A student shall exercise his option in respect of Elective Course/s and register for the same at the beginning of the concerned semester. The student may be permitted to opt for a change of Elective Course/s within 15 days from the date of commencement of the semester as per the calendar of the University. ■
18 OB 3.4	**Course Registration:** Every student shall register for the Courses of a semester (Credits) under the supervision of a Faculty Advisor (also called Mentor, Counselor etc.,) in each semester for the Institution to maintain proper record. ■
18OB4.0	**Internship/Professional Practice**
18 OB 4.1	**Internship / Professional Practice** The Internship shall be completed during the period specified in the Scheme of Teaching and Examination. **1)** The internship shall preferably be at an industry/R and D organization/IT company/ Government organization of significant repute for a specified period as mentioned in Scheme of Teaching and Examination. **2)**The Department/college shall nominate staff member/s to facilitate, Guide and supervise students under internship. **3)** The students shall report the progress of the internship to the Guide in regularintervals and seek his/her advice. The Guide shall maintain the progress record of the candidates undergoing internship. **4)** After the completion of Internship, students shall submit a report with completion certificate and attendance certificate to the Head of the Department with the approval of both internal and external Guides. **5)** There shall be 40 marks for CIE and 60 marks for SEE. The minimum requirement of CIE marks shall be 50% of the maximum marks. **6)** The internal Guide shall be the internal examiner for the SEE. [To be read along with 18 OB 8.2 (d)] **7)** The external Guide for Internship shall be an examiner for SEE. Examination in internship shall be conducted at the college and the date shall be fixed in consultation with the external Guide. The Examiners shall jointly award the SEE marks. [To be read along with 18 OB 8.9 (f)] **8)** In case the external Guide expresses his inability to conduct Examination, the Chief Superintendent of the institution shall appoint a senior faculty of the Department to conduct the Examination along with the internal Guide. The same shall be informed in writing to the concerned Chairperson, Board of Examiners (BOE). **9)** The students are permitted to carry out the internship anywhere in India or abroad. The University will not provide any kind of financial assistance to any student for carrying out the Internship. ■
18 OB 5.0	**Technical Seminar and Project**
18 OB 5.1	**Technical Seminar:** Technical Seminaris one of the head of passing. **(i)** Each candidate shall deliver Technical seminar as per the Scheme of Teaching and Examination on the topic chosen from the relevant fields.

18OB5.1 (continued)

(ii) The Head of the Department shall make an arrangement for conducting seminars through concerned faculty members of the Department. The committee, constitutedfor the purpose by the Head of the Department, shall award the CIE marks for the seminar. The committee shall consist of twosenior faculty members of the Department and the senior most acting as the Chairperson.[To be read along with 18 OB 8.2 (e)]. ■

18OB5.2

Project: Project (Mini and Main) is one of the head of passing.
Mini Project Work and Main ProjectWork shall preferably be batch wise, the strength of each batch shall not exceed a maximum of four students.■

18OB5.3

Examination in Mini Project Work and Main Project Work shall be conducted batch-wise.■

18OB 6.0

Computation of SGPA and CGPA

18OB 6.1

(i) The University adopts absolute grading system wherein the marks are converted to grades, and every semester results shall be declared with Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA). The CGPA will be calculated for every semester, except for the first semester.

(ii) The grading system with the letter grades and the assigned range of marks under absolute grading system are as given below:

Level	**Outstanding**	**Excellent**	**Very Good**	**Good**	**Above Average**	**Average**	**Fail**
Letter Grade	S	A	B	C	D	E	F
Grade Points	10	9	8	7	6	4	00
Percentage of Marks Scoredin a Course	≥ 90	<90 ≥80	< 80 ≥70	< 70 ≥60	< 60 ≥ 45	< 45 ≥40	< 40
	(90 -100)	(80 - 89)	(70 - 79)	(60 - 69)	(45 - 59)	(40 - 44)	(0 - 39)

(iii) A student obtaining Grade F in a Course shall be considered failand is required to reappear in the subsequent SEE. Whatever the letter grade secured by the student during his /her reappearance shall be awarded. The number of attempts taken to clear Course/s shall be indicated in the grade card. ■

18 OB 6.2

Computation of SGPA and CGPA

The following expressions shall be used to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA) respectively:

$$SGPA = \frac{\sum[Course\ Credits \times Grade\ Points] \text{ for } all\ the\ Courses \text{ in } that\ Semester}{\sum[Course\ Credits\ ] \text{ for } all\ the\ Courses \text{ in } that\ Semester}$$

$$CGPA = \frac{\sum[Course\ Credits \times Grade\ Points] \text{ for } all\ Courses \text{ excluding those with } F\ grades\ until\ that\ Semester}{\sum[Course\ Credits\ ] \text{ for } all\ Courses \text{ excluding those with } F\ grades\ until\ that\ semester}$$

18 OB 6.2 (continued)

(a) SGPA and CGPA Calculations: An Illustrative Example for one academic year

Semester (Odd:I,Even:II)	Course Number	Credits	Grade	Grade Points	Credit Points	SGPA, CGPA
I	XX101	5:0:0 = 5	B	8	5×8	$SGPA = \frac{117}{25} = 4.68$
I	XX102	3:2:0 = 5	Absent(F)	0	$5 \times 0 = 00$	
I	XX103	3:0:0 = 3	A	9	$3 \times 9 = 27$	
I	XX104	0:1:1 = 2	F	0	$2 \times 0 = 00$	
I	XX105	4:1:0 = 5	D	6	$5 \times 6 = 30$	
I	XX106	5:0:0 = 5	E	4	$5 \times 4 = 20$	
	Total	25 (18*)	Total		117	

(18*): Total credits of the semester excluding the credits of the courses under F grade. Considered for the calculation of CGPA of the two consecutive semesters under consideration.

II	XX107	3:1:1 = 5	C	7	$5 \times 7 = 35$	$SGPA = \frac{157}{25} = 6.28$
II	XX108	4:0:0 = 4	B	8	$4 \times 8 = 32$	
II	XX109	3:0:0 = 3	D	6	$3 \times 6 = 18$	
II	XX110	4:1:0 = 5	E	4	$5 \times 4 = 20$	
II	XX111	2:1:1 = 4	A	9	$4 \times 9 = 36$	$CGPA = \frac{(117 + 157)}{18 + 23}$
II	XX112	2:0:0 = 2	F	0	$2 \times 0 = 00$	
II	XX113	0:2:0 = 2	B	8	$2 \times 8 = 16$	
	Total	25 (23*)	Total		157	$= 274/41 = 6.68$

(23*): Total credits of the semester excluding the credits of the courses under F grade. Considered for the calculation of CGPA of the two consecutive semesters under consideration.

If the Student secures letter grades as detailed below after reappearance to SEE, then the SGPA and CGPA shall be calculated as indicated below.

I	XX102	3:2:0 = 5	D	6	$5 \times 6 = 30$	$SGPA\ (I\ Semester) = (117 + 30 + 14)/25$
I	XX104	0:1:1 = 2	C	7	$2 \times 7 = 14$	
II	XX112	2:0:0 = 2	D	6	$2 \times 6 = 12$	$SGPA\ (II\ Semester) = (157 + 12)/25 = 169/25 = 6.76$

$$CGPA\ at\ the\ end\ of\ the\ academic\ year\ after\ passing\ all\ the\ Courses\ of\ the\ two\ consecutive\ semesters\ under\ consideration = \frac{(6.44 \times 25 + 6.76 \times 25)}{50}$$

$= 6.60$ ■

(b) CGPA Calculation of the Programme:An Illustrative Example

Semester	I	II	III	IV	V	VI	VII	VIII
Credits of the semester	20	20	24	24	25	24	20	18
SGPA	7.00	8.50	9.20	6.86	8.18	7.73	8.68	9.40

$$CGPA = \frac{(20 \times 7.00 + 20 \times 8.50 + 24 \times 9.20 + 24 \times 6.86 + 25 \times 8.18 + 24 \times 7.73 + 20 \times 8.68 + 18 \times 9.40)}{175}$$

$= 8.16$ ■

18 OB 6.3 **Grade Card:** Based on the secured letter grades, grade points, SGPA and CGPA, a grade card for each semester and a consolidated grade card indicating the performance in all semesters shall be issued. ■

18OB 7.0	**Conversions of CGPA into Percentage of marks and Class Equivalence**
18OB 7.1	**Conversion Formula for the conversion of CGPA into percentage is given below.** Percentage of marks secured, $P = [\text{CGPA Earned} - 0.75] \times 10$ **Illustration for aCGPA of 8.20**: $P = [\text{CGPA Earned } 8.20 - 0.75] \times 10 = 74.5\ \%$■
18OB 7.2	**Class Equivalence:** Subsequent to the conversion of final CGPA, after successful completion of the Programme, into percentage of marks (P), a graduating student is reckoned to have passed in (i) First Class with Distinction (FCD) if $P \geq 70\%$ (ii) First Class (FC) if $P \geq 60\%$ but <70% and (iii) Second Class (SC) if $P < 60\%$. ■
18OB8.0	**Continuous Internal Evaluation, Semester End Evaluation and minimum standards**
18OB8.1	**Continuous Internal Evaluation Marks:** **(a)** Except for Vyavaharika Kannada (Kannada for communication)/Aadalitha Kannada (Kannada for Administration), Technical seminar and Project work phase -1, the CIE marks for all credit Courses, shall be 40. **(b)** Minimum CIE marks for all theory Courses shall be 40 % of the marks prescribed for Continuous Internal Evaluation i.e., 16 marks. **(c)** Minimum CIE marks for Practical/ Mini-project / Internship/Technical Seminar/Project work – Phase 2 shall be 50 % of the maximum marks i.e., 20 marks. **(d)** The CIE marks for Vyavaharika Kannada (Kannada for communication)/Aadalitha Kannada (Kannada for Administration), Technical seminar and Project work phase -1shall be 100. **(e)** Minimum CIE marks forVyavaharika Kannada (Kannada for communication)/Aadalitha Kannada (Kannada for Administration)shall be 40 % of the marks prescribed for Continuous Internal Evaluation i.e., 40 marks. **(f)** Minimum CIE marks for Project work – Phase 1 and Technical seminar shall be 50 % of the maximum marks i.e., 50 marks. **(g)** Minimum CIE marks forAdditional Mathematics I and II, and the courses (Engineering Graphics and Elements of Civil Engineering and Mechanics of the First Year Engineering)to be completed by BS.c graduates under lateral entry shall be 40 % of the marks prescribed for Continuous Internal Evaluation i.e., 16 marks.■
18 OB 8.2	**Continuous Internal Evaluation Procedure:** [To be read along with 18 OB 8.1and 8.3] **(a) Theory Courses:** **(i)** CIE Marks in each theory Course [including "Technical English I and II", "Constitution of India, Professional Ethics and Human Rights","Environmental Studies", "Additional Mathematics I and II", and the courses (Engineering Graphics and Elements of Civil Engineering and Mechanics of the First Year Engineering) to be completed by B.Sc graduates under lateral entry] shall be the sum of marks prescribed for tests and assignments. Marks prescribed for tests shall be 30 and that for assignments 10. **(ii)**The CIE marks awarded for tests in the theory Course/sshall be based on three tests generally conducted at the end of fifth, tenth and fifteenth week of each semester. Each test shall be conducted for a maximum of 50 marks and the final test marks shall be the average of three tests, proportionately reduced to a maximum of 30 marks. **(iii)** The remaining 10 marks shall be awarded based on the evaluation of assignments/unit tests/written quizzes that support to cover both lower and higher order thinking skills as per Bloom's Revised Taxonomy and Course/programme outcomes. **(iv)** Final marks awarded shall be the sum of 18OB 8.2 (a) (ii) and (iii) for a maximum of 40 marks.

18 OB 8.2 (continued)	**(v)**The candidates shall write the tests, assignments/unit-tests /written quizzes in Blue Books which shall be preserved by the Principal/ Head of the Department for at least six months after the announcement of University results and shall be made available for verification at the direction of the Registrar (Evaluation). **(b) Drawing/Field work Courses:** **(i)** The CIE marks awarded for I year Engineering Graphics Course shall be based on **(a)** Class work for 24 marks (sketching and Computer Aided Engineering Drawing). (**b)**Two Tests conducted in the same pattern as that of SEE for 16 marks (The marks secured Can be taken as best of the two tests). **(ii)** The CIE marks awarded for higher semester Drawings/ Design Drawings offered by various branches shall be based on the evaluation of the sheets and one test in the ratio 60:40. **(iii)** The CIE marks awarded for field work (like Surveying Practice) shall be based on the evaluation of the associated field work and one test in the ratio 60:40. **(c) Practical Courses** The CIE marks awarded in case of Practical, shall be based on the weekly evaluation oflaboratory journals/ reports after the conduction of every experiment and one practical test in theratio 60:40. **(d) Internship** The CIE marks awarded for internship, shall be based on the evaluation of Internship Report, Presentation skill and Question and Answer session in the ratio 50:25:25. **(e) Technical Seminar** The CIE marks awarded for Technical Seminar, shall be based on the evaluation of Seminar Report, Presentation skill and Question and Answer session in the ratio 50:25:25. **(f) Mini - Project** The CIE marks awarded for Mini - Project, shall be based on the evaluation of Mini - Project Report, Project Presentation skill and Question and Answer session in the ratio 50:25:25.The marks awarded for Mini - Project report shall be the same for all the batch mates. **(g) Main Project Work** **(i) Project Work Phase – 1** The CIE marks awarded for project work phase -1, shall be based on the evaluation of project work phase -1 Report, Project Presentation skill and Question and Answer session in the ratio 50:25:25.The marks awarded for the Project report shall be the same for all the batch mates. **(ii) Project Work Phase - 2** The CIE marks awarded for project work phase -2, shall be based on the evaluation of project work phase -2 Report, Project Presentation skill and Question and Answer session in the ratio 50:25:25.The marks awarded for Project report shall be the same for all the batch mates. **(h) Vyavaharika Kannada (Kannada for communication)/Aadalitha Kannada (Kannada for Administration)** **(i)** CIE Marks in Vyavaharika Kannada (Kannada for communication)/Aadalitha Kannada (Kannada for Administration) shall be the sum of marks prescribed for tests and assignments. Marks prescribed for tests shall be 75 and that for assignments be 25. **(ii)** The CIE marks awarded for the tests shall be based on three tests generally conducted at the end of fifth, tenth and fifteenth week of each semester. Each test shall be conducted for a maximum of 25 marks and the final CIE marks shall be the sum of the marks of all the three tests. **(iii)** The remaining 25 marks shall be awarded based on the evaluation of assignments/unit tests/written quizzes that support to cover both lower and higher order thinking skills as per Bloom's Revised Taxonomy and Course/programme outcomes. **(iv)** Final marks awarded shall be the sum of 18OB 8.2 (h) (ii) and (iii) for a maximum of 100 marks. **(v)** The candidates shall write the tests, assignments/unit-tests /written quizzes in Blue Books

18 OB 8.2 (continued)	after the announcement of University results and shall be made available for verification at the direction of the Registrar (Evaluation). ■
18 OB 8.3	**(a)** The CIE marks in the case of Internship/Technical Seminar/Mini-Project and Project Work Phase 1 and 2 shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide. **(b)** A committee constituted by the Head of the Department of Humanities and Social Science shall award the CIE marks for the Course Vyavaharika Kannada (Kannada forcommunication)/ Aadalitha Kannada (Kannada for Administration). The committee shall consist of two senior faculty members of the Department and the senior most acting as the Chairperson. ■
18 OB 8.4	**(i)** Students failing to secure the minimum percentage of CIE marks of any Course/sshall not be eligible for the SEE conducted by the University and they shall be considered as fail in that Course /those Courses. However, they can appear for University examinations conducted in other Courses of the same semester and backlog Course/s if any. **(ii)** Improvement in CIE marks shall not be allowed during the current semester. **(iii)**Students who have satisfied the attendance requirement but not the CIE requirements are permitted to register afresh and appear for SEE after satisfying the CIE requirementsin the same Course/s (with or without satisfying the attendance requirement)when offered during subsequent semester/s. **(iv)** The Course/s when repeated are considered as attempts. ■
18OB8.5	CIE marks of those students, who come under 18OB8.4, shall be sent separately to the Registrar (Evaluation). ■
18 OB 8.6	The final list, incorporating corrections (if any) of CIE marks awarded to the students in the Theory/Practical/Internship/ Technical Seminar / Mini – Project/Project work –phase 1 and 2, shall be displayed on the notice board of the college much before the closure of the semester. The institution shall enter the CIE marks of each semester in the format of the VTU online CIE marks portal and submit a certified copy of the same to the University Examination Section within the stipulated date notified by University. Every page of the CIE marks sheet shall bear the signatures of the concerned Teacher/Teachers, Head of the Department and Principal. ■
18 OB 8.7	Any corrections or overwriting of CIE marks shall bear the signature(s) of concerned Teacher(s) and in such cases the Head of the Department shall indicate the number of corrections on every sheet and attest it with his/her signature. ■
18 OB 8.8	CIE marks shall reach the University before the commencement of examination as per the notification from the office of the Registrar (Evaluation) from time to time. After the submission of CIE marks to the University, any request under any circumstances for change of CIE marks shall not be considered. ■
18 OB 8.9	**Semester End Examination and Passing standards** **(a)** For all credit Coursesincluding "Additional Mathematics I and II", and the courses (Engineering Graphics and Elements of Civil Engineering and Mechanics of the First Year Engineering) to be completed by BS.c graduates under lateral entry)the SEE marks shall be 60. **(b)** University examination for all Courses under SEE are conducted for a maximum of 100 Marks. **(c)** The University examination in all programmes of study shall be conducted at the end of each semester for all the eight semesters. The examinations shall not be considered as overlapping if at all a student appears for examinations conducted in the morning and afternoon session. Further, the examinations shall not also be considered as overlapping if the same student appearsfor the next days examinations. **(d)** The pattern of the SEE question paper for Courses Technical English I and II, Constitution of India, Professional Ethics and Human Rights, and Environmental Studies shall be objective

18 OB 8.9 (continued)	**(e)** For a pass in a theory Course/Drawing, students shall secure a minimum 35 % of the maximum marks prescribed for the University examination and in total 40 % of the maximum marks prescribed for the Course including the CIE marks secured by the students (i.e., SEE + CIE). **(f)** For a pass in Practical/ Mini-project / Internship/Technical Seminar/Project work, students shall secure a minimum of 40 % of the maximum marks prescribed in the University examination. **(g)** Students who satisfy the conditions 18OB 8.9 (e) and (f), and obtain any grade from S to E shall be considered as passed. **(h)** A student shall be declared fail if the candidate (h.a) Fails to satisfy the conditions 18OB 8.9 (g). (h.b) Absents himself / herself to the University examination. (h.c) Is held guilty of examination malpractice and for any other reasons, and declared the performance of any Course/s null and void by a competent authority. **(i)** If a student secures F grade in any of the Course/s, he/she shall reappear in that Course/s during the subsequent SEE. The CIE marks awarded to the student at first attempt in the
18 OB 8.10	Students who pass a Course of a semester as per 18OB 8.9 (g) shall not be allowed to appear for any individual Course again, unless they opt for rejection of results of entire semester. However, students who have CGPA less than 5.00 at the end of an academic year shall be allowed to appear for Course/s to make up the deficiency in CGPA. ■
18 OB 8.11	A student may, at his/her desire, can reject the total performance of a semester (including CIE marks) or reject only the result of his/her performance in University examination of a semester. The rejection is permitted only once during the entire Programme of study. ■
18 OB 8.12	**(a)** The student who desires to reject the results of a semester shall reject performance in all the Courses of the semester, irrespective of whether the student has passed or failed in any Course. However, the rejection of performance of VIII semester project shall not be permitted. A student, who desires to reject the total performance of a semester including CIE marks, has to take readmission for that semester. Application for approval of readmission shall be sent to the Registrar through the Principal of College within 30 days from the date of the announcement of the results. Late submission of application shall not be accepted for any reasons. **(b)** Readmission to any semester in such cases shall not be considered as fresh admission and therefore the student will continue to have the same University Seat Number, which was allotted earlier. The Course duration (as per 18OB1.4) will be counted with reference to old USN. The student, who rejects only the results of University examination of a semester, shall be permitted to re-appear for University examinations of all the Courses of that semester in the subsequent examinations. However, the CIE marks obtained by the student in the rejected semester shall be retained. Applications for rejection and approval to reappear for University examination shall be sent to the Registrar (Evaluation) through the Principal of the College within 30 days from the date of announcement of the results. Late submission of applications shall not be accepted for any reasons. **(c)** If the rejection of results of University examination is of odd semester, the student shall be allowed to take admission to the immediate next even semester. However, if the rejection of results of University examination is of even semester, then the student shall not be allowed to
18 OB 8.13	Students who opt for rejection of results of University examination shall be eligible for the award of degree and not for the award of ranks. ■

18 OB 8.14	(a) A student shall be declared to have completed the programme of BE / B.Tech degree and is eligible for the award of degree, provided the student has undergone the stipulated Course work of all the semesters under the same Scheme of Teaching and Examination and has earned the prescribed number of credits as per the provision 18 OB1.5.[To be read along with 18 OB 11.1 and 11.2] (b)Over and above the academic credits, every Day College regular student admitted to the 4 years Degree programme and every student entering 4 years Degree programme through lateral entry, shall earn 100 and 75 Activity Points respectively for the award of degree through AICTEActivity Point Programme. Students transferred from other Universities to fifth semester are required to earn 50 Activity Points from the year of entry to VTU. The Activity Points earned shall be reflected on the student's eight semester Grade Card. Activity Points (non-credit) have no effect on SGPA/CGPA and shall not be considered for vertical progression. In case a student fails to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. The student shall be admitted for the award of degree only after the release of the Eighth semester Grade Card. ■
18 OB 9.0	**Attendance Requirement**
18OB9.1	Each semester shall be considered as a unit for calculation of the attendance and the Candidates have to put in a minimum attendance of 85% in each Course with a provision of condonation of 10% of the attendance by the Vice-Chancellor on the specific recommendations of the Principal of the college where the candidate is studying, basedon medical grounds, participation in University/State/ National/ International level sports and cultural activities, seminars, workshops, paper presentation etc., of significant value. The supporting documentsfor condoning the shortage of attendance are to be submitted along with the recommendations. ■
18 OB 9.2	**(a)** The basis for the calculation of attendance shall be the period prescribed by the University by its calendar of events. **(b)** For Course/s having lecture and tutorial hours, attendance shall be with respect to 85 % of attendance in lecture hours and 85 % of attendance in tutorial hours. If the attendance requirement is not satisfied in any one of them, the candidate shall be considered as not satisfied the attendance condition. Condonation of 10 % shall be applied separately to lecture and tutorial hour to make up the deficiency in attendance. Faculties shall also maintain the attendance of students of lecture and tutorial hours separately in the same register or in separate registers. **(c)** In case of late admission, approved by competent authority (DTE/VTU), to I semester, III semester (lateral entry scheme) of day college and III semester (lateral entry scheme) of Engineering Programme conducted during evening the attendance shall be reckoned from the
18OB9.3	The Course Instructor/ Mentor/College shall inform the students as well as their parents /guardians about the attendance status periodically. Students who are facing the shortage of attendance shall be mentored to make up the shortage. Principals shall also notify every month, the list of candidates who are under short of attendance. ■
18OB9.4	A candidate, who does not satisfy the attendance requirement (in one or more Courses) as mentioned in 18OB9.1/18OB 9.2 (b) shall not be eligible to appear for the SEE of that semester and shall not be permitted to take admission to next higher semester. The candidate shall be required to repeat that semester during the subsequent year.■

18OB 10.0	**Vertical Progression (Promotion/ Eligibility to higher semesters)**
18OB 10.1	There shall be no restriction for promotion from an odd semester to the next even semester, provided the student has fulfilled the attendance requirement. ■
18 OB 10.2	A student shall be declared failif the candidate (i) Fails to satisfy the conditions 18OB 8.9 (g). (ii) Absents himself / herself to the University examination. (iii) Is held guilty of examination malpractice and for any other reasons, and declared the performance of any Course/s null and void by a competent authority. (iv) Has not satisfied the CIE requirements of any credit Course/s. (v) Has not registered for the SEE even after satisfying the attendance and CIE requirements. ■
18 OB 10.3	**(A) Vertical Progression in case of students admitted to First year:** **(a)** Students having not more than four F grades in the two semesters of first year of the Programme shall be eligible to move to II Year. **(a.1)** Students having not more than four F grades in the four semesters of I and II year shall be eligible to move to III year. **(a.2)**Student who have earned all the prescribed credits of I year, andhaving not more than four F grades in the four semesters of II and III year shall be eligible to move to IV year. **(b)** For the award of degree, a CGPA ≥ 5.00at the end of Programme shall be mandatory. [to be read with 18OB10.4 (1)] **(B) Vertical Progression in case of Diploma students admitted to Second year (lateralentry)** **(a)** Students having not more than four F grades (excluding the Fail or pass status of Additional Mathematics I and II) in the two semesters of II year of the Programme shall be eligible to move to III Year. **(a.1)** Students having not more than four F grades (excluding the fail status of Additional Mathematics I and II, if any) in the four semesters of II and III year shall be eligible to move to IV year. **(b)** For the award of degree, a CGPA ≥ 5.00at the end of Programme shall be mandatory. [to be read with 18OB10.4 (1)]. **(c)** The mandatory non – credit Courses Additional Mathematics I and II prescribed at III and IV semesters respectively, to lateral entry Diploma holders admitted to III semester of BE/B.Tech programmes, shall attend the classes during the respective semesters to complete CIE and attendance requirements and to appear for the University examinations. In case, any student fails to satisfy the Course requirements, he/she shall be deemed to have secured F grade. In such a case, the student have to fulfil the requirements during subsequent semester/s to appearfor SEE. **(d)** Completion of Additional Mathematics I and II, shall be mandatory for the award of degree. ■ **(C)Vertical Progression in case of B.Sc students admitted to Second year (lateral entry)** **(a)** Students having not more than four F grades (excluding the Fail or pass status of Engineering Graphics and Design, and Civil Engineering and Mechanics of First Year Engineering Programme) in the two semesters of II year of the Programme shall be eligible to move to III Year. **(a.1)** Students having not more than four F grades (excluding fail status of Engineering Graphics and Design, and Civil Engineering and Mechanics of First Year Engineering Programme, if any) in the four semesters of II and III year shall be eligible to move to IV year. **(b)** For the award of degree, a CGPA ≥ 5.00at the end of Programme shall be mandatory. [to be read with 18OB10.4 (1)]. **(c)**Lateral entrant students from B.Sc Stream, shall clear the non-credit Courses Engineering Graphics and Elements of Civil Engineering and Mechanics of the First Year Engineering Programme for the award of degree.

18 OB 10.4	**(1) Noncompliance of CGPA ≥ 5.00 at the end of the programme** **(i)** Students who have completed all the courses of the programme but not having a CGPA $\geq$5.00 at the end of the programme, shall not be eligible for the award of the degree. **(ii)** In cases of 18OB10.4 (1) (i), students are permitted to appear again for SEE in courses/s of any semester/s by rejecting the performance of the course/s [other than Internship, Technical seminar, Project (Mini and Main), and Laboratories] for any number of times, subject to the provision of 18OB1.4, to make up the CGPA equal to or greater than 5.00 for the award of the Degree. **(iii)** SEE result of the previous attempt course/s when rejected shall be irretrievable and the students should obtain written permission from the Registrar (Evaluation) to reappear in the subsequent SEE. **(2) Noncompliance of Mini-project** **(a)** The mini-project shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take-up/complete the mini-project shall be declared fail in that course and shall have to complete the same during subsequent University examination after satisfying the Mini-project requirements. Also, mini-project shall be considered for eligibility to VII semester. **(3) Noncompliance of Internship** **)** All the students admitted to III year of BE/B.Tech shall have to undergo mandatory internship of 4 weeks during the vacation of VI and VII semesters and /or VII and VIII semesters. A University examination shall be conducted during VIII semester and the prescribed credits shall be included with the credits of VIII semester. Internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take-up/complete the internship shall be declared fail in that Course and shall have to complete the same during subsequent University examination after satisfy the internship requirements.■
18 OB 11.0	**Temporary Discontinuation/Break in the Programme**
18 OB 11.1	**(a)** If a candidate, for any reason, temporarily discontinues the Programme or take a break from the Programme during any semester intentionally, he/she may be permitted to continue the Programme by registering to the same semester of the prevailing scheme. The candidate shall complete all the remaining Course work subject to the provision 18 OB 1.4. Also the Candidates may have to complete additional Course/s, if any, as per the decision of concerned Board of Studies and approval of Dean, Faculty of Engineering, on establishing the equivalence between two schemes. A Grade card shall be issued to that effect. Additional Course/s shall not be considered for the eligibility criteria prescribed for promotion. However, based on the individual cases, it is considered to decide the SGPA and CGPA to admitthe student for the award of degree. Such candidates shall not be eligible for the award of rank. **(b)** Candidates who take admission to any semester of the existing scheme from another scheme, as a repeater/fresher because of various reasons, including the case of 18OB11.1 (a), shall attend and complete all the remaining semester/s of the Programme adhering to the regulations of the prevailing scheme, and shall complete additional Course/s, if any, as per the decision of concerned Board of Studies and approval of Dean, Faculty of Engineering, on establishing the equivalence between two schemes. A Grade card shall be issued to that effect. Additional Courses shall not be considered for the eligibility criteria prescribed for promotion. However, based on the individual cases, it shall be considered to decide the SGPA and CGPA to admit the student for the award of degree. Such candidate shall not be eligible for the award of rank. **(c)**The credits to be earned by the candidates under 18OB11.1 (a and b) and 18OB13.1(b) and **(c)** shall be decided by the University along with the additional Course/s to be completed. ■

18 OB 11.2	**(i)** The candidates who have temporarily discontinued the Programme of study or changed the scheme of study from one to another because of various reasons, or transferred from autonomous/other University to non-autonomous VTU affiliated college, shall be eligible for the award of degree provided the credits earned is equal to or greater than the credits decided by the University in the individual cases. **(ii)** In case, the credits earned is less than the credits decided by the University in the individual cases, after the completion of all the semesters of the Programme under the prevailing scheme, the candidate shall register for a Course not studied earlier and make up the credits earned equal to or greater than the required for the award of degree. ■
18 OB 12.0	**Award of Prizes, Medals and Ranks**
18 OB 12.1	For the award of Prizes and Medals, the conditions stipulated by the Donor shall be considered subject to the provisions of the statutes framed by the University for such awards. ■
18 OB 12.2	**(1)** For award of rank in a Specialization of Bachelor of Engineering/ Technology, the CGPA secured by the students from III to VIII semester is considered. **(2)** A student shall be eligible for a rank at the time of award of degree of Bachelor of Engineering/ Technology, provided that the student **(a) (i)** Has passed all the Courses of I to VIII semester in first attempt only in case of Candidates admittedto I year. (ii) Has passed all the Courses of III to VIII semester in first attempt only in case of Candidates admitted under lateral entry scheme. (iii) Has completed all the prescribed mandatory noncredit Courses. **(b)** Is not a repeater in any semester because of rejection of result of a semester/ shortage of attendance etc. **(c)** Has completed all the semesters without any break/discontinuity. **(d)** Has completed all the semesters (I to VIII/III to VIII) in VTU constituent college or in any VTU affiliated non-autonomous college. **(e)** Has not been transferred from autonomous institution affiliated to VTU or from any other University. **(3)** The total number of ranks awarded shall be 10% of total number of students appeared in VIII semester subject to a maximum of 10 ranks in a Specialization. **(4)** For award of ranks in a Specialization, a minimum of 10 students should have appeared in the VIII semester examination. **Illustration:** **(a)** If 1228 students appeared for the VIII semester in Electronics and Communication Engineering Programme, the number of ranks to be awarded for Electronics and Communication Engineering shall be 10. **(b)** If 90 students appeared for the VIII semester in Biomedical Engineering, the number of ranks to be awarded for Biomedical Engineering will be 09. **(5)** In case of fractional number of ranks, it is rounded to higher integer only when the first decimal place is greater than or equal to 5. ■
18 OB 12.3	Ranks shall be awarded based on the merit of the students as determined by CGPA. If two or more students get the same CGPA, the tie shall be resolved by considering the number of timesa student has obtained higher SGPA. If it is not resolved even at this stage, the number of timesa student has obtained higher grades like S, A, B etc., shall be taken into account to decide the order of the rank. ■

18 OB 13.0	**Transfers of Students**
18 OB 13.1	Transfer of students from one college to another college within the Karnataka state shall be permitted only at the beginning of third, fifth, and seventh semesters, subject to availability of seats within the permitted intake in respective Colleges and subject to the prior approval of the University. **(a)** Transfer of students from one non - autonomous to another non – autonomous college affiliated to VTU is permitted with the approval of the Registrar, VTU subject to the provision 18OB10.3. The students seeking transfer shall have to **(i)** Obtain No Objection certificate for admission from the University and from both the colleges before the commencement of term as notified by VTU. **(ii)** Complete the Programme subject to the provision 18OB1.4. **(b)** Transfer of students from an autonomous to non – autonomous college, affiliated to VTU is permitted with the approval of the Registrar, VTU provided the candidates have passed in all the Courses of the previous semesters. The students seeking transfer shall have to **(i)** Obtain No Objection certificate for admission from the University and from both the colleges before commencement of term as notified by VTU. **(ii)** Complete additional Course/s, if any, as per the decision of concerned Board of Studies and approval of Dean, Faculty of Engineering, on establishing the equivalence between two schemes. A Grade card shall be issued to that effect. Additional Course/s shall not be considered for the Eligibility criteria prescribed for promotion, Class, calculation of SGPA and CGPA. However, a pass in the additional Courses, if any, is mandatory before the completion of Degree. **(iii)** Complete the Programme subject to the provision 18OB1.4. **(c)** In the case of students from Universities other than VTU, the students must have passed in all the Courses of I and II semesters for admission to III semester and all the Courses of I to IV semesters for admission to V semester and all the Courses of I to VI semesters for admission to VII semester. The students seeking admission from other Universities to VTU shall have to **(i)** Apply for establishment of equivalence with prescribed fees as notified by the VTU and obtain No Objection certificate for admission from the University before thecommencement of term as notified by VTU. **(ii)**Produce No Objection certificate for admission from both the colleges before the commencement of term as notified by VTU. **(iii)** Complete additional Course/s, if any, as per the decision of concerned Board of Studies and approval of Dean, Faculty of Engineering, on establishing equivalence between two schemes. A Grade card shall be issued to that effect. Additional Course/s shall not be considered for the eligibility criterion prescribed for promotion, Class, calculation of SGPA and CGPA. However, a pass in the additional Courses, if any, is mandatory before the completion of Degree. **(iv)** Earn the credits intimated by the University. **(v)** Complete the Programme subject to the provision 18OB1.4. ■
18 OB 13.2	Transfer of students within the College from one branch to another branch at the start of III semester shall be permitted with the approval of the Registrar, VTU subject to the provisions made by the Government of Karnataka and AICTE in this behalf. ■
18 OB 13.3	The University may prescribe fee for administration purpose, which shall be notified from time to time, for transfer from one college to another (Change of College) or one branch to another branch (change of branch within the college). ■

18 OB 14.0	**Applicability and Power to Modify**
18 OB 14.1	The regulations governing the Degree of Bachelor of Engineering/Technology of Visvesvaraya Technological University shall be a binding on all concerned. ■
18 OB 14.2	**i)** Notwithstanding anything contained in the foregoing, the University shall have the power to issue directions/ orders to address any difficulty. **ii)** Nothing in the foregoing may be construed as limiting the power of the University to amend, modify or repeal any or all of the above. ■

Visvesvaraya Technological University, Belagavi

REGULATIONS GOVERNING
THE DEGREE OF MASTER OF TECHNOLOGY (M.Tech.)
UNDER CHOICE BASED CREDIT SYSTEM (CBCS) SCHEME
(Full Time and Part Time)
Effective from academic year 2016 -17

Visvesvaraya Technological University, Belagavi

Regulations Governing the Degree of Master of Technology (M.Tech.)
Under Choice Based Credit System (CBCS) Scheme
(Full Time and Part Time)
Effective from academic year 2016 -17

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Visvesvaraya Technological University, Belagavi

Regulations Governing the Degree of Master of Technology (M.Tech.)
Under Choice Based Credit System (CBCS) Scheme
(Full Time and Part Time)
Effective from academic year 2016 -17

Definitions of Keywords

The following are the definitions/descriptions that have been followed for the different terms used in the Regulations of M.Tech Programmes:

1) **Programme:** Is an educational programme in a particular stream/ branch of Engineering/branch of specialization leading to award of Degree. It involves events/activities, comprising of lectures/ tutorials/ laboratory work/ field work, outreach activities/ project work/ vocational training/ viva/ seminars/ Internship/ assignments/ presentations/ self-study etc., or a combination of some of these.
2) **Branch:** Means Specialization or discipline of M.Tech Degree Programme, like Power Electronics, Structures, Machine Design, etc.
3) **Semester:** Refers to one of the two sessions of an academic year (vide: serial number 4), each session being of sixteen weeks duration (with working days greater than or equal to ninety).The odd semester may be scheduled from August and even semester from February of the year.
4) **Academic Year:** Refers to the sessions of two consecutive semesters (odd followed by an even) including periods of vacation.
5) **Course:** Refers to usually referred to as 'papers' and is a component of a programme. All Courses need not carry the same weight. The Courses should define learning objectives and learning outcomes. A Course may be designed to comprise lectures/ tutorials/ laboratory work/ field work/ outreach activities/project work/ vocational training/ viva/ seminars/ term papers/assignments/ presentations/ self-study etc., or a combination of some of these.
6) **Credit:** Refers to a unit by which the Course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of lecture or two hours of laboratory/practical Courses/ tutorials/ fieldwork per week etc.
7) **Audit Courses:** Means Knowledge/ Skill enhancing Courses without the benefit of a grade or credit for a Course.
8) **Choice Based Credit System (CBCS):** Refers to customizing the Course work, through Core, Elective and soft skill Courses, to provide necessary support for the students to achieve their goals.
9) **Course Registration:** Refers to formal registration for the Courses of a semester (Credits) by every student under the supervision of a Faculty Advisor (also called Mentor, Counselor etc.,) in each Semester for the Institution to maintain proper record.
10) **Course Evaluation:** Means Continuous Internal Evaluation (CIE)and Semester End Examinations (SEE) to constitute the major evaluations prescribed for each Course.CIE and SEE to carry 20 % and 80 % respectively, to enable each Course to be evaluated for 100 marks, irrespective of its Credits.
11) **Continuous Internal Evaluation (CIE):** Refers to evaluation of students' achievement in the learning process. CIE shall be by the Course Instructor and includes tests, homework, problem solving, group discussion, quiz, mini-project and seminar throughout the Semester, with weightage for the different components being fixed at the University level.

12) **Semester end examinations (SEE):** Refers to examination conducted at the University level covering the entire Course Syllabus. For this purpose, Syllabi to be modularized and SEE questions to be set from each module, with a choice confined to the concerned module only. SEE is also termed as university examination.

13) **First Attempt:** Refers to a student who has completed all formalities and has become eligible to attend the SEE and has attended at least one head of passing, such attempt shall be considered as first attempt.

14) **Credit Based System (CBS):** Refers to quantification of Course work, after a student completes teaching – learning process, followed by passing in both CIE and SEE. Under CBS, the requirement for awarding degree is prescribed in terms of total number of credits to be earned by the students.

15) **Credit Representation:** Refers to Credit Values for different academic activities considered, as per the Table.1. Credits for seminar, project phases, project viva–voce and internship shall be as specified in the Scheme of Teaching and Examination (Annexure -1).

16) **Letter Grade:** It is an index of the performance of students in a said Course. Grades are denoted by letters S, A, B, C, D, E and F.

Table 1: Credit Values

Theory/Lectures (L) (hours/week/Semester)	Tutorials (T) (hours/week/Semester)	Laboratory/Practical (P) (hours/week/Semester)	Credits (L:T:P)	Total Credits
4	0	0	4:0:0	4
3	0	0	3:0:0	3
2	2	0	2:1:0	3
2	0	2	2:0:1	3
2	2	2	2:1:1	4
0	0	6	0:0:3	3

NOTE: Activities like, practical training, study tour and participation in Guest lectures not to carry Credits.

17) **Grading:** Grade refers to qualitative measure of achievement of a student in each Course, based on the percentage of marks secured in (CIE plus SEE). Grading is done by Absolute Grading [Refer: 16OMT6.0]. The rubric attached to letter grades are as follows:
S – Outstanding, A – Excellent, B – Very Good, C – Good, D – Above Average, E – Average and F – Fail.

18) **Grade Point (GP):** Refers to a numerical weightage allotted to each letter grade on a 10-point scale as under.

Letter Grade and corresponding Grade Points on a typical 10 – Point scale							
Letter Grade	S	A	B	C	D	E	F
Grade Point	10	09	08	07	06	04	00

19) **Passing Standards:** Refers to passing a Course only when getting GP greater than or equal to 04 (as per serial number 18).

20) **Credit Point:** Is the product of grade point (GP) and number of credits for a Course i.e.,
$\text{Credt points (CrP)} = \text{GP} \times \text{Credits for the Course}$.

21) **Semester Grade Point Average (SGPA):** Refers to a measure of academic performance of student/s in a semester. It is the ratio of total credit points secured by a student in various Courses of a semester and the total Course credits taken during that semester. [Refer:16OMT6.0]

22) **Cumulative Grade Point Average (CGPA):** Is a measure of overall cumulative performance of a student over all semesters. The CGPA is the ratio of total credit points earned by a student in various Courses in all semesters and the sum of the total credits of all Courses in all the semesters. It is expressed up to two decimal places. [Refer: 16OMT6.0]

23) **Transcript or Grade Card or Certificate:** Refers to a certificate showing the grades earned by a student. A grade certificate shall be issued to all the registered students after every semester. The grade certificate will display the programme details (Course code, title, numberof credits, grades secured) along with SGPA of that semester and CGPA earned till that semester.

24) **University:** Visvesvaraya Technological University (VTU), Belagavi.

Visvesvaraya Technological University, Belagavi
Regulations Governing the Degree of Master of Technology (M.Tech.)
Under Choice Based Credit System (CBCS) Scheme
(Full Time and Part Time)
Effective from academic year 2016 -17

16OMT1.0	**Title, Duration and Credits of the Programme of Study**
16OMT1.1	The Programme shall be called Master of Technology (Subject of Specialization), abbreviated as M.Tech. (Subject of Specialization).
16 OMT1.2	There shall be two categories of Programme: 1) Full Time Programme (FT), and 2) Part Time Programme (PT)
16OMT1.3	**Full Time Programme:** The Programme shall extend over a period of four semesters and each semester shall have 16 weeks duration.
16OMT1.4	**Part Time Programme:** (a) The Programme shall be of 6 semesters. (b) Each semester shall be 16 weeks duration. (c) First, second, third and fourth semesters shall comprise course work and fifth and Sixth semesters shall be same as that of III and IV Semesters of the Full time Programme. (d) The candidate shall register for a maximum of three courses per semester. (e) The candidates shall register for Laboratory course and Seminar in first andsecond semesters along with the regular three courses.
16OM 1.5	**Maximum Duration for Programme Completion:** (a) A Full Time candidate shall be allowed a maximum duration of 4 years from the first semester of admission to become eligible for the award of Master's Degree, failing which he/she may discontinue the programme or register once again as a fresh candidate to I semester of the programme. (b) A Part Time candidate shall be allowed a maximum of 6 years duration from the first semester of admission to become eligible for the award of Master's Degree, failing which he/she may discontinue the programme or register once again as a fresh candidate to I semester of the programme.
16OMT1.6	Prescribed Number of Credits for the Programme: The number of credits to be completed for the award of degree shall be 85.
16OMT1.7	The Calendar of events in respect of the Programme shall be notified by the University in advance.
16OMT2.0	**Eligibility for Admission(As per the Government orders issued from time to time)**
16OMT2.1	Admission to I year/I semester Master of Technology Programme shall be open to all the candidates who have passed B.E./ B. Tech. Examinations of VTU or any other recognized University/ Institution. The decision of the Equivalence committee shall be final in establishing the eligibility of candidates for a particular Programme. For the foreign degrees, Equivalence certificate from the Association of Indian Universities is a must. The candidates who have completed their degree through the distance mode education from any University (National or International) are not eligible for admission to M.Tech. Programs under any quota.

16OMT2.2	AMIE in respective branches shall be equivalent to B.E./ B. Tech. Programs of VTU for admission to M.Tech.
16 OMT2.3	Admission to M.Tech. Programme shall be open to the candidates (as per 16OMT 2.1 and 2.2) who have passed the prescribed qualifying examination with not less than 50% of the marks in the aggregate of all the years of the degree examination.However, in the case of candidates belonging to SC/ST and Category I, the aggregate percentage of marks in the qualifying examinations shall not be less than 45%.Rounding off of percentage secured in qualifying examination is not permissible.
16OMT2.4	**For admissions under GATE/ PGCET qualification and Roaster system of Government of Karnataka:** The candidates should be GATE qualified or should have appeared for the Entrance Examination conducted by an authority recognized by Government of Karnataka (PGCET)/VTU/any other University on approval by Government of Karnataka. **For admissions under Management Quota:** The candidates should be GATE qualified or should have appeared for the Entrance Examination conducted by an authority recognized by Government of Karnataka PGCET/VTU/any other University on approval by Government of Karnataka. Further, there shall be an Admissions Committee for PG Programme in each college for each branch of PG studies consisting of the Principal of the College as the Chairman, Head of the concerned Department, one senior faculty of the concerned Department as members. The Admissions Committee shall conduct the interview and select the candidates for admissions. **For admissions under Sponsored Quota:** The candidates should be GATE qualified or should have appeared for the Entrance Examination conducted by an authority recognized by Government of Karnataka PGCET/VTU/any other University on approval by Government of Karnataka.
16OMT2.5	The candidates, who are qualified in the GATE Examination for the appropriate branch of engineering, shall be given priority. They are exempted from taking Entrance Examination. In case a GATE qualified Candidate appears for entrance examination and become qualified to claim a seat under entrance examination quota, he/she will be considered in the order of merit along with other candidates appeared for the entrance examination.
16OMT2.6	If sufficient number of GATE qualified candidates are not available, the remaining vacant seats shall be filled from amongst the candidates appeared for Entrance Examination in the order of merit.
16OMT2.7	The intake under various categories (regular, sponsored candidates and SC/ST) shall be as sanctioned by the AICTE, State Government and VTU, from time to time.

16OMT2.8	Subject to the provisions of 16OMT2.1 and 16OMT2.2, members of the Teaching/Research Staff working in any Engineering College recognized by AICTE either in the State of Karnataka or outside and who have put in a minimum of 03 years of teaching experience on full-time basis in Engineering Colleges, Polytechnic institutions / any other institutions imparting Engineering education shall be eligible for admission to PG Programs under sponsored quota, if they are sponsored by the respective Institutions / DTE.
16OMT2.9	Subject to the provisions of 16OMT 2.1 and 16OMT 2.2, members working in the State Government/ Central Government/ Quasi Government Organizations/ Public Sector Industries / Reputed Private Industries, who have put in a minimum of 03years of working experience and sponsored by the concerned Organizations, shall also be eligible to seek admissions to PG Programs against sponsored quota. Preference for admission under 16OMT2.8 and 2.9 shall be given to candidates sponsored by organizations of State and Central Governments.
16OMT2.10	Further that employment of Part time students shall be in an establishment situated within the 100 km from the place of the institution to which the candidate is seeking admission.
16OMT2.11	The Engineering graduates other than the Karnataka candidates shall obtain Eligibility Certificate from VTU to seek admission to P.G. Programme in any of the colleges (Autonomous or Non - Autonomous) affiliated to VTU.
16OMT2.12	**Admission to vacant seats:** Seats remaining vacant (unfilled), after the completion of PG admission process by Karnataka Examination Authority, shall be filled by the Institution by inviting applications through Press notification. The seats shall be filled by Candidates preferably who have valid GATE/ PGCET score. In the absence of such Candidates, admission shall be based on merit in the entrance test conducted at the Institution level. An Admissions Committee, consisting of the Principal of the College, Head of the concerned Department and the subject experts, shall be in charge of admissions.
16MT3.0	**Courses**
16OMT3.1	The curriculum of the Programme shall be any combination of following type of courses: i) One Course on Mathematics supportive to the concerned programme in the first semester. ii) Professional Core Courses (PC) - relevant to the chosen specialization/ branch [May be split into Hard (no choice) and Soft (with choice), if required]. The core course is to be compulsorily studied by a student and is mandatory to complete the requirements of a programme in a said discipline of study. iii) Professional Electives Courses (PE) - relevant to the chosen specialization/ branch: these are the courses, which can be chosen from the pool of papers. It shall be supportive to the discipline/ providing extended scope/enabling an exposure to some other discipline / domain / nurturing student skills.

16OMT3.1 (continued)	iv) Open Electives Courses (OE), from other technical and/ or emerging specialization areas. v) Project Work, Seminar. vi) Audit Courses (AC): (a) The Audit course can be any credit course offered by the program to which the Candidate is admitted (other than the courses considered for completing the prescribed program credits) or other programs offered in the institution, where the student is studying. (b) The students who are interested in audit courses can register for one audit course at a time during II and IV semesters. Students who have registered to audit the courses, considered on par with students registered to the same course for credit, haveto satisfy attendance and CIE requirements. However, they need not have to appear for SEE. (c) Registration for any audit course, in writing, shall be completed at the beginning of II and IV semesters. The Institution should intimate the Registrar (Evaluation) about the registration at the beginning of the semester and obtain a formal approvalfor inclusion of the audit course/s in the Grade cards/ Transcripts issued to thestudents. vii) Internship: Preferably at an industry/R and D organization/IT company/ Government organization of significant repute for a specified period mentioned in Scheme of Teaching and Examination.
16OMT4.0	**Internship**
16OMT4.1	**Internship:** The student shall undergo Internship for 16 weeks as per the Scheme of Teaching and Examination. 1. The internship can be carried out in any industry/R&D Organization/Research Institute/Institute of repute. 2. (a) The Department/college shall nominate a faculty to facilitate, guide and supervise students under internship. (b) The Internal Guide has to visit work place at least once during the student's internship. 3. The students shall report the progress of the internship to the internal guide in regular intervals and seek his/her advise. 4. The Internship shall be completed during the period specified in Scheme of Teaching and Examination. 5. After completion of Internship, students shall submit a report to the Head of the Department with the approval of both internal and external guides. 6. There will be 50 marks for CIE (Seminar: 25, Internship report: 25) and 50 marks for Viva – Voce conducted during SEE. [To be read along with 16OMT 8.8 and 8.9] 7. The internal guide shall award the CIE marks for seminar and internship report after evaluation. He/she will also be the internal examiner for Viva – Voce conducted during SEE. 8. The external guide from the industry has to be an examiner for the viva voce on Internship. Viva-Voce on internship shall be conducted at the college and the date of Viva-Voce shall be fixed in consultation with the external Guide. The Examiners shall jointly award the Viva - Voce marks.

16OMT4.1(continued)	9. In case the external Guide expresses his inability to conduct viva voce, the Chief Superintendent is permitted to make alternate arrangements with the permission of the concerned BOE Chairperson. 10. The students are permitted to carry out the internship anywhere in India or Abroad. The University will not provide any kind of Financial Assistance to any student for internship and for the conduct of Viva-Voce on internship.
16OMT4.2	**Failing to undergo Internship:** Internship is one of the head of passing. Completion of internship is mandatory. If any student fails to undergo/complete the internship, he/she shall be considered as failed in that Course and shall not be permitted to appear for SEE in that Course. However, student shall appear for SEE after satisfying the conditions prescribed for Internship. The reappearance shall be considered as an attempt.
16OMT5.0	**Seminar and Project**
16OMT5.1	**Seminar:** Seminar is one of the head of passing. i) Each candidate shall deliver seminar as per the Scheme of Teaching and Examination on the topics chosen from the relevant fields for about 30 minutes. ii) The Head of the Department shall make arrangements for conducting seminars through concerned faculty members of the Department. The committee constituted for the purpose by the Head of the Department shall award the CIE marks for the seminar. The committee shall consist of three faculty from the Department and the senior most acting as the Chairman/Chairperson. [To be read along with 16OMT8.8]
16OMT5.2	**Project Work:** Project is one of the head of passing. Project work shall preferably be on individual basis. The candidate shall submit a soft copy (CD) of the dissertation work to the University. The CD should contain the entire Dissertation in monolithic form as a PDF file (not separate chapters). The Guide, after checking the report for completeness shall upload the Dissertation along with name, University Seat Number, address, mobile number of the candidate, etc., as prescribed in form available on online Dissertation evaluation portal. The guide shall submit a panel of four approved University Examiners for evaluation of dissertation.
16OMT5.3	**Plagiarism Check** Once the Guide uploads the dissertation, the same shall be linked for plagiarism check. The allowable plagiarism index is less than or equal to 25%. If the check indicates a plagiarism index greater than 25% : • for the first time, the candidate has to resubmit the dissertation, to the Registrar (Evaluation), Regional Center/Head Office, VTU along with the penal fees of Rs. 2000/- (Rupees Two thousand only) in person. • for the second time, the candidate has to resubmit the dissertation along with the penal fees of Rs. 4000/- (Rupees four thousand only) in person. • If the dissertation is rejected again during second resubmission with reference to plagiarism index, the candidate shall redo the project andsubmit after a semester's time subject to provisions of 16OMT1.5.
16OMT5.4	The dissertation shall be sent through email for evaluation to two examiners - one internal examiner (guide/co-guide) and one external examiner (first) appointed by the University. The evaluation of the dissertation shall be made independently by each examiner.

16OMT5.5	Examiners shall evaluate the dissertation normally within a period of not more than two weeks from the date of receipt of dissertation through email.
16OMT5.6	The examiners shall independently submit the marks through the specified link.
16OMT5.7	Average of the marks awarded by the two Examiners shall be the final evaluation marks for the Dissertation.
16OMT5.8	(a) Viva-voce examination of the candidate shall be conducted as per 16OMT5.10, if the dissertation work and the reports are accepted by the external examiner (first). (b) If the external examiner (first) finds that the dissertation work and the report are not up to the expected standard and the minimum passing marks cannot be awarded, the dissertation shall not be accepted for SEE. The external examiner (first) can recommend for modifications/suggestions of dissertation or totally reject the dissertation. The examiner shall offersuggestions for improvement of the dissertation for resubmission or list the reasons for rejection of the dissertation. (c) The resubmitted Dissertation incorporating the modifications/suggestions [as per 16OMT5.8(b)] of the external examiner (first) and satisfying the provision 16OMT5.3shall be sent again to the external examiner (first) for evaluation. If the dissertation and the report are accepted by the external examiner (first), Viva-voce examination of the candidate shall be conducted as per 16OMT5.10. (d) In case of rejection of Dissertation by the external examiner (first), the same will be sent to a Second Examiner (external) approved by the University. The decision of the Second Examiner (external) is final. If the dissertation and the report are accepted by the Second Examiner (external), Viva-voce examination of the candidate shall be conducted as per 16OMT5.10. If the Second Examiner (external) rejects the dissertation and the report, the candidate shall have to carry out the dissertation work once again and submit the dissertation subject to provisions of 16OMT1.5. In such cases of rejection, the candidate shall redo the entire procedure starting from the submission of Dissertation in soft copy. (e) In case of rejection of Dissertation, with reasons, by the external examiner (first) [as per 16OMT5.8 (b)], the same will be sent to a Second Examiner (external) [not necessarily the same examiner considered under 16OMT5.8 (d)] approved by the University. The decision of the Second Examiner (external) is final. If the dissertation and the report are accepted by the Second Examiner (external), Viva-voce examination of the candidate shall be conducted as per 16OMT5.10. If the Second Examiner (external) rejects the dissertation and the report, the candidate shall have to carry out the dissertation work once again and submit the dissertation subject to provisions of 16OMT1.5. In such cases of rejection, the candidate shall redo the entire procedure starting from the submission of Dissertation in soft copy.
16OMT5.9	The candidate, whose Dissertation is rejected, can rework on the same topic or choose another topic of dissertation under the same Guide or new Guide if necessary. In such an event, the report shall be submitted within four years in case of full time student and six years in case of part time student respectively from the date of admission to the Programme.
16OMT5.10	Viva-voce examination of the candidate shall be conducted by the external examiner and internal examiner/ guide. Internal examiner as per the direction of the University shall have to arrive at a mutually convenient date for the conduct of viva-voce examination of the concerned candidate with an intimation to the Registrar (Evaluation). In case one of the examiners expresses his/her inability to attend the viva-voce, the Registrar (Evaluation) shall appoint a substitute examiner in his/her place.
16OMT5.11	The relative weights for the evaluation of dissertation and the performance at the viva voce shall be as per the scheme of teaching & examination.

16OMT5.12 The marks awarded by both the Examiners at the viva voce Examination shall be sent jointly to the University immediately after the examination.

16OMT5.13 Examination fee as fixed from time to time by the University for evaluation of dissertation report and conduct of viva voce shall be remitted through the Head of the Institution as per the instructions of Registrar (Evaluation) from time to time.

16OMT5.14 The candidates who fail to submit the dissertation work within the stipulated time have to submit the same at the time of next ensuing examination.

16OMT6.0 **Computation of SGPA and CGPA**

16OMT6.1

(i) The University adopts absolute grading system wherein the marks are converted to grades, and every semester results will be declared with semester grade point average (SGPA) and Cumulative Grade Point Average (CGPA). The CGPA will be calculated for every semester, except for the first semester.

(ii) The grading system with the letter grades and the assigned range of marks under absolute grading system are as given below:

Level	**Outstanding**	**Excellent**	**Very Good**	**Good**	**Above Average**	**Average**	**Fail**
Letter Grade	S	A	B	C	D	E	F
Grade Points	10	9	8	7	6	4	00
Percentage of Marks Scored in a Course	≥ 90 (90 -100)	<90 ≥80 (80 -	< 80 ≥70 (70 - 79)	< 70 ≥60 (60 - 69)	< 60 ≥ 55 (55 -	< 55 ≥50 (50- 54)	< 50 (0 - 49)

(iii) A student obtaining Grade F in a Course shall be considered failed and is required to reappear in subsequent SEE. Whatever the letter grade secured by the student during his /her reappearance shall be retained. However the number of attempts taken to clear a Course shall be indicated in the grade cards/ transcripts.

16OMT6.2 **Computation of SGPA and CGPA (as per UGC Guidelines)**

The following procedures shall be used to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA) respectively:

i) The SGPA is the ratio of sum of the product of the number of credits with the grade points secured by a student in all the Courses taken by him/her and the sum of the number of credits of all the Courses undergone by a student, i.e.,

$$SGPA \quad \frac{\sum (C_i \times G_i)}{\sum C_i}$$

Where C_i is the number of credits of the ith Course and G_i is the grade point scored by the student in the ith Course.

16OMT6.2 (continued)

ii) The CGPA is also calculated in the same manner taking into account all the Courses undergone by a student over all the semesters of a programme, i.e.,

$$CGPA = \frac{\sum S_i \times C_i}{\sum C_i}$$

Where S_i is the SGPA of the ith semester and C_i is the total number of credits in that semester.

The SGPA and CGPA shall be rounded off to 2 decimal places and reported in the transcripts.

Illustration for Computation of SGPA and CGPA

Computation of SGPA

Illustration No.1

Course	Credit	Grade letter	Grade point	Credit Point = (Credit × Grade)
Course 1	4	B	08	4 × 08 = 32
Course 2	4	D	06	4 × 06 = 24
Course 3	4	C	07	4 × 07 = 28
Course 4	3	S	10	3 × 10 = 30
Course 5	3	E	04	3 × 04 = 12
Course 6	3	D	06	3 × 06 = 18
Course 7	2	A	09	2 × 09 = 18
Course 8	2	D	06	2 × 06 = 12
Total	25	--	--	174

Thus, **SGPA= 174/25 = 6.96**

Illustration No.2

Course	Credit	Grade letter	Grade point	Credit Point = (Credit × Grade)
Course 1	4	B	08	4 × 08 = 32
Course 2	4	D	06	4 × 06 = 24
Course 3	4	C	07	4 × 07 = 28
Course 4	3	S	10	3 × 10 = 30
Course 5	3	F	00	3 × 00 = 00
Course 6	3	D	06	3 × 06 = 18
Course 7	2	A	09	2 × 09 = 18
Course 8	2	D	06	2 × 06 = 12
Total	25	--	--	162

Thus, **SGPA= 162/25=6.48**

If a Student secures letter grade C during reappearance then the SGPA is Calculated as shown below.

Illustration No. 2(a)

Course	Credit	Grade letter	Grade point	Credit Point = (Credit × Grade)
Course 5	3	C	07	7 × 03 = 21

Total Credit Points = Credit Points of first Attempt) + Credit Points of subsequent attempt =162 + 21 = 183

Total credits of the semester = 25

Thus, **SGPA= 183/25=7.32**

16OMT6.2 (continued)

Illustration No.3

Course	Credit	Grade letter	Grade point	Credit Point = (Credit x Grade)
Course 1	4	B	08	4 x 08 = 32
Course 2	4	D	06	4 x 06 = 24
Course 3	4	C	07	4 x 07 = 28
Course 4	3	S	10	3 x10 = 30
Course 5	3	A	09	3 x 04 = 18
Course 6	3	D	06	3 x 06 = 18
Course 7	2	A	09	2 x 09 = 18
Course 8	2	D	06	2 x 06 = 12
Total	25	--	--	189

Thus, **SGPA= 189/25=7.56**

$$CGPA\ (from\ illustrations\ 2\ and\ 3) = \frac{25 \times 7.32 + 25 \times 7.56}{50} = 7.44$$

Semester	I	II	III	IV
Credits of the semester	24	24	24	24
SGPA	7.08	6.08	7.92	9.24

$$Thus\ CGPA = \frac{(24 \times 7.08 + 24 \times 6.08 + 24 \times 7.92 + 24 \times 9.24)}{96} = 7.58$$

16OMT6.3 **Transcript Format:** Based on the secured letter grades, grade points, SGPA and CGPA, the transcript for each semester and a consolidated transcript indicating the performance in all semesters shall be issued.

16OMT7.0 **Conversions of Grades into Percentage and Declaration of Class**

Conversion Formula For The Conversion Of CGPA Into Percentage Is Given Below

Percentage Of Marks Secured, $P = [\text{CGPA Earned} - 0.75] \times 10$

Illustration For A CGPA Of 8.20:

$P = [\text{CGPA Earned } 8.2 - 0.75] \times 10 = 74.5\ \%$

16OMT7.1 **Class Declaration:**

After the conversion of final CGPA into percentage of marks (P), a graduating student is declared to have passed in

(i) First Class with Distinction (FCD) if $P \geq 70\%$

(ii) First Class (FC) if $P \geq 60\%$ but <70% and

(iii) Second Class (SC) if $P < 60\%$.

16OMT8.0 **Continuous Internal Evaluation and Semester End Evaluation**

16OMT8.1 For each theory and practical paper, the CIE marks shall be 20.
For seminar, the CIE marks shall be 100.
For Internship, the CIE marks shall be 50.
For Project Phase –I and Project Phase –II the CIE marks shall be 50 respectively.
[To be read along with 16OMT8.8]

16OMT8.2 CIE Marks shall be based on

a) Tests (for 10 Marks) and
b) Assignments, Quiz, Simulation, Experimentation, Mini project, oral examination, field work etc., (for10 Marks) conducted in respective courses.

16OMT8.3	The CIE marks in a theory course, for 10 marks, shall be based on two tests covering the entire syllabus. An additional test may be conducted for the needy students to provide an opportunity to improve their CIE Marks before the end of the semester. The CIE marks shall be the average of the marks scored in at least two of the above tests. [To be read along with 16OMT8.8]
16OMT8.4	The candidates shall write the Tests in Blue Book/s. The Blue book/s and other documents relating to award of CIE marks under 16OMT8.2 (b) shall be preserved by the Principal / Head of the Department for at least six months after the announcement of University results and made available for verification at the directions of the Registrar (Evaluation).
16OMT8.5	Every page of the CIE marks list shall bear the signatures of the concerned Teacher, Head of the Department and the Principal.
16OMT8.6	The CIE marks list shall be displayed on the Notice Board and corrections, if any, shall be incorporated before submitting to the University.
16OMT8.7	The CIE marks shall be sent to the university by the Principals well in advance before the commencement of Semester End Examinations. No corrections of the CIE marks shall be entertained after the submission of marks list to the University.
16OMT8.8	Candidates obtaining less than 50% of the CIE marks in any course (Theory/Laboratory/Seminar/Internship/Project) shall not be eligible to appear for the University examination in that course/s. In such cases, the Head of the Department shall arrange for the improvement of CIE marks in the course/ Laboratory whenoffered in the subsequent semester subject to the provision of 16OMT1.5.
16OMT8.9	**Semester End Evaluation:** There shall be a University examination at the end of each semester.
16OMT8.10	There shall be double valuation of theory papers. The theory Answer booklets shall be valued independently by two examiners appointed by the University.
16OMT8.11	If the difference between the marks awarded by the two Examiners is not more than 15 per cent of the maximum marks, the marks awarded to the candidate shall be the average of two evaluations.
16OMT8.12	If the difference between the marks awarded by the two Examiners is more than 15 per cent of the maximum marks, the answer booklet shall be evaluated by a third Examiner appointed by the university. The average of the marks of nearest two valuations shall be considered as the marks secured by the candidate. In case, if one of the three marks falls exactly midway between the other two, then the highest two marks shall be taken for averaging.
16OMT9.0	**Eligibility for Passing and Award of Degree**
16OMT9.1	A student who obtains any grade S to E shall be considered as passed and if a student secure F grade in any of the head of passing he/she has to reappear in that head for the SEE**.**
16OMT9.2	For a pass in a theory course, the student shall secure minimum of 40% of the maximum marks prescribed in the Semester End Examination and 50% of marks inCIE and 50% in the aggregate of CIE and SEE marks. The Minimum Passing Grade in
16OMT9.3	For a pass in Internship/Practical/Project/Dissertation/Viva-voce examination, astudent shall secure a minimum of 50% of the maximum marks prescribed for the SEE in Internship/Practical/Project/Dissertation/Viva-voce. The Minimum Passing Grade in a course is E.
16OMT9.4	For a pass, a candidate shall obtain a minimum of 50% of maximum marks in Seminar.

16OMT9.5	IV semester Full time candidates having backlog courses are permitted to upload the dissertation report and to appear for SEE. The IV semester grade card shall be released only when the candidate completes all the backlog courses and become eligible for the award of degree. [To be read along with 16OMT11.2] VI semester Part time candidates having backlog courses are permitted to upload the dissertation report and to appear for SEE. The VI semester grade card shall be released only when the candidate completes all the backlog courses and become eligible for the award of degree. [To be read along with 16OMT11.2]
16OMT9.6	A candidate may at his/her desire reject his/her latest semester results of University examination in respect to all courses of that semester. However, in the IV semester the rejection shall not include the Project work. Rejection shall be permitted only once during the entire Programme. The CIE marks of the rejected semester shall remain the same. Rejection of results of the University examination including CIE marks is not
16OMT9.7	If the rejection of the University examination results of the semester happens to be of an odd semester, the candidate can take admission to the immediate next even semester. However, if the rejection of the University result is of even semester, the candidate cannot take admission to the next odd semester.
16OMT9.8	Application for rejection shall be submitted to the Registrar (Evaluation) through the Principal of the college, within thirty days from the date of announcement of results.
16OMT9.9	A candidate, who opts for rejection of results of a semester shall be eligible for the award of class and distinction, but shall not be eligible for the award of rank.
16OMT9.10	**Eligibility for Award of Degree:** A student shall be declared to have completed the degree of Master of Technology, provided the student has undergone the stipulated course work as per the regulations and has earned the prescribed Credits, as per the Scheme of Teaching and Examination, of the programme.
16OMT10.0	**Attendance Requirement**
16OMT10.1	**Registration and Enrolment:** i) Except for the first semester, registration for a semester will be done during a specified week before the semester end examination of the previous semester. ii) The registration sheet should have the Candidate details, course name and code, number of credits and category (core/elective/audit) for each course of that semester. iii) The Faculty Adviser, assigned by the Head of the Department, will counsel the students in planning their courses of study and provide guidance, motivation, emotional support, and enable the mentees to reach the desired professional and career goals.
16OMT10.2	Courses of each semester shall be treated as a separate unit for calculation of the attendance.
16OMT10.3	The candidate has to put in a minimum attendance of 85% in each course with a provision to condone 10% of the attendance by the Vice-Chancellor on the specific recommendation of the Principal of the college where the candidate is studying, based on medical grounds, participation in University/ State/ National/ International level sports and cultural activities, seminars, workshops, paper presentation etc., of significant value. The necessary documents in support are to be submitted along with recommendations to condone the shortage.
16OMT10.4	In case of late admission, approved by competent authority (DTE/VTU), to I semester of the programme the attendance shall be reckoned from the date of admission to the programme.

16OMT10.5	A candidate, who does not satisfy the attendance requirement (in one or more Courses) as mentioned in 16OMT10.3 shall not be eligible to appear for the SEE of that semester and shall not be permitted to take admission to next higher semester. The candidate shall be required to repeat that semester during the subsequent year.
16OMT10.6	Principals of the concerned colleges shall notify regularly, the list of candidates who fall short of attendance.
16OMT10.7	The list of the candidates falling short of attendance shall be sent to the University at least one week prior to the commencement of the examination.
16OMT11.0	**Promotion and Eligibility**
16OMT11.1	**Promotion:** There shall be no restriction for promotion from an odd semester to the next even semester, provided the student has fulfilled the attendance requirement.
16OMT11.2	The Mandatory non – credit courses, if any, shall not be considered for the Eligibility criterion prescribed for promotion, award of Class, calculation of SGPA and CGPA. However, a pass in the above courses is mandatory before the completion of Degree.
16OMT12.0	**Temporary Discontinuation/Break in the Program**
16OMT12.1	(a) If a candidate, for any reason, temporarily discontinues the Programme or take abreak from programme during any semester, he/she may be permitted to continue in the programme by registering to the same semester of the prevailing scheme. The candidate shall complete all the remaining course work subject to the provision 16OMT1.5. Also the Candidates may have to complete additional course/s, if any, as per the decision of concerned Board of Studies and approval of Dean, Faculty of Engineering, on establishing equivalence between two schemes. A Grade card shall be issued to that effect. Additional course/s shall not be considered forthe eligibility criterion prescribed for promotion. However, based on the individual cases, it is considered to decide the SGPA and CGPA to admit the student for theaward of degree. Such candidate shall not be eligible for the award of rank.
16OMT12.1 (continued)	(b) Candidates who takes admission to any semester of the existing scheme from another scheme, as a repeater/fresher because of various reasons have to complete additional course/s, if any, as per the decision of concerned Board of Studies and approval of Dean, Faculty of Engineering, on establishing equivalence between two schemes. A Grade card shall be issued to that effect. Additional course/s shall not be considered for the eligibility criterion prescribed for promotion.However, based on the individual cases, it is considered to decide the SGPA and CGPA to admit the student for the award of degree. Such candidate shall not be eligible for the award of rank.
16OMT13.0	**Award of Prizes, Medals and Ranks**
16OMT13.1	For the award of Prizes and Medals, the conditions stipulated by the Donor shall be considered subject to the provisions of the statutes framed by the University for such awards.

16OMT13.2	(1) For award of rank in a Specialization of Master of Technology, the CGPA secured by the student from I to IV semester is considered. (2) A student shall be eligible for a rank at the time of award of degree of Master of Technology, provided the student a. Is not a repeater in any semester b. Has not rejected the results of any semester. c. Has passed I to IV semester in all the courses in first attempt only (3) The total number of ranks awarded shall be 10% of total number of students appeared in IV semester subject to a maximum of 10 ranks in a Specialization. (4) For award of ranks in a Specialization, a minimum of 10 students should have appeared in the IV semester examination. **Illustration:** (a) If 150 students appeared for the IV semester in VLSI Design and Embedded Systems Branch, the number of ranks to be declared in VLSI Design and Embedded Systems will be 10. (b) If 84 students appeared for the IV semester in Nano Technology, the number of ranks to be declared for Nano Technology will be 08. (c) In case of fractional number of ranks, it is rounded to higher integer only when the first decimal place value is greater than or equal to 5. (5) Students under Part time Programme are not considered for Rank declaration.
16OMT13.3	Ranks are awarded based on the merit of the students as determined CGPA. If two or more students get the same CGPA, the tie shall be resolved by considering the number oftimes a student has obtained higher SGPA. If it is not resolved even at this stage, the number of times a student has obtained higher grades like S, A, B etc., shall be taken into account to decide the order of the rank.
16OMT14.0	**Applicability and Power to Modify**
16OMT14.1	The regulations governing the Degree of Master of Technology of Visvesvaraya Technological University shall be binding on all concerned.
16OMT14.2	i) Notwithstanding anything contained in the foregoing, the University shall have the power to issue directions/ orders to address any difficulty. ii) Nothing in the foregoing may be construed as limiting the power of the University to amend, modify or repeal any or all of the above.

Visvesvaraya Technological University, Belagavi

REGULATIONS GOVERNING
THE DEGREE OF MASTER OF TECHNOLOGY (M.Tech.)
UNDER CHOICE BASED CREDIT SYSTEM (CBCS) SCHEME
(Full Time and Part Time)
Effective from academic year 2017 -18

SEPTEMBER 2017

Visvesvaraya Technological University, Belagavi

Regulations Governing the Degree of Master of Technology (M.Tech.)
Under Choice Based Credit System (CBCS) Scheme
(Full Time and Part Time)
Effective from academic year 2017 -18

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Visvesvaraya Technological University, Belagavi

Regulations Governing the Degree of Master of Technology (M.Tech.)
Under Choice Based Credit System (CBCS) Scheme
(Full Time and Part Time)
Effective from academic year 2017 -18

Definitions of Keywords

The following are the definitions/descriptions that have been followed for the different terms used in the Regulations of M.Tech Programmes:

1) **Programme:** Is an educational programme in a particular stream/ branch of Engineering/branch of specialization leading to award of Degree. It involves events/activities, comprising of lectures/ tutorials/ laboratory work/ field work, outreach activities/ project work/ vocational training/ viva/ seminars/ Internship/ assignments/ presentations/ self-study etc., or a combination of some of these.
2) **Branch:** Means Specialization or discipline of M.Tech Degree Programme, like Power Electronics, Structures, Machine Design, etc.
3) **Semester:** Refers to one of the two sessions of an academic year (vide: serial number 4), each session being of sixteen weeks duration (with working days greater than or equal to ninety).The odd semester may be scheduled from August and even semester from February of the year.
4) **Academic Year:** Refers to the sessions of two consecutive semesters (odd followed by an even) including periods of vacation.
5) **Course:** Refers to usually referred to as 'papers' and is a component of a programme. All Courses need not carry the same weight. The Courses should define learning objectives and learning outcomes. A Course may be designed to comprise lectures/ tutorials/ laboratory work/ field work/ outreach activities/project work/ vocational training/ viva/ seminars/ term papers/assignments/ presentations/ self-study etc., or a combination of some of these.
6) **Credit:** Refers to a unit by which the Course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of lecture or two hours of laboratory/practical Courses/ tutorials/ fieldwork per weeketc.
7) **Audit Courses:** Means Knowledge/ Skill enhancing Courses without the benefit of a grade or credit for a Course.
8) **Choice Based Credit System (CBCS):** Refers to customizing the Course work, through Core, Elective and soft skill Courses, to provide necessary support for the students to achieve their goals.
9) **Course Registration:** Refers to formal registration for the Courses of a semester (Credits) by every student under the supervision of a Faculty Advisor (also called Mentor, Counselor etc.,) in each Semester for the Institution to maintain proper record.
10) **Course Evaluation:** Means Continuous Internal Evaluation (CIE)and Semester End Examinations (SEE) to constitute the major evaluations prescribed for each Course.CIE and SEE to carry 20 % and 80 % respectively, to enable each Course to be evaluated for 100 marks, irrespective of its Credits.
11) **Continuous Internal Evaluation (CIE):** Refers to evaluation of students' achievement in the learning process. CIE shall be by the Course Instructor and includes tests, homework, problem solving, group discussion, quiz, mini-project and seminar throughout the Semester, with weightage for the different components being fixed at the University level.

12) **Semester end examinations (SEE):** Refers to examination conducted at the University level covering the entire Course Syllabus. For this purpose, Syllabi to be modularized and SEE questions to be set from each module, with a choice confined to the concerned module only. SEE is also termed as university examination.

13) **First Attempt:** Refers to a student who has completed all formalities and has become eligible to attend the SEE and has attended at least one head of passing, such attempt shall be considered as first attempt.

14) **Credit Based System (CBS):** Refers to quantification of Course work, after a student completes teaching – learning process, followed by passing in both CIE and SEE. Under CBS, the requirement for awarding degree is prescribed in terms of total number of credits to be earned by the students.

15) **Credit Representation:** Refers to Credit Values for different academic activities considered, as per the Table.1. Credits for seminar, project phases, project viva–voce and internship shall be as specified in the Scheme of Teaching and Examination (Annexure -1).

16) **Letter Grade:** It is an index of the performance of students in a said Course. Grades are denoted by letters S, A, B, C, D, E and F.

Table 1: Credit Values

Theory/Lectures (L) (hours/week/Semester)	Tutorials (T) (hours/week/Semester)	Laboratory/Practical (P) (hours/week/Semester)	Credits (L:T:P)	Total Credits
4	0	0	4:0:0	4
3	0	0	3:0:0	3
2	2	0	2:1:0	3
2	0	2	2:0:1	3
2	2	2	2:1:1	4
0	0	6	0:0:3	3
NOTE: Activities like, practical training, study tour and participation in Guest lectures not to carry Credits.				

17) **Grading:** Grade refers to qualitative measure of achievement of a student in each Course, based on the percentage of marks secured in (CIE plus SEE). Grading is done by Absolute Grading [Refer: 17OMT6.0]. The rubric attached to letter grades are as follows:
S – Outstanding, A – Excellent, B – Very Good, C – Good, D – Above Average, E – Average and F – Fail.

18) **Grade Point (GP):** Refers to a numerical weightage allotted to each letter grade on a 10-point scale as under.

Letter Grade and corresponding Grade Points on a typical 10 – Point scale							
Letter Grade	S	A	B	C	D	E	F
Grade Point	10	09	08	07	06	04	00

19) **Passing Standards:** Refers to passing a Course only when getting GP greater than or equal to 04 (as per serial number 18).

20) **Credit Point:** Is the product of grade point (GP) and number of credits for a Course i.e.,
$\text{Credt points (CrP)} = \text{GP} \times \text{Credits for the Course}$.

21) **Semester Grade Point Average (SGPA):** Refers to a measure of academic performance of student/s in a semester. It is the ratio of total credit points secured by a student in various Courses of a semester and the total Course credits taken during that semester. [Refer:17OMT6.0]

22) **Cumulative Grade Point Average (CGPA):** Is a measure of overall cumulative performance of a student over all semesters. The CGPA is the ratio of total credit points earned by a student in various Courses in all semesters and the sum of the total credits of all Courses in all the semesters. It is expressed up to two decimal places. [Refer: 17OMT6.0]

23) **Transcript or Grade Card or Certificate:** Refers to a certificate showing the grades earned by a student. A grade certificate shall be issued to all the registered students after every semester. The grade certificate will display the programme details (Course code, title, numberof credits, grades secured) along with SGPA of that semester and CGPA earned till that semester.

24) **University:** Visvesvaraya Technological University (VTU), Belagavi.

Visvesvaraya Technological University, Belagavi
Regulations Governing the Degree of Master of Technology (M.Tech.)
Under Choice Based Credit System (CBCS) Scheme
(Full Time and Part Time)
Effective from academic year 2016 -17

17OMT1.0	**Title, Duration and Credits of the Programme of Study**
17OMT1.1	The Programme shall be called Master of Technology (Subject of Specialization), abbreviated as M.Tech. (Subject of Specialization).
17OMT1.2	There shall be two categories of Programme: 1) Full Time Programme (FT), and 2) Part Time Programme (PT)
17OMT1.3	**Full Time Programme:** The Programme shall extend over a period of four semesters and each semester shall have 16 weeks duration.
17OMT1.4	**Part Time Programme:** (a) The Programme shall be of 6 semesters. (b) Each semester shall be 16 weeks duration. (c) First, second, third and fourth semesters shall comprise course work and fifth and Sixth semesters shall be same as that of III and IV Semesters of the Full time Programme. (d) The candidate shall register for a maximum of three courses per semester. (e) The candidates shall register for Laboratory course and Seminar in first andsecond semesters along with the regular three courses.
17OMT 1.5	**Maximum Duration for Programme Completion:** (a) A Full Time candidate shall be allowed a maximum duration of 4 years from the first semester of admission to become eligible for the award of Master's Degree, failing which he/she may discontinue the programme or register once again as a fresh candidate to I semester of the programme. (b) A Part Time candidate shall be allowed a maximum of 6 years duration from the first semester of admission to become eligible for the award of Master's Degree, failing which he/she may discontinue the programme or register once again as a fresh candidate to I semester of the programme.
17OMT1.6	Prescribed Number of Credits for the Programme: The number of credits to be completed for the award of degree shall be 85.
17OMT1.7	The Calendar of events in respect of the Programme shall be notified by the University in advance.
17OMT2.0	**Eligibility for Admission(As per the Government orders issued from time to time)**
17OMT2.1	Admission to I year/I semester Master of Technology Programme shall be open to all the candidates who have passed B.E./ B. Tech. Examinations of VTU or any other recognized University/ Institution. The decision of the Equivalence committee shall be final in establishing the eligibility of candidates for a particular Programme. For the foreign degrees, Equivalence certificate from the Association of Indian Universities is a must. The candidates who have completed their degree through the distance mode education from any University (National or International) are not eligible for admission to M.Tech. Programs under any quota.

17OMT2.2	AMIE in respective branches shall be equivalent to B.E./ B. Tech. Programs of VTU for admission to M.Tech.
16 OMT2.3	Admission to M.Tech. Programme shall be open to the candidates (as per 17OMT 2.1 and 2.2) who have passed the prescribed qualifying examination with not less than 50% of the marks in the aggregate of all the years of the degree examination.However, in the case of candidates belonging to SC/ST and Category I, the aggregate percentage of marks in the qualifying examinations shall not be less than 45%.Rounding off of percentage secured in qualifying examination is not permissible.
17OMT2.4	**For admissions under GATE/ PGCET qualification and Roaster system of Government of Karnataka:** The candidates should be GATE qualified or should have appeared for the Entrance Examination conducted by an authority recognized by Government of Karnataka (PGCET)/VTU/any other University on approval by Government of Karnataka. **For admissions under Management Quota:** The candidates should be GATE qualified or should have appeared for the Entrance Examination conducted by an authority recognized by Government of Karnataka PGCET/VTU/any other University on approval by Government of Karnataka. Further, there shall be an Admissions Committee for PG Programme in each college for each branch of PG studies consisting of the Principal of the College as the Chairman, Head of the concerned Department, one senior faculty of the concerned Department as members. The Admissions Committee shall conduct the interview and select the candidates for admissions. **For admissions under Sponsored Quota:** The candidates should be GATE qualified or should have appeared for the Entrance Examination conducted by an authority recognized by Government of Karnataka PGCET/VTU/any other University on approval by Government of Karnataka.
17OMT2.5	The candidates, who are qualified in the GATE Examination for the appropriate branch of engineering, shall be given priority. They are exempted from taking Entrance Examination. In case a GATE qualified Candidate appears for entrance examination and become qualified to claim a seat under entrance examination quota, he/she will be considered in the order of merit along with other candidates appeared for the entrance examination.
17OMT2.6	If sufficient number of GATE qualified candidates are not available, the remaining vacant seats shall be filled from amongst the candidates appeared for Entrance Examination in the order of merit.
17OMT2.7	The intake under various categories (regular, sponsored candidates and SC/ST) shall be as sanctioned by the AICTE, State Government and VTU, from time to time.

17OMT2.8	Subject to the provisions of 17OMT2.1 and 17OMT2.2, members of the Teaching/Research Staff working in any Engineering College recognized by AICTE either in the State of Karnataka or outside and who have put in a minimum of 03 years of teaching experience on full-time basis in Engineering Colleges, Polytechnic institutions / any other institutions imparting Engineering education shall be eligible for admission to PG Programs under sponsored quota, if they are sponsored by the respective Institutions / DTE.
17OMT2.9	Subject to the provisions of 17OMT 2.1 and 17OMT 2.2, members working in the State Government/ Central Government/ Quasi Government Organizations/ Public Sector Industries / Reputed Private Industries, who have put in a minimum of 03years of working experience and sponsored by the concerned Organizations, shall also be eligible to seek admissions to PG Programs against sponsored quota. Preference for admission under 17OMT2.8 and 2.9 shall be given to candidates sponsored by organizations of State and Central Governments.
17OMT2.10	Further that employment of Part time students shall be in an establishment situated within the 100 km from the place of the institution to which the candidate is seeking admission.
17OMT2.11	The Engineering graduates other than the Karnataka candidates shall obtain Eligibility Certificate from VTU to seek admission to P.G. Programme in any of the colleges (Autonomous or Non - Autonomous) affiliated to VTU.
17OMT2.12	**Admission to vacant seats:** Seats remaining vacant (unfilled), after the completion of PG admission process by Karnataka Examination Authority, shall be filled by the Institution by inviting applications through Press notification. The seats shall be filled by Candidates preferably who have valid GATE/ PGCET score. In the absence of such Candidates, admission shall be based on merit in the entrance test conducted at the Institution level. An Admissions Committee, consisting of the Principal of the College, Head of the concerned Department and the subject experts, shall be in charge of admissions.
16MT3.0	**Courses**
17OMT3.1	The curriculum of the Programme shall be any combination of following type of courses: i) One Course on Mathematics supportive to the concerned programme in the first semester. ii) Professional Core Courses (PC) - relevant to the chosen specialization/ branch [May be split into Hard (no choice) and Soft (with choice), if required]. The core course is to be compulsorily studied by a student and is mandatory to complete the requirements of a programme in a said discipline of study. iii) Professional Electives Courses (PE) - relevant to the chosen specialization/ branch: these are the courses, which can be chosen from the pool of papers. It shall be supportive to the discipline/ providing extended scope/enabling an exposure to some other discipline / domain / nurturing student skills.

17OMT3.1 (continued)	iv) Open Electives Courses (OE), from other technical and/ or emerging specialization areas. v) Project Work, Seminar. vi) Audit Courses (AC): (a) The Audit course can be any credit course offered by the program to which the Candidate is admitted (other than the courses considered for completing the prescribed program credits) or other programs offered in the institution, where the student is studying. (b) The students who are interested in audit courses can register for one audit course at a time during II and IV semesters. Students who have registered to audit the courses, considered on par with students registered to the same course for credit, have to satisfy attendance and CIE requirements. However, they need not have to appear for SEE. (c) Registration for any audit course, in writing, shall be completed at the beginning of II and IV semesters. The Institution should intimate the Registrar (Evaluation) about the registration at the beginning of the semester and obtain a formal approval for inclusion of the audit course/s in the Grade cards/ Transcripts issuedto the students. vii) Internship: Preferably at an industry/R and D organization/IT company/ Government organization of significant repute for a specified period mentioned in Scheme of Teaching and Examination.
17OMT4.0	**Internship**
17OMT4.1	**Internship:** The student shall undergo Internship for 16 weeks as per the Scheme of Teaching and Examination. 1. The internship can be carried out in any industry/R&D Organization/Research Institute/Institute of repute. 2. (a) The Department/college shall nominate a faculty to facilitate, guide and supervise students under internship. (b) The Internal Guide has to visit work place at least once during the student's internship. 3. The students shall report the progress of the internship to the internal guide in regular intervals and seek his/her advise. 4. The Internship shall be completed during the period specified in Scheme of Teaching and Examination. 5. After completion of Internship, students shall submit a report to the Head of the Department with the approval of both internal and external guides. 6. There will be 50 marks for CIE (Seminar: 25, Internship report: 25) and 50 marks for Viva – Voce conducted during SEE. [To be read along with 17OMT 8.8 and 8.9] 7. The internal guide shall award the CIE marks for seminar and internship report after evaluation. He/she will also be the internal examiner for Viva – Voce conducted during SEE. 8. The external guide from the industry has to be an examiner for the viva voce on Internship. Viva-Voce on internship shall be conducted at the college and the date of Viva-Voce shall be fixed in consultation with the external Guide. The Examiners shall jointly award the Viva - Voce marks.

17OMT4.1(continued)	9. In case the external Guide expresses his inability to conduct viva voce, the Chief Superintendent is permitted to make alternate arrangements with the permission of the concerned BOE Chairperson. 10. The students are permitted to carry out the internship anywhere in India or Abroad. The University will not provide any kind of Financial Assistance to any student for internship and for the conduct of Viva-Voce on internship.
17OMT4.2	**Failing to undergo Internship:** Internship is one of the head of passing. Completion of internship is mandatory. If any student fails to undergo/complete the internship, he/she shall be considered as failed in that Course and shall not be permitted to appear for SEE in that Course. However, student shall appear for SEE after satisfying the conditions prescribed for Internship. The reappearance shall be considered as an attempt.
17OMT5.0	**Seminar and Project**
17OMT5.1	**Seminar:** Seminar is one of the head of passing. i) Each candidate shall deliver seminar as per the Scheme of Teaching and Examination on the topics chosen from the relevant fields for about 30 minutes. ii) The Head of the Department shall make arrangements for conducting seminars through concerned faculty members of the Department. The committee constituted for the purpose by the Head of the Department shall award the CIE marks for the seminar. The committee shall consist of three faculty from the Department and the senior most acting as the Chairman/Chairperson. [To be read along with 17OMT8.8]
17OMT5.2	**Project Work:** Project is one of the head of passing. Project work shall preferably be on individual basis. The candidate shall submit a soft copy (CD) of the dissertation work to the University. The CD should contain the entire Dissertation in monolithic form as a PDF file (not separate chapters). The Guide, after checking the report for completeness shall upload the Dissertation along with name, University Seat Number, address, mobile number of the candidate, etc., as prescribed in form available on online Dissertation evaluation portal. The guide shall submit a panel of four approved University Examiners for evaluation of dissertation.
17OMT5.3	**Plagiarism Check** Once the Guide uploads the dissertation, the same shall be linked for plagiarism check. The allowable plagiarism index is less than or equal to 25%. If the check indicates a plagiarism index greater than 25% : • for the first time, the candidate has to resubmit the dissertation, to the Registrar (Evaluation), Regional Center/Head Office, VTU along with the penal fees of Rs. 2000/- (Rupees Two thousand only) in person. • for the second time, the candidate has to resubmit the dissertation along with the penal fees of Rs. 4000/- (Rupees four thousand only) in person. • If the dissertation is rejected again during second resubmission with reference to plagiarism index, the candidate shall redo the project and submit after a semester's time subject to provisions of 17OMT1.5.
17OMT5.4	The dissertation shall be sent through email for evaluation to two examiners - one internal examiner (guide/co-guide) and one external examiner (first) appointed by the University. The evaluation of the dissertation shall be made independently by each examiner.

17OMT5.5	Examiners shall evaluate the dissertation normally within a period of not more than two weeks from the date of receipt of dissertation through email.
17OMT5.6	The examiners shall independently submit the marks through the specified link.
17OMT5.7	Average of the marks awarded by the two Examiners shall be the final evaluation marks for the Dissertation.
17OMT5.8	(a) Viva-voce examination of the candidate shall be conducted as per 17OMT5.10, if the dissertation work and the reports are accepted by the external examiner (first). (b) If the external examiner (first) finds that the dissertation work and the report are not up to the expected standard and the minimum passing marks cannot be awarded, the dissertation shall not be accepted for SEE. The external examiner (first) can recommend for modifications/suggestions of dissertation or totally reject the dissertation. The examiner shall offersuggestions for improvement of the dissertation for resubmission or list the reasons for rejection of the dissertation. (c) The resubmitted Dissertation incorporating the modifications/suggestions [as per 17OMT5.8(b)] of the external examiner (first) and satisfying the provision 17OMT5.3shall be sent again to the external examiner (first) for evaluation. If the dissertation and the report are accepted by the external examiner (first), Viva-voce examination of the candidate shall be conducted as per 17OMT5.10. (d) In case of rejection of Dissertation by the external examiner (first), the same will be sent to a Second Examiner (external) approved by the University. The decision of the Second Examiner (external) is final. If the dissertation and the report are accepted by the Second Examiner (external), Viva-voce examination of the candidate shall be conducted as per 17OMT5.10. If the Second Examiner (external) rejects the dissertation and the report, the candidate shall have to carry out the dissertation work once again and submit the dissertation subject to provisions of 17OMT1.5. In such cases of rejection, the candidate shall redo the entire procedure starting from the submission of Dissertation in soft copy. (e) In case of rejection of Dissertation, with reasons, by the external examiner (first) [as per 17OMT5.8 (b)], the same will be sent to a Second Examiner (external) [not necessarily the same examiner considered under 17OMT5.8 (d)] approved by the University. The decision of the Second Examiner (external) is final. If the dissertation and the report are accepted by the Second Examiner (external), Viva-voce examination of the candidate shall be conducted as per 17OMT5.10. If the Second Examiner (external) rejects the dissertation and the report, the candidate shall have to carry out the dissertation work once again and submit the dissertation subject to provisions of 17OMT1.5. In such cases of rejection, the candidate shall redo the entire procedure starting from the submission of Dissertation in soft copy.
17OMT5.9	The candidate, whose Dissertation is rejected, can rework on the same topic or choose another topic of dissertation under the same Guide or new Guide if necessary. In such an event, the report shall be submitted within four years in case of full time student and six years in case of part time student respectively from the date of admission to the Programme.
17OMT5.10	Viva-voce examination of the candidate shall be conducted by the external examiner and internal examiner/ guide. Internal examiner as per the direction of the University shall have to arrive at a mutually convenient date for the conduct of viva-voce examination of the concerned candidate with intimation to the Registrar (Evaluation). In case one of the examiners expresses his/her inability to attend the viva-voce, the Registrar (Evaluation) shall appoint a substitute examiner in his/her place.
17OMT5.11	The relative weights for the evaluation of dissertation and the performance at the viva voce shall be as per the scheme of teaching & examination.

17OMT5.12 The marks awarded by both the Examiners at the viva voce Examination shall be sent jointly to the University immediately after the examination.

17OMT5.13 Examination fee as fixed from time to time by the University for evaluation of dissertation report and conduct of viva voce shall be remitted through the Head of the Institution as per the instructions of Registrar (Evaluation) from time to time.

17OMT5.14 The candidates who fail to submit the dissertation work within the stipulated time have to submit the same at the time of next ensuing examination.

17OMT6.0 **Computation of SGPA and CGPA**

17OMT6.1

(i) The University adopts absolute grading system wherein the marks are converted to grades, and every semester results will be declared with semester grade point average (SGPA) and Cumulative Grade Point Average (CGPA). The CGPA will be calculated for every semester, except for the first semester.

(ii) The grading system with the letter grades and the assigned range of marks under absolute grading system are as given below:

Level	**Outstanding**	**Excellent**	**Very Good**	**Good**	**Above Average**	**Average**	**Fail**
Letter Grade	S	A	B	C	D	E	F
Grade Points	10	9	8	7	6	4	00
Percentage of Marks Scored in a Course	≥ 90 (90 -100)	<90 (80 -	< 80 (70 - 79)	< 70 (60 - 69)	< 60 (45 -	<45 (42 - 44)	<42 (0 - 41)

(iii) A student obtaining Grade F in a Course shall be considered failed and is required to reappear in subsequent SEE. Whatever the letter grade secured by the student during his /her reappearance shall be retained. However the number of attempts taken to clear a Course shall be indicated in the grade cards/ transcripts.

17OMT6.2 **Computation of SGPA and CGPA (as per UGC Guidelines)**

The following procedures shall be used to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA) respectively:

i) The SGPA is the ratio of sum of the product of the number of credits with the grade points secured by a student in all the Courses taken by him/her and the sum of the number of credits of all the Courses undergone by a student, i.e.,

$$SGPA \quad \frac{\sum (C_i \times G_i)}{\sum C_i}$$

Where C_i is the number of credits of the ith Course and G_i is the grade point scored by the student in the ith Course.

17OMT6.2 (continued)

ii) The CGPA is also calculated in the same manner taking into account all the Courses undergone by a student over all the semesters of a programme, i.e.,

$$CGPA = \frac{\sum S_i C_i}{\sum C_i}$$

Where S_i is the SGPA of the ith semester and C_i is the total number of credits in that semester.

The SGPA and CGPA shall be rounded off to 2 decimal places and reported in the transcripts.

Illustration for Computation of SGPA and CGPA

Computation of SGPA

Illustration No.1

Course	Credit	Grade letter	Grade point	Credit Point = (Credit × Grade)
Course 1	4	B	08	4 × 08 = 32
Course 2	4	D	06	4 × 06 = 24
Course 3	4	C	07	4 × 07 = 28
Course 4	3	S	10	3 × 10 = 30
Course 5	3	E	04	3 × 04 = 12
Course 6	3	D	06	3 × 06 = 18
Course 7	2	A	09	2 × 09 = 18
Course 8	2	D	06	2 × 06 = 12
Total	25	--	--	174

Thus, **SGPA= 174/25 = 6.96**

Illustration No.2

Course	Credit	Grade letter	Grade point	Credit Point = (Credit × Grade)
Course 1	4	B	08	4 × 08 = 32
Course 2	4	D	06	4 × 06 = 24
Course 3	4	C	07	4 × 07 = 28
Course 4	3	S	10	3 × 10 = 30
Course 5	3	F	00	3 × 00 = 00
Course 6	3	D	06	3 × 06 = 18
Course 7	2	A	09	2 × 09 = 18
Course 8	2	D	06	2 × 06 = 12
Total	25	--	--	162

Thus, **SGPA= 162/25=6.48**

If a Student secures letter grade C during reappearance then the SGPA is Calculated as shown below.

Illustration No. 2(a)

Course	Credit	Grade letter	Grade point	Credit Point = (Credit × Grade)
Course 5	3	C	07	7 × 03 = 21

Total Credit Points = Credit Points of first Attempt) + Credit Points of subsequent attempt =162 + 21 = 183

Total credits of the semester = 25

Thus, **SGPA= 183/25=7.32**

17OMT6.2 (continued)

Illustration No.3

Course	Credit	Grade letter	Grade point	Credit Point = (Credit x Grade)
Course 1	4	B	08	4 x 08 = 32
Course 2	4	D	06	4 x 06 = 24
Course 3	4	C	07	4 x 07 = 28
Course 4	3	S	10	3 x10 = 30
Course 5	3	A	09	3 x 04 = 18
Course 6	3	D	06	3 x 06 = 18
Course 7	2	A	09	2 x 09 = 18
Course 8	2	D	06	2 x 06 = 12
Total	25	--	--	189

Thus, **SGPA= 189/25=7.56**

$$CGPA\ (from\ illustrations\ 2\ and\ 3) = \frac{25 \times 7.32 + 25 \times 7.56}{50} = 7.44$$

Semester	I	II	III	IV
Credits of the semester	24	24	24	24
SGPA	7.08	6.08	7.92	9.24

$$Thus\ CGPA = \frac{(24 \times 7.08 + 24 \times 6.08 + 24 \times 7.92 + 24 \times 9.24)}{96} = 7.58$$

17OMT6.3 **Transcript Format:** Based on the secured letter grades, grade points, SGPA and CGPA, the transcript for each semester and a consolidated transcript indicating the performance in all semesters shall be issued.

17OMT7.0 **Conversions of Grades into Percentage and Declaration of Class**

Conversion Formula For The Conversion Of CGPA Into Percentage Is Given Below

Percentage Of Marks Secured, $P = [\text{CGPA Earned} - 0.75] \times 10$

Illustration For A CGPA Of 8.20:

$P = [\text{CGPA Earned } 8.2 - 0.75] \times 10 = 74.5\ \%$

17OMT7.1 **Class Declaration:**

After the conversion of final CGPA into percentage of marks (P), a graduating student is declared to have passed in

(i) First Class with Distinction (FCD) if $P \geq 70\%$

(ii) First Class (FC) if $P \geq 60\%$ but <70% and

(iii) Second Class (SC) if $P < 60\%$.

17OMT8.0 **Continuous Internal Evaluation and Semester End Evaluation**

17OMT8.1 For each theory and practical paper, the CIE marks shall be 20.
For seminar, the CIE marks shall be 100.
For Internship, the CIE marks shall be 50.
For Project Phase –I and Project Phase –II the CIE marks shall be 50 respectively.
[To be read along with 17OMT8.8]

17OMT8.2 CIE Marks shall be based on

a) Tests (for 10 Marks) and
b) Assignments, Quiz, Simulation, Experimentation, Mini project, oral examination, field work etc., (for10 Marks) conducted in respective courses.

17OMT8.3	The CIE marks in a theory course, for 10 marks, shall be based on two tests covering the entire syllabus. An additional test may be conducted for the needy students to provide an opportunity to improve their CIE Marks before the end of the semester. The CIE marks shall be the average of the marks scored in at least two of the above tests. [To be read along with 17OMT8.8]
17OMT8.4	The candidates shall write the Tests in Blue Book/s. The Blue book/s and other documents relating to award of CIE marks under 17OMT8.2 (b) shall be preserved by the Principal / Head of the Department for at least six months after the announcement of University results and made available for verification at the directions of the Registrar (Evaluation).
17OMT8.5	Every page of the CIE marks list shall bear the signatures of the concerned Teacher, Head of the Department and the Principal.
17OMT8.6	The CIE marks list shall be displayed on the Notice Board and corrections, if any, shall be incorporated before submitting to the University.
17OMT8.7	The CIE marks shall be sent to the university by the Principals well in advance before the commencement of Semester End Examinations. No corrections of the CIE marks shall be entertained after the submission of marks list to the University.
17OMT8.8	Candidates obtaining less than 50% of the CIE marks in any course (Theory/Laboratory/Seminar/Internship/Project) shall not be eligible to appear for the University examination in that course/s. In such cases, the Head of the Department shall arrange for the improvement of CIE marks in the course/ Laboratory whenoffered in the subsequent semester subject to the provision of 17OMT1.5.
17OMT8.9	**Semester End Evaluation:** There shall be a University examination at the end of each semester.
17OMT8.10	There shall be double valuation of theory papers. The theory Answer booklets shall be valued independently by two examiners appointed by the University.
17OMT8.11	If the difference between the marks awarded by the two Examiners is not more than 15 per cent of the maximum marks, the marks awarded to the candidate shall be the average of two evaluations.
17OMT8.12	If the difference between the marks awarded by the two Examiners is more than 15 per cent of the maximum marks, the answer booklet shall be evaluated by a third Examiner appointed by the university. The average of the marks of nearest two valuations shall be considered as the marks secured by the candidate. In case, if one of the three marks falls exactly midway between the other two, then the highest two marks shall be taken for averaging.
17OMT9.0	**Eligibility for Passing and Award of Degree**
17OMT9.1	**(1)** A student who obtains any grade S to E shall be considered as passed and if a student secure F grade in any of the head of passing he/she has to reappear in that head for the SEE**.** (2) A student will be declared successful at the Semester-end or Programme-end only on obtaining each CGPA greater than or equal to 5.00, with none of the Courses registered in a Semester or for the Degree Award remaining with F Grade. (3) In case, the CGPA fall below 5.00, the student shall be permitted to appear again for SEE for required number of courses (other than seminar and Practical) and times, subject to the provision of 17OMT1.5, to make up CGPA greater than or equal to 5.0. The student should reject the SEE results of the previous attempt and obtain written permission from The Registrar (Evaluation) to reappear in the subsequent SEE.

17OMT9.2	For a pass in a theory course, the student shall secure minimum of 40% of the maximum marks prescribed in the Semester End Examination and 50% of marks inCIE and 42% in the aggregate of CIE and SEE marks. The Minimum Passing Grade in
17OMT9.3	For a pass in Internship/Practical/Project/Dissertation/Viva-voce examination, astudent shall secure a minimum of 50% of the maximum marks prescribed for the SEE in Internship/Practical/Project/Dissertation/Viva-voce. The Minimum Passing Grade in a course is E.
17OMT9.4	For a pass, a candidate shall obtain a minimum of 50% of maximum marks in Seminar.
17OMT9.5	IV semester Full time candidates having backlog courses are permitted to upload the dissertation report and to appear for SEE. The IV semester grade card shall be released only when the candidate completes all the backlog courses and become eligible for the award of degree. [To be read along with 17OMT11.2] VI semester Part time candidates having backlog courses are permitted to upload the dissertation report and to appear for SEE. The VI semester grade card shall be released only when the candidate completes all the backlog courses and become eligible for the award of degree. [To be read along with 17OMT11.2]
17OMT9.6	A candidate may at his/her desire reject his/her latest semester results of University examination in respect to all courses of that semester. However, in the IV semester the rejection shall not include the Project work. Rejection shall be permitted only once during the entire Programme. The CIE marks of the rejected semester shall remain the same. Rejection of results of the University examination including CIE marks is not
17OMT9.7	If the rejection of the University examination results of the semester happens to be of an odd semester, the candidate can take admission to the immediate next even semester. However, if the rejection of the University result is of even semester, the candidate cannot take admission to the next odd semester.
17OMT9.8	Application for rejection shall be submitted to the Registrar (Evaluation) through the Principal of the college, within thirty days from the date of announcement of results.
17OMT9.9	A candidate, who opts for rejection of results of a semester shall be eligible for the award of class and distinction, but shall not be eligible for the award of rank.
17OMT9.10	**Eligibility for Award of Degree:** A student shall be declared to have completed the degree of Master of Technology, provided the student has undergone the stipulated course work as per the regulations and has earned the prescribed Credits, as per the Scheme of Teaching and Examination, of the programme.
17OMT10.0	**Attendance Requirement**
17OMT10.1	**Registration and Enrolment:** i) Except for the first semester, registration for a semester will be done during a specified week before the semester end examination of the previous semester. ii) The registration sheet should have the Candidate details, course name and code, number of credits and category (core/elective/audit) for each course of that semester. iii) The Faculty Adviser, assigned by the Head of the Department, will counsel the students in planning their courses of study and provide guidance, motivation, emotional support, and enable the mentees to reach the desired professional and career goals.
17OMT10.2	Courses of each semester shall be treated as a separate unit for calculation of the attendance.

17OMT10.3	The candidate has to put in a minimum attendance of 85% in each course with a provision to condone 10% of the attendance by the Vice-Chancellor on the specific recommendation of the Principal of the college where the candidate is studying, based on medical grounds, participation in University/ State/ National/ International level sports and cultural activities, seminars, workshops, paper presentation etc., of significant value. The necessary documents in support are to be submitted along with recommendations to condone the shortage.
17OMT10.4	In case of late admission, approved by competent authority (DTE/VTU), to I semester of the programme the attendance shall be reckoned from the date of admission to the programme.
17OMT10.5	A candidate, who does not satisfy the attendance requirement (in one or more Courses) as mentioned in 17OMT10.3 shall not be eligible to appear for the SEE of that semester and shall not be permitted to take admission to next higher semester. The candidate shall be required to repeat that semester during the subsequent year.
17OMT10.6	Principals of the concerned colleges shall notify regularly, the list of candidates who fall short of attendance.
17OMT10.7	The list of the candidates falling short of attendance shall be sent to the University at least one week prior to the commencement of the examination.
17OMT11.0	**Promotion and Eligibility**
17OMT11.1	**Promotion:** There shall be no restriction for promotion from an odd semester to the next even semester, provided the student has fulfilled the attendance requirement.
17OMT11.2	(a) Candidates, under full time programme, with a maximum of two backlog courses of first year shall be eligible for taking admission to second year (III semester). (b) i. Candidates, under part time Programme, with one backlog subject of an academic year shall be eligible for taking admission to next odd semester from even semester. ii. For admission to V semester, Candidates under part time Programme must have completed all the courses of I and II semesters. (c) Each credit course shall be treated as a head of passing.
17OMT11.3	The Mandatory non – credit courses, if any, shall not be considered for the Eligibility criterion prescribed for promotion, award of Class, calculation of SGPA and CGPA. However, a pass in the above courses is mandatory before the completion of Degree.
17OMT12.0	**Temporary Discontinuation/Break in the Program**
17OMT12.1	(a) If a candidate, for any reason, temporarily discontinues the Programme or take abreak from programme during any semester, he/she may be permitted to continue in the programme by registering to the same semester of the prevailing scheme. The candidate shall complete all the remaining course work subject to the provision 17OMT1.5. Also the Candidates may have to complete additional course/s, if any, as per the decision of concerned Board of Studies and approval of Dean, Faculty of Engineering, on establishing equivalence between two schemes. A Grade card shall be issued to that effect. Additional course/s shall not be considered forthe eligibility criterion prescribed for promotion. However, based on the individual cases, it is considered to decide the SGPA and CGPA to admit the student for theaward of degree.Such candidate shall not be eligible for the award of rank.

17OMT12.1 (continued)	(b) Candidates who takes admission to any semester of the existing scheme from another scheme, as a repeater/fresher because of various reasons have to complete additional course/s, if any, as per the decision of concerned Board of Studies and approval of Dean, Faculty of Engineering, on establishing equivalence between two schemes. A Grade card shall be issued to that effect. Additional course/s shall not be considered for the eligibility criterion prescribed for promotion. However, based on the individual cases, it is considered to decide the SGPA and CGPA to admit the student for the award of degree. Such candidate shall not be eligible for the award of rank.
17OMT13.0	**Award of Prizes, Medals and Ranks**
17OMT13.1	For the award of Prizes and Medals, the conditions stipulated by the Donor shall be considered subject to the provisions of the statutes framed by the University for such awards.
17OMT13.2	(1) For award of rank in a Specialization of Master of Technology, the CGPA secured by the student from I to IV semester is considered. (2) A student shall be eligible for a rank at the time of award of degree of Master of Technology, provided the student a. Is not a repeater in any semester b. Has not rejected the results of any semester. c. Has passed I to IV semester in all the courses in first attempt only (3) The total number of ranks awarded shall be 10% of total number of students appeared in IV semester subject to a maximum of 10 ranks in a Specialization. (4) For award of ranks in a Specialization, a minimum of 10 students should have appeared in the IV semester examination. **Illustration:** (a) If 150 students appeared for the IV semester in VLSI Design and Embedded Systems Branch, the number of ranks to be declared in VLSI Design and Embedded Systems will be 10. (b) If 84 students appeared for the IV semester in Nano Technology, the number of ranks to be declared for Nano Technology will be 08. (c) In case of fractional number of ranks, it is rounded to higher integer only when the first decimal place value is greater than or equal to 5. (5) Students under Part time Programme are not considered for Rank declaration.
17OMT13.3	Ranks are awarded based on the merit of the students as determined CGPA. If two or more students get the same CGPA, the tie shall be resolved by considering the number oftimes a student has obtained higher SGPA. If it is not resolved even at this stage, the number of times a student has obtained higher grades like S, A, B etc., shall be taken into account to decide the order of the rank.
17OMT14.0	**Applicability and Power to Modify**
17OMT14.1	The regulations governing the Degree of Master of Technology of Visvesvaraya Technological University shall be binding on all concerned.
17OMT14.2	i) Notwithstanding anything contained in the foregoing, the University shall have the power to issue directions/ orders to address any difficulty. ii) Nothing in the foregoing may be construed as limiting the power of the University to amend, modify or repeal any or all of the above.

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REGULATIONS GOVERNING
THE DEGREE OF MASTER OF TECHNOLOGY (M.Tech.)
UNDER OUTCOME BASED EDUCATION (OBE)
AND
CHOICE BASED CREDIT SYSTEM (CBCS) SCHEME
(Full-time and Part-time)
Effective from academic year 2018 -19

2018

Visvesvaraya Technological University, Belagavi

Regulations Governing the Degree of Master of Technology (M.Tech.)
Under Outcome based Education (OBE) and Choice Based Credit System (CBCS) Scheme
(Full-time and Part-time)
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Visvesvaraya Technological University, Belagavi

Regulations Governing the Degree of Master of Technology (M.Tech.)
Under Outcome based Education (OBE) and Choice Based Credit System (CBCS) Scheme
(Full-time and Part-time)
Effective from academic year 2018 -19

Definitions of Keywords

The following are the definitions/descriptions that have been followed for the different terms used in the Regulations of M.Tech Programmes:

1) **Programme:** Is an educational programme in a particular stream/ branch of Engineering/branch of specialization leading to award of Degree. It involves events/activities, comprising of lectures/ tutorials/ laboratory work/ field work, outreach activities/ project work/ vocational training/ viva/ seminars/ Internship/ assignments/ presentations/ self-study etc., or a combination of some of these.
2) **Branch:** Means Specialization or discipline of M.Tech Degree Programme, like Power Electronics, Structures, Machine Design, etc.
3) **Semester:** Refers to one of the two sessions of an academic year (vide: serial number 4), each session being of sixteen weeks duration (with working days greater than or equal to ninety).The odd semester may be scheduled from August and even semester from February of the year.
4) **Academic Year:** Refers to the sessions of two consecutive semesters (odd followed by an even) including periods of vacation.
5) **Course:** Refers to usually referred to as 'papers' and is a component of a programme. All Courses need not carry the same weight. The Courses should define learning objectives and learning outcomes. A Course may be designed to comprise lectures/ tutorials/ laboratory work/ field work/ outreach activities/project work/ vocational training/ viva/ seminars/ term papers/assignments/ presentations/ self-study etc., or a combination of some of these.
6) **Credit:** Refers to a unit by which the Course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of lecture or two hours of laboratory/practical Courses/ tutorials/ fieldwork per week etc.
7) **Audit Courses:** Means Knowledge/ Skill enhancing Courses without the benefit of a grade or credit for a Course.
8) **Choice Based Credit System (CBCS):** Refers to customizing the Course work, through Core, Elective and soft skill Courses, to provide necessary support for the students to achieve their goals.
9) **Course Registration:** Refers to formal registration for the Courses of a semester (Credits) by every student under the supervision of a Faculty Advisor (also called Mentor, Counselor etc.,) in each Semester for the Institution to maintain proper record.
10) **Course Evaluation:** Means Continuous Internal Evaluation (CIE) and Semester End Examinations (SEE) to constitute the major evaluations prescribed for each Course. CIE and SEE to carry 40 % and 60 % respectively, to enable each Course to be evaluated for 100 marks, irrespective of its Credits.
11) **Continuous Internal Evaluation (CIE):** Refers to evaluation of students' achievement in the learning process. CIE shall be by the Course Instructor and includes tests, homework, problem solving, group discussion, quiz, mini-project and seminar throughout the Semester, with weightage for the different components being fixed at the University level.
12) **Semester end examinations (SEE):** Refers to examination conducted at the University level covering the entire Course Syllabus. For this purpose, Syllabi to be modularized and SEE questions to be set from each module, with a choice confined to the concerned module only. SEE is also termed as university examination.

13) **First Attempt:** Refers to a student who has completed all formalities and has become eligible to attend the SEE and has attended at least one head of passing, such attempt shall be considered as first attempt.

14) **Credit Based System (CBS):** Refers to quantification of Course work, after a student completes teaching – learning process, followed by passing in both CIE and SEE. Under CBS, the requirement for awarding degree is prescribed in terms of total number of credits to be earned by the students.

15) **Credit Representation:** Refers to Credit Values for different academic activities considered, as per the Table.1. Credits for seminar, project phases, project viva–voce and internship shall be as specified in the Scheme of Teaching and Examination.

16) **Letter Grade:** It is an index of the performance of students in a said Course. Grades are denoted by letters S, A, B, C, D, E and F.

Table 1: Credit Values

Theory/Lectures (L) (hours/week/Semester)	Tutorials (T) (hours/week/Semester)	Laboratory/Practical (P) (hours/week/Semester)	Credits (L:T:P)	Total Credits
4	0	0	4:0:0	4
3	0	0	3:0:0	3
2	2	0	2:1:0	3
2	0	2	2:0:1	3
2	2	2	2:1:1	4
0	0	6	0:0:3	3

NOTE: Activities like, practical training, study tour and participation in Guest lectures not to carry Credits.

17) **Grading:** Grade refers to qualitative measure of achievement of a student in each Course, based on the percentage of marks secured in (CIE plus SEE). Grading is done by Absolute Grading [Refer: 18OMT6.0]. The rubric attached to letter grades are as follows:
S – Outstanding, A – Excellent, B – Very Good, C – Good, D – Above Average, E – Average and F – Fail.

18) **Grade Point (GP):** Refers to a numerical weightage allotted to each letter grade on a 10-point scale as under.

Letter Grade and corresponding Grade Points on a typical 10 – Point scale

Letter Grade	S	A	B	C	D	E	F
Grade Point	10	09	08	07	06	04	00

19) **Passing Standards:** Refers to passing a Course only when getting GP greater than or equal to 04 (as per serial number 18).

20) **Credit Point:** Is the product of grade point (GP) and number of credits for a Course i.e.,
$\text{Credt points (CrP)} = \text{GP} \times \text{Credits for the Course.}$

21) **Semester Grade Point Average (SGPA):** Refers to a measure of academic performance of student/s in a semester. It is the ratio of total credit points secured by a student in various Courses of a semester and the total Course credits taken during that semester. [Refer:18OMT6.0]

22) Cumulative Grade Point Average (CGPA): Is a measure of overall cumulative performance of a student over all semesters. The CGPA is the ratio of total credit points earned by a student in various Courses in all semesters and the sum of the total credits of all Courses in all the semesters. It is expressed up to two decimal places. [Refer: 18OMT6.0]

23) Grade Card: Refers to a certificate showing the grades earned by a student. A grade card shall be issued to all the registered students after every semester. The grade card will display the programme details (Course code, title, number of credits, grades secured) along with SGPA of that semester and CGPA earned till that semester.

24) University: Visvesvaraya Technological University (VTU), Belagavi.

Visvesvaraya Technological University, Belagavi

Regulations Governing the Degree of Master of Technology (M.Tech.)
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Clause	Particulars
18OMT1.0	**Title, Duration and Credits of the Programme of Study**
18OMT1.1	The Programme shall be called Master of Technology (Subject of Specialization), abbreviated as M.Tech. (Subject of Specialization).
18OMT1.2	There shall be two categories of Programme: 1) Full-time Programme (FT), and 2) Part-Time Programme (PT)
18OMT1.3	**Full-time Programme:** The Programme shall extend over a period of four semesters and each semester shall have 16 weeks duration.
18OMT1.4	**Part -Time Programme:** (a) The Programme shall be of 6 semesters. (b) Each semester shall be 16 weeks duration. (c) First, second, third and fourth semesters shall comprise course work and fifth and Sixth semesters shall be same as that of III and IV Semesters of the Full-time Programme. (d) The candidate shall register for a maximum of three courses per semester. (e) The candidates shall register for Laboratory course and Seminar in first and second semesters along with the regular three courses.
18OMT 1.5	**Maximum Duration for Programme Completion:** (a) A Full-time candidate shall be allowed a maximum duration of 4 years from the first semester of admission to become eligible for the award of Master's Degree, failing which he/she may discontinue the programme or register once again as a fresh candidate to I semester of the programme. (b) A Part -Time candidate shall be allowed a maximum of 6 years duration from the first semester of admission to become eligible for the award of Master's Degree, failing which he/she may discontinue the programme or register once again as a fresh candidate to I semester of the programme.
18OMT1.6	Prescribed Number of Credits for the Programme: The number of credits to be completed for the award of degree shall be 88.
18OMT1.7	The Calendar of events in respect of the Programme shall be notified by the University in advance.
18OMT2.0	**Eligibility for Admission(As per the Government orders issued from time to time)**
18OMT2.1	Admission to I year/I semester Master of Technology Programme shall be open to all the candidates who have passed B.E./ B. Tech. Examinations of VTU or any other recognized University/ Institution. The decision of the Equivalence committee shall be the final in establishing the eligibility of candidates for a particular Programme. For the foreign degrees, Equivalence certificate from the Association of Indian Universities shall be a must. The candidates who have completed their degree through the distance mode education from any University (National or International) are not eligible for admission to M.Tech. Programs under any quota.

18OMT2.2	AMIE in respective branches shall be equivalent to B.E./ B. Tech. Programs of VTU for admission to M.Tech.
18 OMT2.3	Admission to M.Tech. Programme shall be open to the candidates (as per 18OMT 2.1 and 2.2) who have passed the prescribed qualifying examination with not less than 50 %of the marks in the aggregate of all the years of the degree examination. However, in thecase of candidates belonging to SC/ST and Category I, the aggregate percentage of marksin the qualifying examinations shall not be less than 45%. Rounding off of percentage secured in qualifying examination is not permissible.
18OMT2.4	**For admissions under GATE/ PGCET qualification and Roaster system of Government of Karnataka:** The candidates should be GATE qualified or should have appeared for the Entrance Examination conducted by an authority recognized by Government of Karnataka (PGCET)/VTU/any other University on approval by Government of Karnataka. **For admissions under Management Quota:** The candidates should be GATE qualified or should have appeared for the Entrance Examination conducted by an authority recognized by Government of Karnataka PGCET/VTU/any other University on approval by Government of Karnataka. Further, there shall be an Admissions Committee for PG Programme in each college for each branch of PG studies consisting of the Principal of the College as the Chairman, Head of the concerned Department, one senior faculty of the concerned Department as members. The Admissions Committee shall conduct the interview and select the candidates for admissions. **For admissions under Sponsored Quota:** The candidates should be GATE qualified or should have appeared for the Entrance Examination conducted by an authority recognized by Government of Karnataka PGCET/VTU/any other University on approval by Government of Karnataka.
18OMT2.5	The candidates, who are qualified in the GATE Examination for the appropriate branch of engineering, shall be given priority. They are exempted from taking Entrance Examination. In case a GATE qualified Candidate appears for entrance examination and become qualified to claim a seat under entrance examination quota, he/she will be considered in the order of merit along with other candidates appeared for the entrance examination.
18OMT2.6	If sufficient number of GATE qualified candidates are not available, the remaining vacant seats shall be filled from amongst the candidates appeared for Entrance Examination in the order of merit.
18OMT2.7	The intake under various categories (regular, sponsored candidates and SC/ST) shall be as sanctioned by the AICTE, State Government and VTU, from time to time.
18OMT2.8	Subject to the provisions of 18OMT2.1 and 18OMT2.2, members of the Teaching/Research Staff working in any Engineering College recognized by AICTE either in the State of Karnataka or outside and who have put in a minimum of 03 years of teaching experience on full-time basis in Engineering Colleges, Polytechnic institutions / any other institutions imparting Engineering education shall be eligible for admission to PG Programs under sponsored quota, if they are sponsored by the respective Institutions / DTE.

18OMT2.9	Subject to the provisions of 18OMT 2.1 and 18OMT 2.2, members working in the State Government/ Central Government/ Quasi Government Organizations/ Public Sector Industries / Reputed Private Industries, who have put in a minimum of 03 years of working experience and sponsored by the concerned Organizations, shall also be eligible to seek admissions to PG Programs against sponsored quota. Preference for admission under 18OMT2.8 and 2.9 shall be given to candidates sponsored by organizations of State and Central Governments.
18OMT2.10	Further that employment of Part-time students shall be in an establishment situated within the 40 km from the place of the institution to which the candidate is seeking admission.
18OMT2.11	Engineering graduates other than the Karnataka candidates shall obtain Eligibility Certificate from VTU to seek admission to P.G. Programme in any of the colleges (Autonomous or Non - Autonomous) affiliated to VTU.
18OMT2.12	**Admission to vacant seats:** Seats remaining vacant (unfilled), after the completion of PG admission process by Karnataka Examination Authority, shall be filled by the Institution by inviting applications through Press notification. The seats shall be filled by Candidates preferably who have valid GATE/ PGCET score. In the absence of such Candidates, admission shall be based on merit in the entrance test conducted at the Institution level. An Admissions Committee, consisting of the Principal of the College, Head of the concerned Department and the subject experts, shall be in charge of admissions.
18OMT3.0	**Courses**
18OMT3.1	The curriculum of the Programme shall be any combination of following type of courses: i) One Course on Mathematics supportive to the concerned programme in the first semester. ii) Professional Core Courses (PCC) - relevant to the chosen specialization/ branch [May be split into Hard (no choice) and Soft (with choice), if required]. The core course is to be compulsorily studied by a student and is mandatory to complete the requirements of a programme in a said discipline of study. iii) Professional Electives Courses (PEC) - relevant to the chosen specialization/ branch: these are the courses, which can be chosen from the pool of papers. It shall be supportive to the discipline/ providing extended scope/enabling an exposure to some other discipline / domain / nurturing student skills. iv) Open Electives Courses (OEC), from other technical and/ or emerging specialization areas. v) Project Work, Seminar. vi) Audit Courses (AC): (a) The Audit course can be any credit course offered by the program to which the Candidate is admitted (other than the courses considered for completing the prescribed program credits) or other programs offered in the institution, where the student is studying.

18OMT3.1 (continued)	(b) The students who are interested in audit courses can register for one audit course at a time during II and IV semesters. Students who have registered to audit the courses, considered on par with students registered to the same course for credit, have to satisfy attendance and CIE requirements. However, they need not have to appear for SEE. (c) Registration for any audit course, in writing, shall be completed at the beginning of II and IV semesters. The Institution should intimate the Registrar (Evaluation) aboutthe registration at the beginning of the semester and obtain a formal approval for inclusion of the audit course/s in the Grade card issued to the students. vii) Internship: Preferably at an industry/R and D organization/IT company/ Government organization of significant repute for a specified period mentioned in Scheme of Teaching and Examination.
18OMT4.0	**Internship**
18OMT4.1	**Internship:** The student shall undergo Internship as per the Scheme of Teaching and Examination. 1. The internship shall be carried out in any industry/R&D Organization/Research Institute/Institute of national and international repute/recognized national and international Professional Bodies, Societies or Organizations. 2. The Department/college shall nominate a faculty to facilitate, guide and supervise students under internship. 3. The students shall report the progress of the internship to the internal guide in regular intervals and seek his/her advise. 4. The Internship shall be completed during the period specified in Scheme of Teaching and Examination. 5. After completion of Internship, students shall submit a report to the Head of the Department with the approval of both internal and external guides. 6. There will be 40 marks for CIE (Seminar: 20, Internship report: 20) and 60 marks for Viva – Voce conducted during SEE. [To be read along with 18OMT8.8 and 8.9] 7. The internal guide shall award the CIE marks for seminar and internship report after evaluation. He/she will also be the internal examiner for Viva – Voce conducted during SEE. 8. The external guide from the industry shall be an examiner for the Internship viva-voce examination. Viva-Voce on internship shall be conducted at the college and the date of Viva-Voce shall be fixed in consultation with the external Guide. The Examiners shall jointly award the Viva - Voce marks. 9. (i) In case the external Guide is not available or expresses his inability to conduct viva voce, the Chief Superintendent shall be permitted to make alternate arrangement. The examiner, in the order of preference, shall be an industry person or a faculty of another institution chosen from the list of University examiners. The same shall be intimated to the concerned BOE Chairperson. (ii) In case the external Guide accepts to conduct viva-voce examination from his/her workplace, it shall be arranged via Video/web conferencing/Webinar. The external Examiner shall send the mutually agreed signed marks (evaluated for SEE marks) list, soon after the examination, via email/any electronic media. 10. The students shall be permitted to carry out the internship anywhere in India or abroad. The University shall not provide any kind of Financial Assistance to any student for internship.

18OMT4.2	**Failing to undergo Internship:** Internship is one of the head of passing. Completion of internship is mandatory. If any student fails to undergo/complete the internship, he/she shall be considered as fail in that Course and shall not be permitted to appear for SEE in that Course. However, such students shall appear for SEE after satisfying the conditions prescribed for Internship. The reappearance shall be considered as an attempt.
18OMT5.0	**Seminar and Project**
18OMT5.1	**Seminar:** Seminar is one of the head of passing. i) Each candidate shall deliver seminar as per the Scheme of Teaching and Examination on the topics chosen from the relevant fields for about 30 minutes. ii) The Head of the Department shall make arrangements for conducting seminars through concerned faculty members of the Department. The committee constituted for the purpose by the Head of the Department shall award the CIE marks for the seminar. The committee shall consist of three faculty from the Department and the senior most acting as the Chairman/Chairperson. [To be read along with 18OMT8.8]
18OMT5.2	**Project Work:** Project is one of the head of passing. Project work shall preferably be on individual basis. The candidate shall submit a soft copy (CD) of the dissertation work to the University. The CD should contain the entire Dissertation in monolithic form as a PDF file (not separate chapters). The Guide, after checking the report for completeness shall upload the Dissertation along with name, University Seat Number, address, mobile number of the candidate, etc., as prescribed in the form available on online Dissertation evaluation portal. The guide shall submit a panel of four approved University Examiners for evaluation of dissertation.
18OMT5.3	**Plagiarism Check** Once the Guide uploads the dissertation, the same shall be linked for plagiarism check. The allowable plagiarism index is less than or equal to 25%. If the check indicates a plagiarism index greater than 25% : • for the first time, the candidate has to resubmit the dissertation, to the Registrar (Evaluation), Regional Center/Head Office, VTU along with the penal fees of Rs. 2000/- (Rupees Two thousand only) in person. • for the second time, the candidate has to resubmit the dissertation along with the penal fees of Rs. 4000/- (Rupees four thousand only) in person. • If the dissertation is rejected again during second resubmission with reference to plagiarism index, the candidate shall redo the project and submit after a semester's time subject to provisions of 18OMT1.5.
18OMT5.4	The dissertation shall be sent through email for evaluation to two examiners - one internal examiner (guide/co-guide) and one external examiner (first) appointed by the University. The evaluation of the dissertation shall be made independently by each examiner.
18OMT5.5	Examiners shall evaluate the dissertation normally within a period of not more than two weeks from the date of receipt of dissertation through email.
18OMT5.6	The examiners shall independently submit the marks through the specified link.
18OMT5.7	Average of the marks awarded by the two Examiners shall be the final evaluation marks for the Dissertation.

18OMT5.8	(a) Viva-voce examination of the candidate shall be conducted as per 18OMT5.10, if the dissertation work and the reports are accepted by the external examiner (first). (b) If the external examiner (first) finds that the dissertation work and the report are not up to the expected standard and the minimum passing marks cannot be awarded, the dissertation shall not be accepted for SEE. The external examiner (first) can recommend for modifications/suggestions of dissertation or totally reject the dissertation. The examiner shall offer suggestions for improvement of the dissertation for resubmission or list the reasons for rejection of the dissertation. (c) The resubmitted Dissertation incorporating the modifications/suggestions [as per 18OMT5.8 (b)] of the external examiner (first) and satisfying the provision 18OMT5.3shall be sent again to the external examiner (first) for evaluation. If the dissertation and the report are accepted by the external examiner (first), Viva-voce examination of the candidate shall be conducted as per 18OMT5.10. (d) In case of rejection of Dissertation by the external examiner (first), the same will be sent to a Second Examiner (external) approved by the University. The decision of the Second Examiner (external) is final. If the dissertation and the report are accepted by the Second Examiner (external), Viva-voce examination of the candidate shall be conducted as per 18OMT5.10. If the Second Examiner (external) rejects the dissertation and the report, the candidate shall have to carry out the dissertation work once again and submit the dissertation subject to provisions of 18OMT1.5. In such cases of rejection, the candidate shall redo the entire procedure starting from the submission of Dissertation in soft copy. (e) In case of rejection of Dissertation, with reasons, by the external examiner (first) [as per 18OMT5.8 (b)], the same will be sent to a Second Examiner (external) [not necessarily the same examiner considered under 18OMT5.8 (d)] approved by the University. The decision of the Second Examiner (external) is final. If the dissertation and the report are accepted by the Second Examiner (external), Viva-voce examination of the candidate shall be conducted as per 18OMT5.10. If the Second Examiner (external) rejects the dissertation and the report, the candidate shall have to carry out the dissertation work once again and submit the dissertation subject to provisions of 18OMT1.5. In such cases of rejection, the candidate shall redo the entire procedure starting from the submission of Dissertation in soft copy.
18OMT5.9	The candidate, whose Dissertation is rejected, can rework on the same topic or choose another topic of dissertation under the same Guide or new Guide if necessary. In such an event, the report shall be submitted within four years in case of full-time student and six years in case of part-time student respectively from the date of admission to the Programme.
18OMT5.10	Viva-voce examination of the candidate shall be conducted by the external examiner and internal examiner/ guide. Internal examiner as per the direction of the University shall have to arrive at a mutually convenient date for the conduct of viva-voce examination of the concerned candidate with an intimation to the Registrar (Evaluation). In case one of the examiners expresses his/her inability to attend the viva-voce, the Registrar (Evaluation) shall appoint a substitute examiner in his/her place.
18OMT5.11	The relative weights for the evaluation of dissertation and the performance at the viva voce shall be as per the scheme of teaching and examination.
18OMT5.12	The marks awarded by both the Examiners at the viva voce Examination shall be sent jointly to the University immediately after the examination.

18OMT5.13 Examination fee as fixed from time to time by the University for evaluation of dissertation report and conduct of viva voce shall be remitted through the Head of the Institution as per the instructions of Registrar (Evaluation) from time to time.

18OMT5.14 The candidates who fail to submit the dissertation work within the stipulated time have to submit the same at the time of next ensuing examination.

18OMT6.0 **Computation of SGPA and CGPA**

18OMT6.1 (i) The University adopts absolute grading system wherein the marks are converted to grades, and every semester results will be declared with semester grade point average (SGPA) and Cumulative Grade Point Average (CGPA). The CGPA will be calculated for every semester, except for the first semester.

(ii) The grading system with the letter grades and the assigned range of marks under absolute grading system are as given below:

Level	Outstanding	Excellent	Very Good	Good	Above Average	Average	Fail
Letter Grade	S	A	B	C	D	E	F
Grade Points	10	9	8	7	6	4	00
Percentage of Marks Scored in a Course	≥ 90	<90 ≥80	< 80 ≥70	< 70 ≥60	< 60 ≥ 55	< 55 ≥50	< 50
	(90 -100)	(80 - 89)	(70 - 79)	(60 - 69)	(55 - 59)	(50- 54)	(0 - 49)

(iii) A student obtaining Grade F in a Course shall be considered fail and is required to reappear in subsequent SEE. Whatever the letter grade secured by the student during his /her reappearance shall be retained. However the number of attempts taken to clear a Course shall be indicated in the grade cards/ transcripts.

18OMT6.2 **Grade *Point Averages:***

SGPA and CGPA: The credit index can be used further for calculating the Semester Grade Point Average (SGPA) and the Cumulative Grade Point Average (CGPA), both being important academic performance indices of the student. While SGPA is equal to the credit index for a semester divided by the total number of credits registered by the student in that semester, CGPA gives the sum total of credit indices of all the previous semesters divided by the total number of credits registered in all these semesters. Both the equations together facilitate the declaration of academic performance of a student, at the end of a semester and at the end of successive semesters respectively. Thus,

$$SGPA = \frac{\sum[Course\ Credits \times Grade\ Points]\ for\ all\ the\ Courses\ in\ that\ Semester}{\sum[Course\ Credits\ ]\ for\ all\ the\ Courses\ in\ that\ Semester}$$

$$CGPA = \frac{\sum[Course\ Credits \times Grade\ Points]\ for\ all\ Courses\ excluding\ those\ with\ F\ and\ transitional\ grades\ until\ that\ Semester}{\sum[Course\ Credits\ ]\ for\ all\ Courses\ excluding\ those\ with\ F\ grades\ until\ that\ semester}$$

18OMT6.2 (continued)

(a) SGPA and CGPA Calculations: An Illustrative Example for one academic year

Semester (Odd :I, Even: II)	Course Number	Credits	Grade	Grade Points	Credit Points	SGPA, CGPA
I	XX101	5:0:0 = 5	B	8	$5 \times 8 = 40$	$SGPA = \frac{117}{25} = \mathbf{4.68}$
I	XX102	3:2:0 = 5	Absent(F)	0	$5 \times 0 = 00$	
I	XX103	3:0:0 = 3	A	9	$3 \times 9 = 27$	
I	XX104	0:1:1 = 2	F	0	$2 \times 0 = 00$	
I	XX105	4:1:0 = 5	D	6	$5 \times 6 = 30$	
I	XX106	5:0:0 = 5	E	4	$5 \times 4 = 20$	
Total		25 (18*)	Total		117	

(18*): Total credits of the semester excluding the credits of the courses under F grade. Considered for the calculation of CGPA of the two consecutive semesters under consideration.

II	XX107	3:1:1 = 5	C	7	$5 \times 7 = 35$	$SGPA = \frac{157}{25} = \mathbf{6.28}$
II	XX108	4:0:0 = 4	B	8	$4 \times 8 = 32$	
II	XX109	3:0:0 = 3	D	6	$3 \times 6 = 18$	
II	XX110	4:1:0 = 5	E	4	$5 \times 4 = 20$	
II	XX111	2:1:1 = 4	A	9	$4 \times 9 = 36$	$CGPA = \frac{(117 + 157)}{18 + 23} = 274/41 = \mathbf{6.68}$
II	XX112	2:0:0 = 2	F	0	$2 \times 0 = 00$	
II	XX113	0:2:0 = 2	B	8	$2 \times 8 = 16$	
Total		25 (23*)	Total		157	

(23*): Total credits of the semester excluding the credits of the courses under F grade. Considered for the calculation of CGPA of the two consecutive semesters under consideration.

If the Student secures letter grades as detailed below after reappearance to SEE, then the SGPA and CGPA shall be calculated as indicated below.

I	XX102	3:2:0 = 5	D	6	$5 \times 6 = 30$	$SGPA\ (I\ Semester) = \frac{117 + 30 + 14}{25} = 161/25 = \mathbf{6.44}$
I	XX104	0:1:1 = 2	C	7	$2 \times 7 = 14$	
II	XX112	2:0:0 = 2	D	6	$2 \times 6 = 12$	$SGPA\ (II\ Semester) = (157 + 12)/25 = 169/25 = \mathbf{6.76}$

$$CGPA\ at\ the\ end\ of\ the\ academic\ year\ after\ passing\ all\ the\ Courses\ of\ the\ two\ consecutive\ semesters\ under\ consideration = \frac{(6.44 \times 25 + 6.76 \times 25)}{50} = \mathbf{6.60}\ \blacksquare$$

(b) CGPA Calculation of the Programme: An Illustrative Example

Semester	I	II	III	IV
Credits of the semester	24	24	20	20
SGPA	7.00	8.50	9.20	6.86

$$\boldsymbol{CGPA} = \frac{(24 \times 7.00 + 24 \times 8.50 + 20 \times 9.20 + 20 \times 6.86)}{88} = \mathbf{7.88}\ \blacksquare$$

18OMT6.3	**Grade Card:** Based on the secured letter grades, grade points, SGPA and CGPA, a grade card for each semester and a consolidated grade card indicating the performance in all semesters shall be issued. ■
18OMT7.0	**Conversions of Grades into Percentage and Class Equivalence** Conversion formula for the conversion of CGPA into percentage is given below: Percentage of marks secured, $P = [\text{CGPA Earned} - 0.75] \times 10$ **Illustration For A CGPA Of 8.20**: $P = [\text{CGPA Earned } 8.2 - 0.75] \times 10 = 74.5\ \%$
18OMT7.1	**Class Equivalence:** After the conversion of final CGPA into percentage of marks (P), a graduating student is reckoned to have passed in (i) First Class with Distinction (FCD) if $P \geq 70\%$ (ii) First Class (FC) if $P \geq 60\%$ but <70% and (iii) Second Class (SC) if $P < 60\%$.
18OMT8.0	**Continuous Internal Evaluation and Semester End Evaluation**
18OMT8.1	For each theory and practical paper, the CIE marks shall be 40. For seminar and Project Phase –I, the CIE marks shall be 100. [To be read along with 18OMT8.8]
18OMT8.2	CIE Marks shall be based on a) Tests (for 20 Marks) and b) Assignments, Quizzes, Simulations, Experimentations, Mini project, oral examinations, field work etc., (for 20 Marks) conducted in respective courses.
18OMT8.3	The CIE marks in a theory course, for 20 marks, shall be based on two tests covering the entire syllabus. An additional test may be conducted for the needy students to provide an opportunity to improve their CIE Marks before the end of the semester. The CIE marks shall be the average of the marks scored in at least two of the above tests. [To be read along with 18OMT8.8]
18OMT8.4	The candidates shall write the Tests in Blue Book/s. The Blue book/s and other documents relating to award of CIE marks under 18OMT8.2 (b) shall be preserved by the Principal / Head of the Department for at least six months from the date of announcement of University results and made available for verification at the directions of the Registrar (Evaluation).
18OMT8.5	Every page of the CIE marks list shall bear the signatures of the concerned Teacher, Head of the Department and the Principal.
18OMT8.6	The CIE marks list shall be displayed on the Notice Board and corrections, if any, shall be incorporated before submitting to the University.
18OMT8.7	The CIE marks shall be sent to the university by the Principals well in advance before the commencement of Semester End Examinations. No corrections of the CIE marks shall be entertained after the submission of marks list to the University.
18OMT8.8	Candidates obtaining less than 50% of the CIE marks in any course (Theory/Laboratory/Seminar/Internship/Project) shall not be eligible to appear for the University examination in that course/s. In such cases, the Head of the Department shall arrange for the improvement of CIE marks in the course/ Laboratory when offered in the subsequent semester subject to the provision of 18OMT1.5.

18OMT8.9	**Semester End Evaluation:** There shall be a University examination at the end of each semester.
18OMT8.10	There shall be double valuation of theory papers. The theory Answer booklets shall be valued independently by two examiners appointed by the University.
18OMT8.11	If the difference between the marks awarded by the two Examiners is not more than 15 per cent of the maximum marks, the marks awarded to the candidate shall be the average of two evaluations.
18OMT8.12	If the difference between the marks awarded by the two Examiners is more than 15 per cent of the maximum marks, the answer booklet shall be evaluated by a third Examiner appointed by the university. The average of the marks of nearest two valuations shall be considered as the marks secured by the candidate. In case, if one of the three marks falls exactly midway between the other two, then the highest two marks shall be taken for averaging.
18OMT9.0	**Eligibility for Passing and Award of Degree**
18OMT9.1	**(1)** A student who obtains any grade S to E shall be considered as passed and if a student secures F grade in any of the head of passing he/she has to reappear in that head for the SEE**.** (2) A student shall be declared successful at the end of the Programme for the award of Degree only on obtaining CGPA $\geq$ 5.00, with none of the Courses remaining with F Grade. (3) In case, the CGPA fall below 5.00, the student shall be permitted to appear again for SEE for required number of courses (other than seminar and Practical) and times, subject to the provision of 18OMT1.5, to make up CGPA $\geq$ 5.0. The student should reject the SEE results of the previous attempt and obtain written permission from The Registrar (Evaluation) to reappear in the subsequent SEE.
18OMT9.2	For a pass in a theory course, the student shall secure minimum of 40% of the maximum marks prescribed in the Semester End Examination and 50% of marks in CIE and 50 % in the aggregate of CIE and SEE marks. The Minimum Passing Grade in a course is E.
18OMT9.3	For a pass in Internship/Practical/Project/Dissertation/Viva-voce examination, a student shall secure a minimum of 50% of the maximum marks prescribed for the SEE in Internship/Practical/Project/Dissertation/Viva-voce. The Minimum Passing Grade in a course is E.
18OMT9.4	For a pass, a candidate shall obtain a minimum of 50% of maximum marks in Seminar.
18OMT9.5	IV semester Full-time candidates having backlog courses are permitted to upload the dissertation report and to appear for SEE. The IV semester grade card shall be released only when the candidate completes all the backlog courses and become eligible for the award of degree. [To be read along with 18OMT11.2] VI semester Part-time candidates having backlog courses are permitted to upload the dissertation report and to appear for SEE. The VI semester grade card shall be released only when the candidate completes all the backlog courses and become eligible for the award of degree. [To be read along with 18OMT11.2]
18OMT9.6	A candidate may at his/her desire reject his/her latest semester results of University examination in respect to all courses of that semester. However, in the IV semester the rejection shall not include the Project work. Rejection shall be permitted only once during the entire Programme. The CIE marks of the rejected semester shall remain the same. Rejection of results of the University examination including CIE marks is not permitted.

18OMT9.7	If the rejection of the University examination results of the semester happens to be of an odd semester, the candidate can take admission to the immediate next even semester. However, if the rejection of the University result is of even semester, the candidate cannot take admission to the next odd semester.
18OMT9.8	Application for rejection shall be submitted to the Registrar (Evaluation) through the Principal of the college, within thirty days from the date of announcement of results.
18OMT9.9	A candidate, who opts for rejection of results of a semester shall be eligible for the award of class and distinction, but shall not be eligible for the award of rank.
18OMT9.10	**Eligibility for Award of Degree:** A student shall be declared to have completed the degree of Master of Technology, provided the student has undergone the stipulated course work as per the regulations and has earned the prescribed Credits, as per the Scheme of Teaching and Examination, of the programme.
18OMT10.0	**Attendance Requirement**
18OMT10.1	**Registration and Enrolment:** i) Except for the first semester, registration for a semester will be done during a specified week before the semester end examination of the previous semester. ii) The registration sheet should have the Candidate details, course name and code, number of credits and category (core/elective/audit) for each course of that semester. iii) The Faculty Adviser, assigned by the Head of the Department, will counsel the students in planning their courses of study and provide guidance, motivation, emotional support, and enable the mentees to reach the desired professional and career goals.
18OMT10.2	Courses of each semester shall be treated as a separate unit for calculation of the attendance.
18OMT10.3	The candidate has to put in a minimum attendance of 85% in each course with a provision to condone 10% of the attendance by the Vice-Chancellor on the specific recommendation of the Principal of the college where the candidate is studying, based on medical grounds, participation in University/ State/ National/ International level sports and cultural activities, seminars, workshops, paper presentation etc., of significant value. The necessary documents in support are to be submitted along with recommendations to condone the shortage.
18OMT10.4	In case of late admission, approved by competent authority (DTE/VTU), to I semester of the programme the attendance shall be reckoned from the date of admission to the programme.
18OMT10.5	A candidate, who does not satisfy the attendance requirement (in one or more Courses) as mentioned in 18OMT10.3 shall not be eligible to appear for the SEE of that semester and shall not be permitted to take admission to next higher semester. The candidate shall be required to repeat that semester during the subsequent year.
18OMT10.6	Principals of the concerned colleges shall notify regularly, the list of candidates who fall short of attendance.
18OMT10.7	The list of the candidates falling short of attendance shall be sent to the University at least one week prior to the commencement of the examination.
18OMT11.0	**Promotion and Eligibility**
18OMT11.1	**Promotion:** There shall be no restriction for promotion from an odd semester to the next even semester, provided the student has fulfilled the attendance requirement.

18OMT11.2	(a) Candidates, under full-time programme, with a maximum of two backlog courses of first year shall be eligible for taking admission to second year (III semester). (b) i. Candidates, under part-time Programme, with one backlog subject of an academic year shall be eligible for taking admission to next odd semester from even semester. ii. For admission to V semester, Candidates under part-time Programme must have completed all the courses of I and II semesters. (c) Each credit course shall be treated as a head of passing.
18OMT11.3	The Mandatory non – credit courses, if any, shall not be considered for the Eligibility criterion prescribed for promotion, award of Class, calculation of SGPA and CGPA. However, a pass in the above courses is mandatory before the completion of Degree.
18OMT12.0	**Temporary Discontinuation/Break in the Program**
18OMT12.1	(a) If a candidate, for any reason, temporarily discontinues the Programme or take a break from programme during any semester, he/she may be permitted to continue in the programme by registering to the same semester of the prevailing scheme. The candidate shall complete all the remaining course work subject to the provision 18OMT1.5. Also the Candidates may have to complete additional course/s, if any, as per the decision of concerned Board of Studies and approval of Dean, Facultyof Engineering, on establishing equivalence between two schemes. A Grade card shall be issued to that effect. Additional course/s shall not be considered for the eligibilitycriterion prescribed for promotion. However, based on the individual cases, it is considered to decide the SGPA and CGPA to admit the student for the award of degree.Such candidate shall not be eligible for the award of rank.
18OMT12.1 (continued)	(b) Candidates who takes admission to any semester of the existing scheme from another scheme, as a repeater/fresher because of various reasons have to complete additional course/s, if any, as per the decision of concerned Board of Studiesand approval of Dean, Faculty of Engineering, on establishing equivalence between two schemes. A Grade card shall be issued to that effect. Additional course/s shall not be considered for the eligibility criterion prescribed for promotion.However, based on the individual cases, it is considered to decide the SGPA and CGPA to admit the student for the award of degree. Such candidate shall not be eligible for the award of rank.
18OMT13.0	**Award of Prizes, Medals and Ranks**
18OMT13.1	For the award of Prizes and Medals, the conditions stipulated by the Donor shall be considered subject to the provisions of the statutes framed by the University for such awards.
18OMT13.2	(1) For award of rank in a Specialization of Master of Technology, the CGPA secured by the student on completion of the programme is considered. (2) A student shall be eligible for a rank at the time of award of degree of Master of Technology, provided the student a. Is not a repeater in any semester b. Has not rejected the results of any semester. c. Has passed I to IV semester in all the courses in first attempt only (3) The total number of ranks awarded shall be 10% of total number of students appeared in IV semester subject to a maximum of 10 ranks in a Specialization. (4) For award of ranks in a Specialization, a minimum of 10 students should have appeared in the IV semester examination. **Illustration:** (a) If 150 students appeared for the IV semester in VLSI Design and Embedded Systems Branch, the number of ranks to be declared in VLSI Design and Embedded Systems will be 10.

18OMT13.2 (continued)	(b) If 84 students appeared for the IV semester in Nano Technology, the number of ranks to be declared for Nano Technology will be 08. (c) In case of fractional number of ranks, it is rounded to higher integer only when the first decimal place value is greater than or equal to 5. (5) Students under Part-time Programme are not considered for Rank declaration.
18OMT13.3	Ranks are awarded based on the merit of the students as determined CGPA. If two or more students get the same CGPA, the tie shall be resolved by considering the number of times a student has obtained higher SGPA. If it is not resolved even at this stage, the number of times a student has obtained higher grades like S, A, B etc., shall be taken into account to decide the order of the rank.
18OMT14.0	**Applicability and Power to Modify**
18OMT14.1	The regulations governing the Degree of Master of Technology of Visvesvaraya Technological University shall be binding on all concerned.
18OMT14.2	i) Notwithstanding anything contained in the foregoing, the University shall have the power to issue directions/ orders to address any difficulty. ii) Nothing in the foregoing may be construed as limiting the power of the University to amend, modify or repeal any or all of the above.

Visvesvaraya Technological University

(State University Government of Karnataka Established as per VTU Act 1994)
"Jnana Sangama", Belagavi - 590 018, Karnataka State

Dr. A S. Deshpande B.E., M.Tech., Ph.D.
REGISTRAR

Phone : (0831) 2498100
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Ref: VTU/BGM/Aca-OS-Cirs/2021-22/ 104 Date : - 6 APR 2021

NOTIFICATION

Sub: Regulations Governing the Degree of Master of Technology effective from the academic year 2020-21– reg...

Ref: 1. Joint Board of Studies approval 23-07-2020
2. Executive Council Resolution. No. 2.2.2. dt: 30-07-2020

Pursuant to the aforesaid Executive Council Resolution, the **"Regulations Governing the Degree of Master of Technology effective from the academic year 2020-21** are hereby notified.

These Regulations are uniformly applicable to Affiliated, Autonomous and Constituent Colleges under VTU

However, the evaluation pattern of Autonomous Colleges will be as per VTU guidelines issued from time to time.

You are hereby directed to bring the same to the notice of all the concerned and to follow them scrupulously.

BY ORDER

06.4.2021

REGISTRAR

Encl: as above

To,
The of Principals of All Engineering (Affiliated/ Autonomous/ Constituent) Colleges under the ambit of VTU, Belagavi

Copy to:
1. Hon'ble Vice-Chancellor through the Secretary to VC, VTU, Belagavi for kind information
2. The Registrar (Evaluation), VTU, Belagavi
3. The Regional Directors (I/C) of all the Regional Offices of VTU for circulation
4. The Director, Computer Network Centre, VTU, Belagavi- to upload on VTU website
5. PS to Registrar, VTU, Belagavi
6. All the concerned Special Officers and Case-workers of Academic Section, VTU, Belagavi

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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REGULATIONS GOVERNING
THE DEGREE OF MASTER OF TECHNOLOGY (M.Tech.)

Under Outcome Based Education (OBE)
AND
Choice Based Credit System (CBCS) Scheme
(Full-time and Part-time)
Effective from academic year 2020 -21

2020

Visvesvaraya Technological University, Belagavi

Regulations Governing the Degree of Master of Technology (M.Tech.)
Under Outcome based Education (OBE) and Choice Based Credit System (CBCS) Scheme
(Full-time and Part-time)
Effective from academic year 2020 – 21
(Approved vide Executive Council Resolution Number. 2.2.2. dated 30-07-2020)

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Definitions of Keywords

The following are the definitions/descriptions that have been followed for the different terms used in the Regulations of M.Tech Programmes:

(1) Programme: Is an educational programme in a particular stream/ branch of Engineering/branch of specialization leading to award of Degree. It involves events/activities, comprising of lectures/ tutorials/ laboratory work/ field work, outreach activities/ project work/ vocational training/ viva/ seminars/ Internship/ assignments/ presentations/ self-study etc., or a combination of some of these.

(2) Branch: Means Specialization or discipline of M.Tech Degree Programme, like Power Electronics, Structures, Machine Design, etc.

(3) Semester: Refers to one of the two sessions of an academic year (vide: serial number 4), each session being of sixteen weeks duration (with working days greater than or equal to ninety).The odd semester may be scheduled from August and even semester from February of the year.

(4) Academic Year: Refers to the sessions of two consecutive semesters (odd followed by an even) including periods of vacation.

(5) Course: Refers to usually referred to as 'papers' and is a component of a programme. All Courses need not carry the same weight. The Courses should define learning objectives and learning outcomes. A Course may be designed to comprise lectures/ tutorials/ laboratory work/ field work/ outreach activities/project work/ vocational training/ viva/ seminars/ term papers/assignments/ presentations/ self-study etc., or a combination of some of these.

(6) Credit: Refers to a unit by which the Course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of lecture or two hours of laboratory/practical Courses/ tutorials/ fieldwork per week etc.

(7) Audit Courses: Means Knowledge/ Skill enhancing Courses without the benefit of a grade or credit for a Course.

(8) Choice Based Credit System (CBCS): Refers to customizing the Course work, through Core, Elective and soft skill Courses, to provide necessary support for the students to achieve their goals.

(9) Course Registration: Refers to formal registration for the Courses of a semester (Credits) by every student under the supervision of a Faculty Advisor (also called Mentor, Counselor etc.,) in each Semester for the Institution to maintain proper record.

(10) Course Evaluation: Means Continuous Internal Evaluation (CIE)and Semester End Examinations (SEE) to constitute the major evaluations prescribed for each Course.CIE and SEE to carry 40 % and 60 % respectively, to enable each Course to be evaluated for 100 marks, irrespective of its Credits.

(11) Continuous Internal Evaluation (CIE): Refers to evaluation of students' achievement in the learning process. CIE shall be by the Course Instructor and includes tests, homework, problem solving, group discussion, quiz, mini-project and seminar throughout the Semester, with weightage for the different components being fixed at the University level.

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(12) Semester end examinations (SEE): Refers to examination conducted at the University level covering the entire Course Syllabus. For this purpose, Syllabi to be modularized and SEE questions to be set from each module, with a choice confined to the concerned module only. SEE is also termed as university examination.

(13) First Attempt: Refers to a student who has completed all formalities and has become eligible to attend the SEE and has attended at least one head of passing, such attempt shall be considered as first attempt.

(14) Credit Based System (CBS): Refers to quantification of Course work, after a student completes teaching – learning process, followed by passing in both CIE and SEE. Under CBS, the requirement for awarding degree is prescribed in terms of total number of credits to be earned by the students.

(15) Credit Representation: Refers to Credit Values for different academic activities considered, as per the Table.1. Credits for seminar, project phases, project viva–voce and internship shall be as specified in the Scheme of Teaching and Examination.

(16) Letter Grade: It is an index of the performance of students in a said Course. Grades are denoted

Table 1: Credit Values

Theory/Lectures (L) (hours/week/Semester)	Tutorials (T) (hours/week/Semester)	Laboratory/Practical (P) (hours/week/Semester)	Credits (L:T:P)	Total Credits
4	0	0	4:0:0	4
3	0	0	3:0:0	3
2	2	0	2:1:0	3
2	0	2	2:0:1	3
2	2	2	2:1:1	4
0	0	6	0:0:3	3

NOTE: Activities like, practical training, study tour and participation in Guest lecturers not to carry Credits.

by letters S, A, B, C, D, E and F.

(17) Grading: Grade refers to qualitative measure of achievement of a student in each Course, based on the percentage of marks secured in (CIE plus SEE). Grading is done by Absolute Grading [Refer: 20OMT6.0]. The rubric attached to letter grades are as follows:
S – Outstanding, A – Excellent, B – Very Good, C – Good, D – Above Average, E – Average and F – Fail.

(18) Grade Point (GP): Refers to a numerical weightage allotted to each letter grade on a 10-point scale as under.

Letter Grade and corresponding Grade Points on a typical 10 – Point scale							
Letter Grade	S	A	B	C	D	E	F
Grade Point	10	09	08	07	06	04	00

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(19) Passing Standards: Refers to passing a Course only when getting GP greater than or equal to 04 (as per serial number 18).

(20) Credit Point: Is the product of grade point (GP) and number of credits for a Course i.e.,

Credt points (CrP) = GP × Credits for the Course.

(21) Semester Grade Point Average (SGPA): Refers to a measure of academic performance of student/s in a semester. It is the ratio of total credit points secured by a student in various Courses of a semester and the total Course credits taken during that semester. [Refer: 20OMT6.0]

(22) Cumulative Grade Point Average (CGPA): Is a measure of overall cumulative performance of a student over all semesters. The CGPA is the ratio of total credit points earned by a student in various Courses in all semesters and the sum of the total credits of all Courses in all the semesters. It is expressed up to two decimal places. [Refer: 20OMT6.0]

(23) Grade Card: Refers to a certificate showing the grades earned by a student. A grade card shall be issued to all the registered students after every semester. The grade card will display the programme details (Course code, title, number of credits, grades secured) along with SGPA of that semester and CGPA earned till that semester.

(24) University: Visvesvaraya Technological University (VTU), Belagavi.

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Regulations Governing the Degree of Master of Technology (M.Tech.)
Under Outcome based Education (OBE) and Choice Based Credit System (CBCS) Scheme
(Full-time and Part-time)
Effective from academic year 2020 – 21
(Approved vide Executive Council Resolution Number. 2.2.2. dated 30-07-2020)

Clause	Particulars
20OMT1.0	**Title, Duration and Credits of the Programme of Study**
20OMT1.1	The Programme shall be called Master of Technology (Subject of Specialization), abbreviated as M.Tech. (Subject of Specialization).
20OMT1.2	There shall be two categories of Programme: (i)Full-time Programme (FT), and (ii) Part-Time Programme (PT).
20OMT1.3	**Full-time Programme:**The Programme shall extend over a period of four semesters and each semester shall have 16 weeks duration.
20OMT1.4	**Part -Time Programme:** **(a)**The Programme shall be of 6 semesters. **(b)**Each semester shall be 16 weeks duration. **(c)**First, second, third and fourth semesters shall comprise course work and fifth and Sixth semesters shall be same as that of III and IV Semesters of the Full-time Programme. **(d)**The candidate shall register for a maximum of three courses per semester. **(e)**The candidates shall register for Laboratory course and Seminar in first and
20OMT1.5	A Faculty/ Employee working on Full Time basis in an Institution/ Organization and pursuing/ pursued any Course conducted in the timing of Regular/ First Shift for the same duration as that of Regular Shift shall be considered as ineligible for the purpose of employment/ higher studies.
20OMT1.6	**Maximum Duration for Programme Completion:** **(a)** A Full-time candidate shall be allowed a maximum duration of 4 years from the first semester of admission to become eligible for the award of Master's Degree, failing which he/she may discontinue the programme or register once again as a fresh candidate to I semester of the programme. **(b)** A Part -Time candidate shall be allowed a maximum of 6 years duration from the first semester of admission to become eligible for the award of Master's Degree, failing which he/she may discontinue the programme or register once again as a fresh candidate to I semester of the programme.
20OMT1.7	Prescribed Number of Credits for the Programme: The number of credits to be completed for the award of degree shall be 88.
20OMT1.8	**Definition of Credits:** 01 hour Lecture (L) per week per semester =1 Credit 02 hours Tutorial (T) per week per semester =1 Credit 02 hours Practical/Laboratory/Drawing (P) per week per semester =1 Credit. **Note:** **(i)** Four credit Courses are designed for 50 hours Teaching – Learning process. **(ii)** Three credit Courses are designed for 40 hours Teaching – Learning process.
20OMT1.9	The Calendar of events in respect of the Programme shall be notified by the University in advance.

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20OMT2.0 Eligibility forAdmission (As per the Government orders issued from time to time)

20OMT2.1 Admission to I year/I semester Master of Technology Programme shall be open to all the candidates who have passed B.E./ B. Tech. Examinations of VTU or any other recognized University/ Institution. The decision of the Equivalence committee shall be the final in establishing the eligibility of candidates for a particular Programme.

For the foreign degrees, Equivalence certificate from the Association of Indian Universities shall be a must.

The candidates who have completed their degree through the distance mode education from any University (National or International) are not eligible for admission to M.Tech. Programs under any quota.

20OMT2.2 AMIE in respective branches shall be equivalent to B.E./ B. Tech. Programs of VTU for admission to M.Tech.

(Certificate/ qualification awarded by professional bodies/ institution in the field of Technical Education will be treated as equivalent to B.E. / B.Tech. programmes of VTU for admission to M.Tech. programmes subjects to the notification / approval from Government of and AICTE)

20OMT2.3 Admission to M.Tech. Programme shall be open to the candidates (as per 20OMT 2.1 and 2.2) who have passed the prescribed qualifying examination with not less than50% of the marks in the aggregate of all the years of the degree examination. However, in the case of candidates belonging to SC/ST and Category I, the aggregate percentage of marks in the qualifying examinations shall not be less than 45%. Rounding off of percentage secured in qualifying examination is not permissible. (Reservation is applicable only for Karnataka Candidates).

20OMT2.4 **For admissions under GATE/ PGCET qualification and Roaster system of Government of Karnataka:**

The candidates should be GATE qualified or should have appeared for the Entrance Examination conducted by an authority recognized by Government of Karnataka (PGCET)/VTU.

For admissions under Management Quota:

The candidates should be GATE qualified or should have appeared for the Entrance Examination conducted by an authority recognized by Government of Karnataka PGCET/VTU.

Further, there shall be an Admissions Committee for PG Programme in each college for each branch of PG studies consisting of the Principal of the College as the Chairman, Head of the concerned Department, one senior faculty of the concerned Department as members. The Admissions Committee shall conduct the interview and select the candidates for admissions.

For admissions under Sponsored Quota:

The candidates should be GATE qualified or should have appeared for the Entrance Examination conducted by an authority recognized by Government of Karnataka PGCET/VTU/any other University on approval by Government of Karnataka.

20OMT2.5 The candidates, who are qualified in the GATE Examination for the appropriate branch of engineering, shall be given priority. They are exempted from taking Entrance Examination.

In case a GATE qualified Candidate appears for entrance examination and become qualified to claim a seat under entrance examination quota, he/she will be considered in the order of merit along with other candidates appeared for the entrance examination.

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20OMT2.6 If sufficient number of GATE qualified candidates are not available, the remaining vacant seats shall be filled from amongst the candidates appeared for Entrance Examination in the order of merit.

20OMT2.7 The intake under various categories (regular, sponsored candidates and SC/ST) shall be as sanctioned by the AICTE, State Government and VTU, from time to time.

20OMT2.8 Subject to the provisions of 20OMT2.1 and 20OMT2.2, members of the Teaching/Research Staff working in any Engineering College recognized by AICTE either in the State of Karnataka or outside and who have put in a minimum of 03 years of teaching experience on full-time basis in Engineering Colleges, Polytechnic institutions / any other institutions imparting Engineering education shall be eligible for admission to PG Programs under sponsored quota, if they are sponsored by the respective Institutions / DTE.

20OMT2.9 Subject to the provisions of 20OMT 2.1 and 20OMT 2.2, members working in the State Government/ Central Government/ Quasi Government Organizations/ Public Sector Industries / Reputed Private Industries, who have put in a minimum of 03 years of working experience and sponsored by the concerned Organizations, shall also be eligible to seek admissions to PG Programs against sponsored quota. Preference for admission under 20OMT2.8 and 2.9 shall be given to candidates sponsored by organizations of State and Central Governments.

20OMT2.10 Further that employment of Part-time students shall be in an establishment situated within the 40km from the place of the institution to which the candidate is seeking admission.

20OMT2.11 Engineering graduates other than the Karnataka candidates shall obtain Eligibility Certificate from VTU to seek admission to P.G. Programme in any of the colleges (Autonomous or Non - Autonomous) affiliated to VTU.

20OMT2.12 **Admission to vacant seats:**
Seats remaining vacant (unfilled), after the completion of PG admission process by Karnataka Examination Authority, shall be filled by the Institution by inviting applications through Press notification. The seats shall be filled by Candidates preferably who have valid GATE/ PGCET score. In the absence of such Candidates, admission shall be based on merit in the entrance test conducted at the Institution level. An Admissions Committee, consisting of the Principal of the College, Head of the concerned Department and the subject experts, shall be in charge of admissions.

20OMT3.0 **Courses**

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20OMT3.1 The curriculum of the Programme shall be any combination of following type of courses:

(i) One Course on Mathematics supportive to the concerned programme in the first semester.

(ii) Professional Core Courses (PCC) - relevant to the chosen specialization/ branch [May be split into Hard (no choice) and Soft (with choice), if required]. The core course is to be compulsorily studied by a student and is mandatory to complete the requirements of a programme in a said discipline of study.

(iii) Professional Electives Courses (PEC) - relevant to the chosen specialization/ branch: these are the courses, which can be chosen from the pool of papers. It shall be supportive to the discipline/ providing extended scope/enabling an exposure to some other discipline / domain / nurturing student skills.

(iv) Open Electives Courses (OEC), from other technical and/ or emerging specialization areas.

(v) Project Work, Seminar.

(vi) Audit Courses (AC):

(a) The Audit course can be any credit course offered by the program to which the Candidate is admitted (other than the courses considered for completing the prescribed program credits) or other programs offered in the institution, where Audit course/s are non-credit courses opted by students for self – enrichment. Though, the CIE and SEE are not required, the attendance to be compulsorily satisfied, for the audit course/s to find a place in the grade card without the mention of letter grade and credit.

(vii) Internship: Preferably at an industry/R and D organization/IT company/ Government organization of significant repute for a specified period mentioned in Scheme of Teaching and Examination.

20OMT3.2 A candidate shall exercise his /her option in respect of the electives and register for the same before the beginning of the concerned semester. The candidate may be permitted to opt for change of elective subject within 10 days from the date of commencement of the semester as per the calendar of the University.

20OMT3.3 Students shall be allowed to choose the elective/s, depending on their career plans, and there shall not be any restriction to the minimum number of students to be registered for an elective course.

20OMT4.0 **Internship**

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20OMT4.1 **Internship:** The student shall undergo Internship as per the Scheme of Teaching and Examination.

(1) The internship shall be carried out in any industry/R&D Organization/Research Institute/Institute of national and international repute/recognized national and international Professional Bodies, Societies or Organizations.

(2) The Department/college shall nominate a faculty to facilitate, guide and supervise students under internship.

(3) The students shall report the progress of the internship to the internal guide in regular intervals and seek his/her advise.

(4) The Internship shall be completed during the period specified in Scheme of Teaching and Examination.

(5) After completion of Internship, students shall submit a report to the Head of the Department with the approval of both internal and external guides.

(6) There will be 40 marks for CIE (Seminar: 20, Internship report: 20) and 60 marks for Viva – Voce conducted during SEE. [To be read along with 20OMT8.8 and 8.9]

(7) The internal guide shall award the CIE marks for seminar and internship report after evaluation. He/she will also be the internal examiner for Viva – Voce conducted during SEE.

(8) The external guide from the industry shall be an examiner for the Internship viva-voce examination. Viva-Voce on internship shall be conducted at the college and the date of Viva-Voce shall be fixed in consultation with the external Guide. The Examiners shall jointly award the Viva - Voce marks.

(9) (i) In case the external Guide is not available or expresses his inability to conduct viva voce, the Chief Superintendent shall be permitted to make alternate arrangement. The examiner, in the order of preference, shall be an industry person or a faculty of another institution chosen from the list of University examiners.T he same shall be intimated to the concerned BOE Chairperson.

(ii) In case the external Guide accepts to conduct viva-voce examination from his/her workplace, it shall be arranged via Video/web conferencing/Webinar. The external Examiner shall send the mutually agreed signed marks (evaluated for SEE marks) list, soon after the examination, via email/any electronic media.

(10) The students shall be permitted to carry out the internship anywhere in India or abroad. The University shall not provide any kind of Financial Assistance to any student for internship.

20OMT4.2 **Failing to undergo Internship:** Internship is one of the head of passing. Completion of internship is mandatory. If any student fails to undergo/complete the internship, he/she shall be considered as fail in that Course and shall not be permitted to appear for SEE in that Course. However, such students shall appear for SEE after satisfying the conditions prescribed for Internship. The reappearance shall be considered as an attempt.

20OMT5.0 **Seminar and Project**

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20OMT5.1 **Seminar:** Seminar is one of the head of passing.

(i) Each candidate shall deliver seminar as per the Scheme of Teaching and Examination on the topics chosen from the relevant fields for about 30 minutes.

(ii) The Head of the Department shall make arrangements for conducting seminars through concerned faculty members of the Department. The committee constituted for the purpose by the Head of the Department shall award the CIE marks for the seminar. The committee shall consist of three faculty from the Department and the senior most acting as the Chairman/Chairperson. [To be read along with 20OMT8.8]

20OMT5.2 **Project Work:** Project is one of the head of passing.

Project work shall preferably be on individual basis.

The candidate shall submit a soft copy (CD) of the dissertation work to the University. The CD should contain the entire Dissertation in monolithic form as a PDF file (not separate chapters).

The Guide, after checking the report for completeness shall upload the Dissertation along with name, University Seat Number, address, mobile number of the candidate, etc., as prescribed in the form available on online Dissertation evaluation portal. The guide shall submit a panel of four approved University Examiners for evaluation of dissertation.

20OMT5.3 **Plagiarism Check**

Once the Guide uploads the dissertation, the same shall be linked for plagiarism check. The allowable plagiarism index is less than or equal to 25%.

If the check indicates a plagiarism index greater than 25% :

(i)for the first time, the candidate has to resubmit the dissertation, to the Registrar (Evaluation), Regional Center/Head Office, VTU along with the penal fees of Rs. 2000/- (Rupees Two thousand only) in person.

(ii)for the second time, the candidate has to resubmit the dissertation along with the penal fees of Rs. 4000/- (Rupees four thousand only) in person.

(iii) If the dissertation is rejected again during second resubmission with reference to plagiarism index, the candidate shall redo the project and submit after a semester's time subject to provisions of 20OMT1.6.

20OMT5.4 The dissertation shall be sent through email for evaluation to two examiners - one internal examiner (guide/co-guide) and one external examiner (first) appointed by the University. The evaluation of the dissertation shall be made independently by each examiner.

20OMT5.5 Examiners shall evaluate the dissertation normally within a period of not more than two weeks from the date of receipt of dissertation through email.

20OMT5.6 The examiners shall independently submit the marks through the specified link.

20OMT5.7 Average of the marks awarded by the two Examiners shall be the final evaluation marks for the Dissertation.

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20OMT5.8 **(a)** Viva-voce examination of the candidate shall be conducted as per 20OMT5.10, if the dissertation work and the reports are accepted by the external examiner (first).

(b) If the external examiner (first) finds that the dissertation work and the report are not up to the expected standard and the minimum passing marks cannot be awarded, the dissertation shall not be accepted for SEE.

The external examiner (first) can recommend for modifications/suggestions of dissertation or totally reject the dissertation. The examiner shall offer suggestions for improvement of the dissertation for resubmission or list the reasons for rejection of the dissertation.

20OMT5.8 (continued) **(c)** The resubmitted Dissertation incorporating the modifications/suggestions [as per 20OMT5.8 (b)] of the external examiner (first) and satisfying the provision 20OMT5.3shall be sent again to the external examiner (first) for evaluation. If the dissertation and the report are accepted by the external examiner (first), Viva-voce examination of the candidate shall be conducted as per 20OMT5.10.

(d) In case of rejection of Dissertation by the external examiner (first), the same will be sent to a Second Examiner (external) approved by the University. The decision of the Second Examiner (external) is final. If the dissertation and the report are accepted by the Second Examiner (external), Viva-voce examination of the candidate shall be conducted as per 20OMT5.10. If the Second Examiner (external) rejects the dissertation and the report, the candidate shall have to carry out the dissertation work once again and submit the dissertation subject to provisions of 20OMT1.6. In such cases of rejection, the candidate shall redo the entire procedure starting from the submission of Dissertation in soft copy.

(e) In case of rejection of Dissertation, with reasons, by the external examiner (first) [as per 20OMT5.8 (b)], the same will be sent to a Second Examiner (external) [not necessarily the same examiner considered under 20OMT5.8 (d)] approved by the University. The decision of the Second Examiner (external) is final. If the dissertation and the report are accepted by the Second Examiner (external), Viva-voce examination of the candidate shall be conducted as per 20OMT5.10. If the Second Examiner (external) rejects the dissertation and the report, the candidate shall have to carry out the dissertation work once again and submit the dissertation subject to provisions of 20OMT1.6. In such cases of rejection, the candidate shall redo the entire procedure starting from the submission of Dissertation in soft copy.

20OMT5.9 The candidate, whose Dissertation is rejected, can rework on the same topic or choose another topic of dissertation under the same Guide or new Guide if necessary. In such an event, the report shall be submitted within four years in case of full-time student and six years in case of part-time student respectively from the date of admission to the Programme.

20OMT5.10 Viva-voce examination of the candidate shall be conducted by the external examiner and internal examiner/ guide.

Internal examiner as per the direction of the University shall have to arrive at a mutually convenient date for the conduct of viva-voce examination of the concerned candidate with an intimation to the Registrar (Evaluation). In case one of the examiners expresses his/her inability to attend the viva-voce, the Registrar (Evaluation) shall appoint a substitute examiner in his/her place.

20OMT5.11 The relative weights for the evaluation of dissertation and the performance at the viva voce shall be as per the scheme of teaching and examination.

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20OMT5.12 The marks awarded by both the Examiners at the viva voce Examination shall be sent jointly to the University immediately after the examination.

20OMT5.13 Examination fee as fixed from time to time by the University for evaluation of dissertation report and conduct of viva voce shall be remitted through the Head of the Institution as per the instructions of Registrar (Evaluation) from time to time.

20OMT5.14 The candidates who fail to submit the dissertation work within the stipulated time have to submit the same at the time of next ensuing examination.

20OMT6.0 Computation of SGPA and CGPA

20OMT6.1 **(i)** The University adopts absolute grading system wherein the marks are converted to grades, and every semester results will be declared with semester grade point average (SGPA) and Cumulative Grade Point Average (CGPA). The CGPA will be calculated for every semester, except for the first semester.

(ii) The grading system with the letter grades and the assigned range of marks under absolute grading system are as given below:

Level	Outstanding	Excellent	Very Good	Good	Above Average	Average	Fail
Letter Grade	S	A	B	C	D	E	F
Grade Points	10	9	8	7	6	4	00
Percentage of Marks Scored in a Course	≥ 90	<90 ≥80	< 80 ≥70	< 70 ≥60	< 60 ≥ 55	< 55 ≥50	< 50
	(90 -100)	(80 - 89)	(70 - 79)	(60 - 69)	(55 - 59)	(50- 54)	(0 - 49)

(iii) A student obtaining Grade F in a Course shall be considered fail and is required to reappear in subsequent SEE. Whatever the letter grade secured by the student during his /her reappearance shall be retained. However the number of attempts taken to clear a Course shall be indicated in the grade cards/ transcripts.

20OMT6.2 **Grade Point Averages:**

SGPA and CGPA: The credit index can be used further for calculating the Semester Grade Point Average (SGPA) and the Cumulative Grade Point Average (CGPA), both being important academic performance indices of the student. While SGPA is equal to the credit index for a semester divided by the total number of credits registered by the student in that semester, CGPA gives the sum total of credit indices of all the previous semesters divided by the total number of credits registered in all these semesters. Both the equations together facilitate the declaration of academic performance of a student, at the end of a semester and at the end of successive semesters respectively. Thus,

$$SGPA = \frac{\sum[Course\ Credits \times Grade\ Points]\ for\ all\ t\square e\ Courses\ in\ t\square at\ Semester}{\sum[Course\ Credits\ ]\ for\ all\ t\square e\ Courses\ in\ t\square at\ Semester}$$

$$CGPA = \frac{\sum[Course\ Credits \times Grade\ Points]\ for\ all\ Courses\ excluding\ t\square ose\ wit\square\ F\ and\ transitional\ grades\ until\ t\square at\ Semester}{\sum[Course\ Credits\ ]\ for\ all\ Courses\ excluding\ t\square ose\ wit\square\ F\ grades\ until\ t\square at\ semester}$$

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20OMT6.2
(continued)

(a) SGPA and CGPA Calculations: An Illustrative Example for one academic year

Semester (Odd :I, Even: II)	Course Number	Credits	Grade	Grade Points	Credit Points	SGPA, CGPA
I	XX101	5:0:0 = 5	B	8	5 × 8 = 40	$SGPA = \frac{117}{25}$ $= \mathbf{4.68}$
I	XX102	3:2:0 = 5	Absent(F)	0	5 × 0	
I	XX103	3:0:0 = 3	A	9	3 × 9	
I	XX104	0:1:1 = 2	F	0	2 × 0	
I	XX105	4:1:0 = 5	D	6	5 × 6	
I	XX106	5:0:0 = 5	E	4	5 × 4	
	Total	25 (18*)	Total		117	

(18*): Total credits of the semester excluding the credits of the courses under F grade. Considered for the calculation of CGPA of the two consecutive semesters under consideration.

II	XX107	3:1:1 = 5	C	7	5 × 7	$SGPA = \frac{157}{25}$ $= \mathbf{6.28}$
II	XX108	4:0:0 = 4	B	8	4 × 8	
II	XX109	3:0:0 = 3	D	6	3 × 6	
II	XX110	4:1:0 = 5	E	4	5 × 4	
II	XX111	2:1:1 = 4	A	9	4 × 9	$CGPA = \frac{(117 + 157)}{18 + 23}$ $= 274/41 = \mathbf{6.68}$
II	XX112	2:0:0 = 2	F	0	2 × 0	
II	XX113	0:2:0 = 2	B	8	2 × 8	
	Total	25 (23*)	Total		157	

(23*): Total credits of the semester excluding the credits of the courses under F grade. Considered for the calculation of CGPA of the two consecutive semesters under consideration.

If the Student secures letter grades as detailed below after reappearance to SEE, then the SGPA and CGPA shall be calculated as indicated below.

I	XX102	3:2:0 = 5	D	6	5 × 6 = 30	$SGPA\ (I\ Semester) = \frac{117 + 30 + 14}{25}$ $= 161/25 = \mathbf{6.44}$
I	XX104	0:1:1 = 2	C	7	2 × 7 = 14	
II	XX112	2:0:0 = 2	D	6	2 × 6 = 12	$SGPA\ (II\ Semester) = (157 + 12)/25$ $= 169/25 = \mathbf{6.76}$

$$CGPA\ at\ the\ end\ of\ the\ academic\ year\ after\ passing\ all\ the\ Courses\ of\ the\ two\ consecutive\ semesters\ under\ consideration = \frac{(6.44 \times 25 + 6.76 \times 25)}{50} = \mathbf{6.60}$$

(b) CGPA Calculation of the Programme: An Illustrative Example

Semester	I	II	III	IV
Credits of the	24	24	20	20
SGPA	7.00	8.50	9.20	6.86

$$\boldsymbol{CGPA} = \frac{(24 \times 7.00 + 24 \times 8.50 + 20 \times 9.20 + 20 \times 6.86)}{88} = \mathbf{7.88}$$

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20OMT6.3 **Grade Card:** Based on the secured letter grades, grade points, SGPA and CGPA, a grade card for each semester and a consolidated grade card indicating the performance in all semesters shall be issued.

20OMT7.0 **Conversions of Grades into Percentage and ClassEquivalence**

Conversion formula for the conversion of CGPA into percentage is given below:
Percentage of marks secured, P = [CGPA Earned - 0.75] × 10
Illustration For A CGPA Of 8.20:

P = [CGPA Earned 8.2 - 0.75]× 10 = 74.5 %

20OMT7.1 **Class Equivalence:**

After the conversion of final CGPA into percentage of marks (P), a graduating student is reckoned to have passed in
(i) First Class with Distinction (FCD) if P ≥ 70%
(ii) First Class (FC) if P ≥ 60% but <70% and
(iii) Second Class (SC) if P < 60%.

20OMT8.0 **Continuous Internal Evaluation and Semester End Evaluation**

20OMT8.1 **Continuous Internal Evaluation**

For each theory and practical paper, the CIE marks shall be 40.
For seminar and Project Phase –I, the CIE marks shall be 100.
[To be read along with 20OMT8.8]

20OMT8.2 CIE Marks shall be based on
(a) Tests (for 20 Marks) and
(b) Assignments, Quizzes, Simulations, Experimentations, Mini project, oral examinations, field work etc., (for 20 Marks) conducted in respective courses.

20OMT8.3 The CIE marks in a theory course, for 20 marks, shall be based on three tests covering the entire syllabus. An additional test may be conducted for the needy students to provide an opportunity to improve their CIE Marks before the end of the semester. The CIE marks shall be the average of the marks scored in three tests. [To be read along with 18OMT8.8]

20OMT8.4 The candidates shall write the Tests in Blue Book/s. The Blue book/s and other documents relating to award of CIE marks under 20OMT8.2 (b) shall be preserved by the Principal / Head of the Department for at least six months from the date of announcement of University results and made available for verification at the directions of the Registrar (Evaluation).

20OMT8.5 Every page of the CIE marks list shall bear the signatures of the concerned Teacher, Head of the Department and the Principal.

20OMT8.6 The CIE marks list shall be displayed on the Notice Board and corrections, if any, shall be incorporated before submitting to the University.

20OMT8.7 The CIE marks shall be sent to the university by the Principals well in advance before the commencement of Semester End Examinations. No corrections of the CIE marks shall be entertained after the submission of marks list to the University.

20OMT8.8 Candidates obtaining less than 50% of the CIE marks in any course (Theory/Laboratory/Seminar/Internship/Project) shall not be eligible to appear for the University examination in that course/s. In such cases, the Head of the Department shall arrange for the improvement of CIE marks in the course/ Laboratory when offered in the subsequent semester subject to the provision of 20OMT1.6.

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20OMT8.9 **Semester End Evaluation:** There shall be a University examination at the end of each semester.

20OMT8.10 There shall be double valuation of theory papers. The theory Answer booklets shall be valued independently by two examiners appointed by the University.

20OMT8.11 If the difference between the marks awarded by the two Examiners is not more than 15 per cent of the maximum marks, the marks awarded to the candidate shall be the average of two evaluations.

20OMT8.12 If the difference between the marks awarded by the two Examiners is more than 15 per cent of the maximum marks, the answer booklet shall be evaluated by a third Examiner appointed by the university. The average of the marks of nearest two valuations shall be considered as the marks secured by the candidate. In case, if one of the three marks falls exactly midway between the other two, then the highest two marks shall be taken for averaging.

20OMT9.0 **Eligibility for Passing and Award of Degree**

20OMT9.1 **(1)** A student who obtains any grade S to E shall be considered as passed and if a student secures F grade in any of the head of passing he/she has to reappear in that head for the SEE.

(2)A student shall be declared successful at the end of the Programme for the award of Degree only on obtaining CGPA $\geq$ 5.00, with none of the Courses remaining with F Grade.

(3) In case, the CGPA fall below 5.00, the student shall be permitted to appear again for SEE for required number of courses (other than seminar and Practical) and times, subject to the provision of 20OMT1.6, to make up CGPA $\geq$5.0. The student should reject the SEE results of the previous attempt and obtain written permission from The Registrar (Evaluation) to reappear in the subsequent SEE.

20OMT9.2 For a pass in a theory course, the student shall secure minimum of 40% of the maximum marks prescribed in the Semester End Examination and 50% of marks in CIE and 50 % in the aggregate of CIE and SEE marks. The Minimum Passing Grade in a course is E.

20OMT9.3 For a pass in Internship/Practical/Project/Dissertation/Viva-voce examination, a student shall secure a minimum of 50% of the maximum marks prescribed for the SEE in Internship/Practical/Project/Dissertation/Viva-voce. The Minimum Passing Grade in a course is E.

20OMT9.4 IV semester Full-time candidates having backlog courses are permitted to upload the dissertation report and to appear for SEE. The IV semester grade card shall be released only when the candidate completes all the backlog courses and become eligible for the award of degree. [To be read along with 20OMT11.2]

VI semester Part-time candidates having backlog courses are permitted to upload the dissertation report and to appear for SEE. The VI semester grade card shall be released only when the candidate completes all the backlog courses and become eligible for the award of degree.[To be read along with 20OMT11.2]

20OMT9.5 A candidate may at his/her desire reject his/her latest semester results of University examination in respect to all courses of that semester. However, in the IV semester the rejection shall not include the Project work. Rejection shall be permitted only once during the entire Programme. The CIE marks of the rejected semester shall remain the same.

Rejection of results of the University examination including CIE marks is not permitted.

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20OMT9.6 If the rejection of the University examination results of the semester happens to be of an odd semester, the candidate can take admission to the immediate next even semester. However, if the rejection of the University result is of even semester, the candidate cannot take admission to the next odd semester.

20OMT9.7 Application for rejection shall be submitted to the Registrar (Evaluation) through the Principal of the college, within thirty days from the date of announcement of results.

20OMT9.8 A candidate, who opts for rejection of results of a semester shall be eligible for the award of class and distinction, but shall not be eligible for the award of rank.

20OMT9.9 **Eligibility for Award of Degree:**
A student shall be declared to have completed the degree of Master of Technology, provided the student has undergone the stipulated course work as per the regulations and has earned the prescribed Credits, as per the Scheme of Teaching and Examination, of the programme.

20OMT10.0 **Attendance Requirement**

20OMT10.1 **Registration and Enrolment:**
(i) Except for the first semester, registration for a semester will be done during a specified week before the semester end examination of the previous semester.
(ii) The registration sheet should have the Candidate details, course name and code, number of credits and category (core/elective/audit) for each course of that semester.
(iii) The Faculty Adviser, assigned by the Head of the Department, will counsel the students in planning their courses of study and provide guidance, motivation, emotional support, and enable the mentees to reach the desired professional and career goals.

20OMT10.2 Courses of each semester shall be treated as a separate unit for calculation of the attendance.

20OMT10.3 20OMT10.3 The candidate has to put in a minimum attendance of 85 % in each course with a provision to condone 10 % of the attendance by the Vice-Chancellor on the specific recommendation of the Principal of the college where the candidate is studying, based on medical grounds, participation in NSS/NCC/Red Cross /Republic Day and Independence Day parades/University/ State/ National/ International level sports and cultural activities, seminars, workshops, paper presentation etc., of significant value. The necessary documents in support are to be submitted along with recommendations to condone the shortage.

20OMT10.4 In case of late admission, approved by competent authority (DTE/VTU), to I semester of the programme the attendance shall be reckoned from the date of admission to the programme.

20OMT10.5 A candidate, who does not satisfy the attendance requirement (in one or more Courses) as mentioned in 20OMT10.3 shall not be eligible to appear for the SEE of that semester and shall not be permitted to take admission to next higher semester. The candidate shall be required to repeat that semester during the subsequent year.

20OMT10.6 Principals of the concerned colleges shall notify regularly, the list of candidates who fall short of attendance.

20OMT10.7 The list of the candidates falling short of attendance shall be sent to the University at least one week prior to the commencement of the examination.

20OMT11.0 **Promotion and Eligibility(Vertical Progression)**

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20OMT11.1 Promotion:

There shall be no restriction for promotion from an odd semester to the next even semester, provided the student has fulfilled the attendance requirement.

20OMT11.2 **(a)** Candidates, under full-time programme, with a maximum of two backlog courses of first year shall be eligible for taking admission to second year (III semester).

(b)(i) Candidates, under part-time Programme, with one backlog subject of an academic year shall be eligible for taking admission to next odd semester from even semester.

(ii) For admission to V semester, Candidates under part-time Programme must have completed all the courses of I and II semesters.

20OMT11.3 The Mandatory non – credit courses, if any, shall not be considered for the Eligibility criterion prescribed for promotion, award of Class, calculation of SGPA and CGPA. However, a pass in the above courses is mandatory before the completion of Degree.

20OMT12.0 Provision to move to Integrated Ph.D. programme

20OMT12.1 **(a)**The candidates pursuing M.Tech. Degree at the University and who have successfully completed the prescribed common coursework of the first three semesters of study with a minimum CGPA of 7.75 out of 10 or 70 % aggregate marks and published research papers in 'SCOPUS/SCI/WoS Indexed Journals /UGC-CARE Approved Journals' or obtained/filed patents shall be eligible for up-gradation to the I.Ph.D. Programme, subject to approval by the Admissions Committee.

(b) Integrated Ph.D. programme is a fulltime programme.

20OMT13.0 Temporary Discontinuation/Break in the Program

20OMT13.1 **(a)** If a candidate, for any reason, temporarily discontinues the Programme or take a break from programme during any semester, he/she may be permitted to continue in the programme by registering to the same semester of the prevailing scheme. The candidate shall complete all the remaining course work subject to the provision 20OMT1.6. Also the Candidates may have to complete additional course/s, if any, as per the decision of concerned Board of Studies and approval of Dean, Faculty of Engineering, on establishing equivalence between two schemes. A Grade card shall be issued to that effect. Additional course/s shall not be considered for the eligibility criterion prescribed for promotion. However, based on the individual cases, it is considered to decide the SGPA and CGPA to admit the student for the award of degree. Such candidate shall not be eligible for the award of rank.

(b) Candidates who takes admission to any semester of the existing scheme from another scheme, as a repeater/fresher because of various reasons have to complete additional course/s, if any, as per the decision of concerned Board of Studies and approval of Dean, Faculty of Engineering, on establishing equivalence between two schemes. A Grade card shall be issued to that effect. Additional course/s shall not be considered for the eligibility criterion prescribed for promotion. However, based on the individual cases, it is considered to decide the SGPA and CGPA to admit the student for the award of degree. Such candidate shall not be eligible for the award of rank.

20OMT14.0 Award of Prizes, Medals and Ranks

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20OMT14.1 For the award of Prizes and Medals, the conditions stipulated by the Donor shall be considered subject to the provisions of the statutes framed by the University for such awards.

20OMT14.2 **(1)** For award of rank in a Specialization of Master of Technology, the CGPA secured by the student on completion of the programme is considered.
(2) A student shall be eligible for a rank at the time of award of degree of Master of Technology, provided the student
(a) Is not a repeater in any semester
(b) Has not rejected the results of any semester.
(c) Has passed I to IV semester in all the courses in first attempt only
(3) The total number of ranks awarded shall be 10% of total number of students appeared in IV semester subject to a maximum of 10 ranks in a Specialization.
(4) For award of ranks in a Specialization, a minimum of 10 students should have appeared in the IV semester examination.
Illustration:
(a) If 150 students appeared for the IV semester in VLSI Design and Embedded Systems Branch, the number of ranks to be declared in VLSI Design and Embedded Systems will be 10.
(b) If 84 students appeared for the IV semester in Nano Technology, the number of ranks to be declared for Nano Technology will be 08.

(c) In case of fractional number of ranks, it is rounded to higher integer only when the first decimal place value is greater than or equal to 5.
(5) Students under Part-time Programme are not considered for Rank declaration.

20OMT14.3 Ranks are awarded based on the merit of the students as determined CGPA. If two or more students get the same CGPA, the tie shall be resolved by considering the number of times a student has obtained higher SGPA. If it is not resolved even at this stage, the number of times a student has obtained higher grades like S, A, B etc., shall be taken into account to decide the order of the rank.

20OMT15.0 **Applicability and Power to Modify**

20OMT15.1 The regulations governing the Degree of Master of Technology of Visvesvaraya Technological University shall be binding on all concerned.

20OMT15.2 **(i)**Notwithstanding anything contained in the foregoing, the University shall have the power to issue directions/ orders to address any difficulty.
(ii) Nothing in the foregoing may be construed as limiting the power of the University to amend, modify or repeal any or all of the above.

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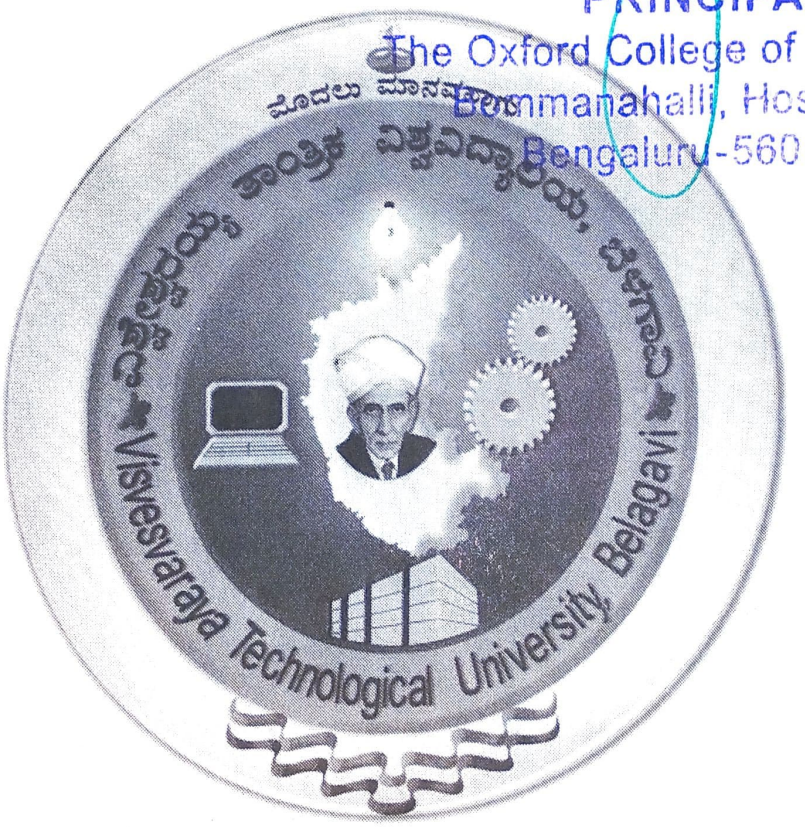
PRINCIPAL
The Oxford College of Engineering
Bommanahalli, Hosur Road
Bengaluru-560 068

Syllabus of I & II Semesters B.E./B.Tech.

Common to all Engineering Branches

(with effect from 2015-16)

PRINCIPAL
The Oxford College of Engineering
Bommanahalli, Hosur Road
Bengaluru-560 068.



Visvesvaraya Technological University, Belgavi

ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ

Web: www.vtu.ac.in

CHOICE BASED CREDIT SYSTEM (CBCS)
REGULATIONS GOVERNING
THE DEGREE OF BACHELOR OF ENGINEERING / TECHNOLOGY
(B.E./B.Tech.)

DEFINITIONS OF KEY WORDS:

1. **University:** Visvesvaraya Technological University, Belagavi.
2. **Academic Year:** Two consecutive (one odd + one even) semesters constitute one academic year.
3. **Semester:** Each semester will consist of 15-18 weeks of academic work equivalent to 90 actual teaching days. The odd semester may be scheduled from August to January and even semester from February to July.
4. **Choice Based Credit System (CBCS):** The CBCS provides choice for students to select from the prescribed courses *(core, elective and Foundation Courses).*
5. **Credit Based Semester System (CBSS):** Under the CBSS, the requirement for awarding a degree or certificate is prescribed in terms of number of credits to be earned by the students.
6. **Programme:** An educational programme leading to award of a Degree or certificate.
7. **Course:** Usually referred to, as 'papers' is a component of a programme. All courses need not carry the same weightage. The courses should define learning objectives and learning outcomes. A course may be designed to comprise lectures/ tutorials/laboratory work/ field work/ outreach activities/ project work/ vocational training/viva/ seminars/ term papers/assignments/ presentations/ self-study etc. or a combination of some of these.
8. **Branch:** Specialization or discipline of B.E./B.Tech. Degree Programme, like Civil Engineering, Textile Engineering, etc.
9. **Letter Grade:** It is an index of the performance of students in a said course. Grades are denoted by letters S, A, B, C, D, E and F.
10. **Grade Point:** It is a numerical weightage allotted to each letter grade on a 10-point scale.
11. **Credit:** A unit by which the course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (lecture or tutorial) or two hours of practical work/field work per week.
12. **Credit Point:** It is the product of grade point and number of credits for a course.
13. **Semester Grade Point Average (SGPA):** It is a measure of academic performance of student/s in a semester. It is the ratio of total credit points secured by a student in various courses registered in a semester and the total course credits taken during that semester. It shall be expressed up to two decimal places.

14. **Cumulative Grade Point Average (CGPA):** It is a measure of overall cumulative performance of a student over all semesters. The CGPA is the ratio of total credit points earned by a student in various courses in all semesters and the sum of the total credits of all courses in all the semesters. It is expressed up to two decimal places.
15. **First Attempt:** If a student has completed all formalities and become eligible to attend the examinations and has attended at least one head of passing, such attempt (first sitting) shall be considered as first attempt.
16. **Transcript or Grade Card or Certificate:** Based on the grades earned, a grade certificate shall be issued to all the registered students after every semester. The grade certificate will display the course details (code, title, number of credits, grade secured) along with SGPA of that semester and CGPA earned till that semester.

Choice Based Credit System (CBCS): The CBCS provides choice for students to select from the prescribed courses.

Sequencing Plan for the B.E. / B.Tech. Degree Curriculum

Semesters	*Course Coverage*
I –II	HSS, BS and ES; Common for all Branches; Mandatory Courses
III-IV	BS Common for all Branches and ES; PS – Core/Elective
V-VII	PS- Core & Electives; Other Electives; Branch-wise Orientation
VIII	PS-Electives/Elective ; Other Electives, Internship, Project work

Abbreviations:

HSS - Humanities and Social Sciences
BS - Basic Sciences
ES - Engineering Sciences
PS - Professional Subjects

Credit Structure for Course Work

Lectures (hrs/wk/Sem)	Tutorial (hrs/wk/ Sem)	Lab. Work (hrs/wk/Sem)	*Credits* (Lec:instruction:Lab)	*Credits* (Total)
4	0	0	4:0:0	4
3	0	0	3:0:0	3
0	1	2	0:1:2	2

CHOICE BASED CREDIT SYSTEM (CBCS)
REGULATIONS GOVERNING
THE DEGREE OF BACHELOR OF ENGINEERING / TECHNOLOGY
(B.E./B.Tech.)

15OB 1 TITLE AND DURATION OF THE PROGRAMME OF STUDY

15OB 1.1 The program of study shall be called the degree Program of study in Bachelor of Engineering / Technology, abbreviated as B.E. / B.Tech.

15OB 1.2 The program shall be of four academic years duration divided into eight semesters, each semester having duration of 16 weeks. For evening courses the contact hours are to be satisfied by working extra on afternoons of Saturdays and Sundays.

15OB 1.3 The calendar of events in respect of the program of study shall be fixed by the University from time to time.

15OB 1.4 The examination in all programs of study shall be conducted at the end of each semester for all eight semesters.

15OB 2 ELIGIBILITY FOR ADMISSION

(The Government orders issued from time to time in this regard shall prevail).

15OB 2.1 Admission to I year / I semester Bachelor Degree in Engineering / Technology shall be open to the students who have passed the second year Pre-University or XII standard or equivalent examination recognized by the University.
For the prerequisite qualification earned from foreign countries, Equivalence certificate from the Association of Indian Universities is Mandatory.
The decision of the Equivalence committee shall be final in establishing the eligibility of student.

15OB 2.2 In addition to 15OB 2.1, the student shall have secured not less than forty five percent (45%) marks in the aggregate with Physics and Mathematics as compulsory subjects, along with any one of the following subjects, namely, Chemistry, Bio-Technology, Computer Science, Biology and Electronics or as decided by the Government of Karnataka.
Provided that, the minimum marks for the purpose of eligibility shall be forty percent (40%) in optional subjects in case of students belonging to SC/ST and OBC students from Karnataka or as decided by the Government of Karnataka.

Provided further that, the student shall have studied and passed

English as one of the subjects.

15OB 2.3 Admission to II year/ III semester Bachelor Degree in Engineering/ Technology (Lateral Entry) shall be open to the students

Diploma Holders

- Must have passed diploma or equivalent qualification as recognized by University and secured not less than forty five percentage (45%) marks in the final year examination (fifth and sixth semesters) in the appropriate branch of engineering. In case of SC/ST and OBC students from Karnataka the minimum marks for eligibility shall be forty percent (40%).

- Who have completed their Diploma from other than Karnataka state shall provide the Equivalence/ Eligibility Certificate from the Director of Technical Education, Karnataka.

- Who are seeking admission under lateral entry shall also clear prescribed Bridge courses (Advanced Mathematics – III and IV) and Mandatory subjects (CPH and CIV) as specified by the University.

B.Sc. Graduates

- **Must have** passed B.Sc. degree from a recognized University as defined by the UGC or equivalent qualification as recognized by University and secured not less than forty five percentage (45%) marks in aggregate (including all six semesters). In case of SC/ST and OBC students from Karnataka the minimum marks for eligibility shall be forty percent (40%). Should have studied Mathematics as subject of study at XII Standard.

- Further, all the B.Sc. students seeking admission to lateral entry shall also clear the following subjects before entering into V Semester
  I. Computer Aided Engineering Drawing (CAED) and
  II. Programming in C and Data Structures
  III. CPH and CIV (if not studied at B.Sc. Level).

15OB 2.4 Admission to Evening Programme of study shall be open to a student;
Who on the first day of the term notified by the University for the year of admission has at least one-year professional experience in the branch of engineering / technology, in which the student holds a diploma.

Explanation: Professional experience means employment on regular basis

a. in Government, Government undertaking, Public Sector undertaking, Corporations or
b. in a private company registered under the Directorate of Industries and Commerce or the Directorate of Small Scale Industries or
c. In Government, Government recognized institutions as technical staff.

Provided that the period of apprenticeship undergone shall also be treated as professional experience, if sponsored by the Board of Apprenticeship Training, Southern Region Chennai or by any Government, Government undertaking or Public Sector undertaking.

Provided further that employment shall be in an establishment situated within the urban agglomeration of city in which the professional institution is situated.

15OB 2.5 Those students, who have passed a qualifying examination other than the PUC II examination of the Pre-University Education Board of Karnataka, have to obtain eligibility certificate for seeking admission to B.E./B.Tech. Degree Programme from Visvesvaraya Technological University, Belagavi or from the Principal of concerned Engineering College of Karnataka State.

15OB 3 **ATTENDANCE REQUIREMENT**

15OB 3.1 Each semester is considered as a unit and the student has to put in a minimum attendance of 85% in each Course with a provision of condonation of 10% of the attendance by the Vice-Chancellor on the specific recommendation of the Principal of the college where the student is studying, showing reasonable cause such as medical grounds, participation in University level sports, cultural activities, seminars, workshops, paper presentation, etc.

15OB 3.2 The basis for the calculation of the attendance shall be the number of hours prescribed by the University by its calendar of events. For the first semester students, the same shall be reckoned from the date of admission to the course as per CET allotment.

15OB 3.3 The students shall be informed about their attendance status periodically by the colleges so that the students shall be cautioned to make up the shortage. The Principals of the affiliated Colleges shall submit the list of students who have been detained for shortage of attendance by the end of the semester to the Registrar (Evaluation)

with a copy to the Registrar.
Provided that mere omission by the college to inform the student about the shortage of attendance shall not entitle him to appear for examination.

15OB 3.4 A student having shortage of attendance in one or more subjects shall have to repeat the whole semester and such students shall not be permitted to take admission to next higher semester.
Such students shall take readmission to the same semester in the subsequent academic year.

15OB 3.5 **TEMPORARY DISCONTINUATION OF THE PROGRAM:**
A student, who wishes to temporarily discontinue the program and continue the same subsequently, has to obtain prior permission from the University by applying through the Principal. Such students have to take readmission to the same semester/year in the subsequent academic year. However, the student shall complete the course as per 15OB 6.2.

15OB 4 **INTERNAL ASSESSMENT MARKS**

15OB 4.1 There shall be a maximum of 20 Internal Assessment Marks in each theory or practical paper. For seminars, the Internal Assessment marks shall be 50.

15OB 4.2 The Internal Assessment marks in a theory paper shall be based on two tests generally conducted at the end of 6th and 12th week of each semester. An additional test may be conducted for the desirous students before the end of the semester to give an opportunity to such students to improve their Internal Assessment Marks, subject to the provisions of 15OB 4.13. The test shall be answered in Blue Books with pages serially numbered. These blue books shall be kept in the custody of the Principal of the College until after one month from the date of announcement of the result by the University. These shall be made available to University authorities for verification as per the directions of the Registrar (Evaluation)/ Registrar.

15OB 4.3 Average of the better marks obtained from any two tests shall be the Internal Assessment Marks for the relevant subject.

15OB 4.4 If a student remains absent for all the Internal Assessment tests conducted, the Internal Assessment Marks shall be marked as AB for the subject against the University Seat Number (USN) of the student in the marks sheet submitted to the University by the Principal of the College.

15OB 4.5 In the case of a Practical, the IA marks shall be based on the laboratory journals/reports and one practical test.

15OB 4.6 i) The IA marks for I year Computer Aided Engineering / Drawing:
a) 12 marks for class work (sketching and Computer Aided engineering drawing).
b) 08 marks for test in the same pattern as that of the main examination (better of the two tests)

ii) The IA marks for other Drawings and Design Drawings offered by various branches shall be based on the evaluation of the sheets and one test in the ratio 60:40.

15OB 4.7 The IA marks in the case of projects and seminars in the final year shall be based on the evaluation at the end of 8th semester by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the project / seminar guide.

15OB 4.8 The final list, incorporating corrections (if any) of IA marks awarded to the students in the Theory/Practical/Internship/Project work/ Seminar, shall be displayed on the notice board of the college at least seven days before the closure of the semester and a certified copy of the same shall be sent by the Principals to the University Examination Section within the stipulated date. Every page of the IA marks sheet shall bear the signatures of the concerned Teacher/Teachers, Head of the Department and Principal.

15OB 4.9 Any corrections or over writing of IA marks shall bear the signature(s) of concerned Teacher(s) and in such cases the Head of the Department shall on every sheet indicate the number of corrections and attest it with his signature.

15OB 4.10 (a) A student failing to secure a minimum of 50% of the IA marks in Practical/Internship/Project work shall not be eligible for the Practical /Internship/Project of the University examination.

15OB 4.10 (b) For seminars, the minimum requirement of IA marks shall be 40% of the maximum.

15OB 4.11 Such students as mentioned in 15OB 4.10 shall repeat the laboratory work/Internship/project work during the subsequent semester(s) and secure at least the minimum marks prescribed.

15OB 4.12 For theory subjects, there shall not be any minimum requirements of IA marks.

15OB 4.13 Improvement of IA marks shall not be allowed

a. In theory subjects and
b. In Laboratory/Workshop/Seminar/ Internship / Project where the student has already secured the minimum required marks.

15OB 4.14 IA marks of those students to whom 15OB 4.11 is applicable, shall be sent separately to the Registrar (Evaluation).

15OB 4.15 IA marks shall reach the University before the commencement of examination as per the notification from the office of the Registrar (Evaluation) from time to time. After the submission of Internal Assessment marks to the University, any request for change of IA marks shall not be considered under any circumstances.

15OB 5 **ELIGIBILITY FOR PASSING**

A student who obtained Grades O to E shall be considered as passed and if a student secured "F" grade in any of the head of passing he /she has to reappear for the examination.

15OB 5.1 (a) For a pass in a theory subject/drawing, the student shall secure minimum of 35% of the maximum marks prescribed in the University examination and 40% of marks in the aggregate inclusive of the IA marks. i.e. Minimum Passing Grade is "E".

15OB 5.1 (b) For a pass in a Practical/Internship/Project/Viva-voce examination, a student shall secure a minimum of 40% of the maximum marks prescribed for the University Examination in the relevant Practical/Internship/Project/Viva-voce. i.e. Minimum Passing Grade in a course is "E".

15OB 5.1 (c) For a pass in Seminar, a student shall secure a minimum of 40% of the maximum marks prescribed. i.e. Minimum Passing Grade is "E".

15OB 5.2 The students who do not satisfy the condition 15OB 5.1 and the student who remains absent shall be deemed to have failed in that subject and may reappear for the University examination in the subsequent examinations. However, the IA marks awarded to the student/s at first attempt in the concerned theory subject will be carried forward. In case of Practical/Internship/Projects/Seminar revised marks will be taken as per regulations 15OB 4.10 (a & b) and 15OB 4.11.

15OB 5.3 The student who passes a course of a semester as per 15OB 5.1 shall not be allowed to appear for the same again, unless he/she opts for rejection of results as per 15OB 5.4, 5.5, 5.6, 5.7 & 5.8.

OB 5.4 A student may, at his/her desire, reject his/her total performance of a semester (including IA marks) or he/she may reject the result of his/her performance in University examination of a semester only. The rejection is permitted only once during the entire course of study.

15OB 5.5 The student who desires to reject the performance as per 15OB 5.4 shall reject performance in all the courses of the semester, irrespective of whether the student has passed or failed in any subject. However, the rejection of performance of 8th semester project result shall not be permitted.

15OB 5.6 A student, who desires to reject the total performance of the semester including Internal Assessment, has to take readmission for the relevant semester. Application for such readmission shall be sent to the Registrar through the Principal of College within 30 days from the date of the announcement of the results. Late submission of application shall not be accepted for any reasons. Readmission to First semester in such cases shall not be considered as fresh admission i.e., the student will continue to have the same University Seat Number, which was allotted earlier. The course duration permitted (as per 15OB 6) will be counted as per old USN.

OB 5.7 The student, who desires to reject only the results of University examination of a semester and does not desire readmission, shall be permitted to re-appear for examinations of all the subjects of the semester in the subsequent examinations. However, the IA marks obtained by the student in the rejected semester shall be retained. Applications for such rejection shall be sent to the Registrar (Evaluation) through the Principal of the College within 30 days from the date of announcement of the results. Late submission of applications shall not be accepted for any reasons.

If the rejection of the University examination results of the semester happens to be of the odd semester, the student shall be allowed to take admission to the immediate next even semester. However, if the rejection of the University result is of the even semester, the student shall not be allowed to take admission to the next odd semester (as per 15OB 7.2).

15OB 5.8 Such students who opt for rejection at final year are eligible for the award of class and distinction at the B.E./ B.Tech. degree level, but are not eligible for the award of ranks.

15OB 5.9 A student shall be declared to have completed the program of B.E. / B.Tech., degree, provided the student has undergone the stipulated course work as per the regulations and has earned at least 200 Credits.

15OB 6 MAXIMUM DURATION FOR COURSE COMPLETION

15OB 6.1 A student who has not obtained the eligibility for third semester after a period of three academic years from the date of first admission shall discontinue the course. However, the student is eligible for readmission for first year B.E./B.Tech. in respective College of the University and he/ she shall be allotted a University Seat Number (USN) without any change in the year of admission in the USN but the serial number of the student shall start with six hundred (6XX) series in the same branch.

15OB 6.2 The student admitted to 1st year B.E/ B.Tech. shall complete the course within a period of eight academic years from the date of first admission, failing which he/she has to discontinue the course.

The students admitted under lateral entry scheme (2nd Year B.E./B.Tech.) shall complete the course within a period of six academic years from the date of first admission, failing which he/she has to discontinue the course.

15OB 7 PROMOTION AND ELIGIBILITY FOR THE EXAMINATIONS

15OB 7.1 There shall not be any restriction for promotion from an odd semester to the next even semester, provided the student has fulfilled the attendance requirement.

15OB 7.2 A student shall be eligible for promotion from an even semester to the next odd semester (i.e. of the next academic year) if the student has not failed in more than four heads of passing of the immediately preceding two semesters and has passed in all the subjects of all the lower semester examinations. A theory or practical shall be treated as a head of passing.

Illustrations

a. A student seeking eligibility to 3rd semester should not have failed in more than 4 heads of passing of first and second semesters taken together.

b. A student seeking eligibility to 5th semester should have passed in all the subjects of 1st and 2nd semesters and should not have failed

in more than 4 heads of passing of third and fourth semesters taken together.

c. A student seeking eligibility to 7th semester should have passed in all the subjects up to 4th semester and should not have failed in more than 4 heads of passing of 5th and 6th semesters taken together.

The Subjects:
1. Constitution of India, Professional Ethics and Human Rights, and
2. Environmental Studies

are Mandatory Non-Credit Courses; these subjects shall not be considered for the Eligibility for promotion, award of Class, calculation of SGPA and CGPA. However, a pass in the above subjects is mandatory before the completion of Degree.

15OB 8 **COURSES**

15OB 8.1 There will be Four types of courses

(i) Core Courses: This is the course which is to be compulsorily studied by a student as a core requirement to complete the requirements of a program in a said discipline of study. These courses will have 4 credits per course.

(ii)Foundation Courses: The Foundation Courses are of two kinds: *Compulsory Foundation* and *Elective foundation*.

"Compulsory Foundation": These courses are the courses based upon the content that leads to Knowledge enhancement. They are mandatory for all disciplines. These courses will have 4 credits per course.

"Foundation Electives": These are value based courses aimed at man making education. These courses will have 3 credits per course.

(iii)Elective Courses: This is course, which can be chosen from the pool of papers. It may be supportive to the discipline/ providing extended scope/enabling an exposure to some other discipline / domain / nurturing student proficiency skills. These courses will have 3 credits per course.

(iv)Mandatory Non-Credit Courses: These courses are mandatory for students joining B.E./B.Tech. Program and students have to successfully complete these courses before the completion of degree.

15OB 8.2 The minimum number of students to be registered for an Elective to be offered shall be not less than ten.

15OB 8.3 A student shall exercise his option in respect of the electives and register for the same at the beginning of the concerned semester. The student may be permitted to opt for change of elective subject within 15 days from the date of commencement of the semester as per the calendar of the University.

15OB 9 INTERNSHIP

15OB 9.1 **Internship:** The student shall undergo an Internship for 8 weeks i.e. starting from the end of 7th semester Examination after availing one week vacation and completing during the initial period of 8th semester.

1. The college shall nominate a faculty for a group of students to prepare the students for internship.
2. The students shall report the progress of the internship to the guide in regular intervals and may seek his/her advise.
3. The Internship shall be completed between 7th and 8th semesters.
4. After completion of 7th semester Theory and Practical examinations, the students shall have one week vacation.
5. Immediately after availing one week vacation, the students shall undergo internship (without waiting for the results) which may be a period of 4/5 weeks.
6. The remaining period of internship; i.e. 4/3 weeks shall be completed during the initial period of the 8th semester.
7. After completion of Internship, students shall submit a report to the college with the approval of both internal and external guides.
8. There will be 50 IA and 50 External marks for Internship.
9. The guide shall be the internal examiner and IA marks out of 50 are to be awarded by the internal guide after evaluating the Internship Report submitted by the student.
10. Viva-Voce on internship shall be conducted at the college and the date of Viva-Voce shall be fixed in consultation with the external Guide.

11. Viva-Voce on internship shall be conducted by both internal and external guides and jointly evaluate the internship report for 50 marks. The expenses of external guide are to be borne by the student/college.

12. In case of the non availability of external guide for the conduct of viva-voce, the Principal shall appoint a senior faculty of the department to conduct viva-voce along with the internal guide, and they jointly evaluate the internship report for 50 marks.

13. The students are permitted to carry out the internship outside India with the following conditions:

14. The entire expenses are to be borne by the student or college and the University will not give any financial assistance.

15. The Internal Guide has to visit at least once during the student's internship; the expenses of the visit are to borne by the student/college.

16. The external guide from the industry has to be an examiner for the viva voce on Internship, and the expenses are to be borne by the student/ college.

17. The University will not provide any kind of Financial Assistance to any student for internship and for the conduct of Viva-Voce on internship.

15OB9.2 **Report on Internship**: The College shall facilitate and monitor the student internship program. The internship report of each student shall be submitted to the Head of the Department of the college with the approval of the Guide.

15OB9.3 **Failing to undergo Internship:** Completion of internship is mandatory; if any student fails to complete internship, he/she will not be eligible for the award of degree.

15OB9.4 **Non-completion of Internship**: In such cases, the student has to redo the internship.

15OB 10 **SEMINAR AND PROJECT**

15OB 10.1 Seminar topic shall be selected from the emerging technical areas only.

15OB 10.2 Project work at 8th semester shall be completed batch wise, each batch consisting of minimum of two students and maximum four students.

15OB 10.3 Viva-voce examination in project work shall be conducted batch-wise.

15OB 11 COMPUTATION OF SGPA AND CGPA

i. The VTU adopts absolute grading system wherein the marks are converted to grades, and every semester results will be declared with semester grade point average (SGPA) and Cumulative Grade Point Average (CGPA). The CGPA will be calculated every semester, except the first semester.

ii. The grading system is with the following letter grades as given below:

Grades and Grade Points

Level	Out-standing	Excel lent	Very Good	Good	Above Average	Average	Poor	Fail
Letter Grade	O	S	A	B	C	D	E	F
Grade Points	10	9	8	7	6	5	4	00

iii. A student obtaining Grade "F" shall be considered failed and will be required to reappear in the examination.

Such students after passing the failed subject in subsequent examination/s will be awarded with "E" grade irrespective of marks he/she scores in the subsequent examination/s.

Number of attempts taken to clear a subject/s shall be shown in the transcripts.

Grade Points Scale

Computation of SGPA and CGPA

Level	Out-standing	Excellent	Very Good	Good	Above Average	Average	Poor	Fail
Letter Grade	O	S	A	B	C	D	E	F
Grade Points	10	9	8	7	6	5	4	00
Score (Marks) Range (%)	≥ 90	<90 ≥ 80	< 80 ≥70	< 70 ≥60	< 60 ≥50	< 50 ≥45	<45 ≥40	< 40

The following procedure to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA):

i. The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student, i.e

$$\textbf{SGPA}\ (Si) = \sum(Ci \times Gi) / \sum Ci$$

where Ci is the number of credits of the ith course and Gi is the grade point scored by the student in the ith course.

ii. The CGPA is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a programme, i.e.

$$\textbf{CGPA} = \sum(Ci \times Si) / \sum Ci$$

where Si is the SGPA of the ith semester and Ci is the total number of credits in that semester.

iii. The SGPA and CGPA shall be rounded off to 2 decimal places and reported in the transcripts.

Illustration for Computation of SGPA and CGPA

Computation of SGPA

Illustration No.1

Course	Credit	Grade letter	Grade point	Credit Point (Credit x Grade)
Course 1	4	A	8	4x8 = 32
Course 2	4	C	6	4x6 = 24
Course 3	4	B	7	4x7 = 28
Course 4	3	O	10	3x10= 30
Course 5	3	D	4	3x4 = 12
Course 6	3	C	6	3x6 = 18
Course 7	2	S	9	2x9 = 18
Course 8	2	C	6	2x6 = 12
	25			**174**

Thus, **SGPA= 174/25=6.96**

Illustration No.2

Course	Credit	Grade letter	Grade point	Credit Point (Credit x Grade)
Course 1	4	A	8	4x8 = 32
Course 2	4	C	6	4x6 = 24
Course 3	4	B	7	4x7 = 28
Course 4	3	O	10	3x10= 30
Course 5	3	F	0	3x0 = 00
Course 6	3	C	6	3x6 = 18
Course 7	2	S	9	2x9 = 18
Course 8	2	C	6	2x6 = 12
	25			**162**

Thus, **SGPA= 162/25=6.48**

Illustration No.2(a)

Course	Credit	Grade letter	Grade point	Credit Point (Credit x Grade)
Course 5	3	E	4	3x4 =12
	25			Ci (First Attempt)162 + Ci (subsequent attempt) 12= 174

Thus, **SGPA= 174/25=6.96**

Illustration No.3

Course	Credit	Grade letter	Grade point	Credit Point (Credit x Grade)
Course 1	4	A	8	4x8 =32
Course 2	4	C	6	4x6 =24
Course 3	4	B	7	4x7 =28
Course 4	3	O	10	3x10=30
Course 5	3	S	9	3x9 =27
Course 6	3	C	6	3x6 =18
Course 7	2	S	9	2x9 =18
Course 8	2	C	6	2x6 =12
	25			**189**

Thus, **SGPA= 189/25=7.56**

$$\text{CGPA}= \frac{25\text{x}6.96+25\text{x}7.56}{50} = 7.26$$

CGPA after Final Semester

Sem-1	Sem-2	Sem-3	Sem-4	Sem-5	Sem-6	Sem-7	Sem-8
Credit: 24 SGPA: 7	Credit: 24 SGPA: 8.5	Credit: 27 SGPA: 9.2	Credit: 27 SGPA: 6.86	Credit: 24 SGPA: 8.18	Credit: 24 SGPA: 7.73	Credit: 24 SGPA: 8.68	Credit: 26 SGPA: 9.4

Thus,**CGPA**= $\frac{24x7+24x\,8.5+27x\,9.2+27x6.86+24x\,8.18+24\,x7.73+24x8.68+26x9.4}{200}$ = **8.2**

Transcript (Format): Based on the above recommendations on Letter grades, grade points, SGPA and CCPA, the transcript for each semester and a consolidated transcript indicating the performance in all semesters may be issued.

15OB 12 **CONVERSION OF GRADES INTO PERCENTAGE:**

Conversion formula for the conversion of GPA into Percentage is [CGPA Earned - 0.75] x 10= Percentage of marks scored.

Illustration: [CGPA Earned 8.2 - 0.75]x 10 = 74.5%

15OB 13 **AWARD OF PRIZES, MEDALS & RANKS**

15OB 13.1 For the award of Prizes and Medals, the conditions stipulated by the Donor may be considered subject to the provisions of the statutes framed by the University for such awards.

15OB 13.2 For award of ranks in a branch, a minimum of 10 students should have appeared in the 8th semester examination. The total number of ranks awarded shall be 10% of total number of students appeared in 8th semester or 10 students, whichever is less in that branch.

Illustration:

1. If 1028 students appeared for the 8th semester in Electronics and Communication Engineering Branch, the number of ranks to be awarded for Electronics and Communication Engineering will 10.
2. If 90 students appeared for the 8th semester in Biomedical Engineering Branch, the number of ranks to be awarded for Biomedical Engineering will be 09.

15OB13.3 For award of rank in a branch of Engineering / Technology, the CGPA secured by the student from

a) 1st to 8th semester for the students admitted to B.E./B.Tech. Program from 1st year, and
b) 3rd to 8th semester for the students admitted to B.E./B.Tech. Program from 2nd year (Lateral Entry)

shall be considered.

A student shall be eligible for a rank at the time of award of degree in each branch of Engineering / Technology, provided the student

a. Has passed 1st to 8th (students joining from 1st semester) or 3rd to 8th (in case of lateral entry) semester in all the subjects in first attempt only
b. Has not repeated/rejected any of the lower semesters.

15OB13.4 If two students get the same *CGPA*, the tie should be resolved by considering the number of times a student has obtained higher *SGPA;* but, if it is not resolved even at this stage, the number of times a student has obtained higher grades like O, S, A, B etc shall be taken into account in rank ordering of the students in a program.

15OB 14 **TRANSFER OF STUDENTS**

15OB14.1 Transfer of students from one college to another college within Karnataka state shall be permitted only at the beginning of third, fifth, and seventh semesters, subject to availability of seats within the permitted intake in respective Colleges and subject to the prior approval of the University and the provisions of 15OB 7.2.

In the case of students from Universities other than VTU the students should have passed in all the courses of 1st & 2nd semesters for admission to 3rd semester and all the courses of 1st to 4th semesters for admission to 5th semester and all the courses of 1st to 6th semesters for admission to 7th semester.

The students seeking admission from Universities other than VTU shall have to

a. apply for establishment of equivalence with prescribed fees as notified by the VTU and

b. Obtain No Objection for admission from the university before commencement of term as notified by VTU.

15OB14.2 Transfer of students within the College from one branch to another branch at 3rd semester shall be permitted with the prior approval of the VTU and subject to the provisions made by the Government of Karnataka and AICTE in this behalf.

15OB14.3 The University may prescribe fee for administrative purpose (for updating of the records), which shall be notified from time to time, for transfer from one college to another (Change of College) or one branch to another branch (change of branch within the college).

NOTE: These regulations governing the Degree of Bachelor of Engineering/Technology of Visvesvaraya Technological University shall be binding on all and may be modified from time to time.

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Visvesvaraya Technological University, Belagavi

B.E (CBCS) Open Electives Lists

Updated on 06-02-2018
(As per approval of Vice Chancellor's, dated:01.02.18)

Note to Students:

1) All B.E (CBCS) students (except B.Arch, B.Tech)should study one Open elective each in the 5th and 6th Semester as a part of their Programme.

2) Students should registers for the Open elective in the beginning of the $5^{th}/6^{th}$ semester in the department, where the elective is offered. An Open elective is not offered in a department if the registered student's strength is less than 10.

3) All Open electives are offered to students of all B.EProgrammes (branches) of engineering in general (except B.Arch). However, if a student of a particular Programme has already studied/going to study, in higher semester a similar Core course with majority of topics same as that of a particular Open elective, then that Open elective is not offered to that student. In which case, the student has to select an alternative Open elective.

4) Having studied/selected a particular Open Elective, a student is not eligible to take a Professional elective of his/her Programme in the Higher semesters/same semester which will have majority of topics same as that of the Open elective studied/selected. In which case, the student has to select an alternative Professional elective.

5) Students are advised to select an Open elective of their interest and if they have a pre-requisite knowledge to study that particular Open elective.

Note to Departments:

1) Above conditions are to be monitored by an Open elective coordinator of the department to which the student belongs to and the Course coordinator of the department where the student registers for the Open elective in the beginning of the $5^{th}/6^{th}$ semester.
2) The Teaching department(s) for Open Elective is not restricted to only those departments(s) indicated in the list. Any other department faculty who has requisite expertise to teach a particular Open elective can teach it.
3) Offering department indicated in the list of Open electives is the department/board which is responsible to set the Syllabus and Question paper for the particular Open elective.

Updated on 06-02-2018
(As per approval of Vice Chancellor's, dated:01.02.18)

B.E (CBCS) 5th Semester Open Electives List:

SL No	Course Code	Course Title	Teaching Department(s)	Offering Department(s)
1	15NC561	Essentials of NCC	This can be offered only in the Colleges having the NCC unit	Dept. offering the course
2	15PHY561	Laser Physics and Non-linear Optics	Physics	Basic Science (Physics)
3	15CV561	Traffic Engineering	CV	CV
4	15CV562	Sustainability Concepts In Engineering	CV	CV
5	15CV563	Remote Sensing and GIS	CV	CV
6	15CV564	Occupational Health and Safety	CV	CV
7	15ME561	Optimization Techniques	Any Branch	ME
8	15ME562	Energy and Environment	ME/Auto	ME
9	15ME563	Automation & Robotics	ME/EC/Auto	ME
10	15ME564	Project Management	ME/Auto	ME
11	15IM/IP561	Professional Communication &Report Writing	Any Branch	IP/IEM
12	15IM/IP562	Concurrent Engineering	Any Branch	IP/IEM
13	15IM/IP563	Technology Management	Any Branch	IP/IEM
14	15IM/IP564	Human Resource Management	Any Branch	IP/IEM
15	15MA561	Mechatronics	Manufacturing Sc. &Engg	Manufacturing Sc. &Engg
16	15MA562	Theory of Elasticity	Manufacturing Sc. &Engg	Manufacturing Sc. &Engg
17	15MA563	Knowledge Management	Manufacturing Sc. &Engg	Manufacturing Sc. &Engg
18	15EC561	Automotive Electronics	EC/TC/Mech	EC/TC
19	15EC562	Object Oriented Programming using C++	CS/IS/EC/TC/EE	EC/TC
20	15EC563	8051 Microcontrollers	EC/TC	EC/TC
21	15EE561	Electronic Communication Systems	EE/EC/TC	EE
22	15EE562	Programmable Logic Controllers	EE	EE
23	15EE563	Renewable Energy Sources	EE/ME	EE

24	15EE564	Business Communication	EE	EE
25	15CS561	Programming in JAVA	CS/IS	CS
26	15CS562	Artificial Intelligence	CS/IS/EC	CS
27	15CS563	Embedded Computing Systems	CS/IS/EE/EC	CS
28	15CS564	Dot Net Frame work for Application Development	CS/IS	CS
29	15CS565	Cloud Computing	Cloud Computing	CS
30	15EI/BM/ML561	Computer Organization	EI/BM/ML/CS/IS	EI/BM/ML
31	15EI562	Material Science	EI	EI
32	15BM/ML562	Virtual Bio-Instrumentation	BM/ML/EI	BM/ML/EI
33	15EI/BM563	Operating Systems	EI/BM/CS/IS/EC	EI/BM
34	15ML563	Medical Electronics Design	ML/BM	ML/BM
35	15EI564	Fundamentals of Nanotechnology	EI	EI
36	15BM564	Medical Physics	BM/ML	BM/ML
37	15ML564	Pharmacology and Drug Delivery	ML/BM	ML/BM
38	15BT561	Biology for Engineers	Bio-Tech	Bio-Tech
39	15BT562	Biomaterials	Bio-Tech	Bio-Tech
40	15BT563	BT for Sustainable Environment	Bio-Tech	Bio-Tech
41	15AE561	History of Flight & Technology Forecast	Aeronautical Engg.	Aeronautical Engg.
42	15AE562	Elements of Aeronautics	Aeronautical Engg.	Aeronautical Engg.
43	15AE563	Aircraft Transportation Systems	Aeronautical Engg.	Aeronautical Engg.
44	15AE564	Basics of Rockets & Design	Aeronautical Engg.	Aeronautical Engg.
45	15NT561	Introduction to Nano Science & Technology	Nanotechnology/ME	Nanotechnology
46	15NT562	Nanomaterials& their Applications	Nanotechnology/ME	Nanotechnology
47	15NT563	Nano Devices & Applications	Nanotechnology	Nanotechnology
48	15NT564	Nano Materials Synthesis & Characterization Techniques	Nanotechnology/ Chemistry/ME	Nanotechnology
49	15CH561	Industrial Waste Water Management	Chemical	Chemical
50	15CH562	Design of Air Pollution control Equipment	Chemical	Chemical
51	15CH563	Solid Waste Management	Chemical	Chemical
52	15CH564	Industrial Safety & Disaster Management	Chemical	Chemical
53	15PC561	Composite Materials	Petro-Chem	Petro-Chem
54	15PC562	Organic Chemistry	Petro-Chem	Petro-Chem

55	15PC563	Reservoir Rocks & Fluid Properties	Petro-Chem	Petro-Chem
56	15PC564	Natural Gas Processing	Petro-Chem	Petro-Chem
57	15AU561	Automobile Engineering	Automobile Engineering	Automobile Engineering
58	15AU562	Alternative Energy Sources for Automobiles	Automobile Engineering	Automobile Engineering
59	15AU563	Non Traditional Machining	Automobile Engineering	Automobile Engineering
60	15MN561	Industrial Safety Management	Mining Engineering	Mining Engineering
61	15MN562	Industrial Management and Entrepreneurship	Mining Engineering	Mining Engineering

B.E (CBCS) 6th Semester Open Electives List:

SL No	Course Code	Course Title	Teaching Department(s)	Offering Department(s)
1	15PHY661	Advanced Physics for Engineers	Physics	Basic Science (Physics)
2	15CV661	Water Resources Management		
3	15CV662	Environmental protection and management	CV	CV
4	15CV663	Numerical Methods and Applications	Any Branch/Maths	CV
5	15CV664	Finite element Method	CV	CV
6	15ME661	Energy Auditing	ME/Auto	ME
7	15ME662	Total Quality Management	ME/Auto/IEM	ME
8	15ME663	Maintenance Engineering	ME/Auto	ME
9	15ME664	Industrial Safety	ME/Auto	ME
10	15IM/IP661	Management Information Systems	IP/IEM	IP/IEM
11	15IM/IP662	Advance Machining Process	IP/IEM	IP/IEM
12	15IM/IP663	Value Engineering	IP/IEM	IP/IEM
13	15IM664	Development of Enterprises	IEM	IEM
14	15MA661	Microprocessor & Microcontrollers	Manufacturing Science &Engg	Manufacturing Science &Engg
15	15MA662	Theory of Plasticity	Manufacturing Science &Engg	Manufacturing Science &Engg
16	15MA663	Sensors	Manufacturing Science &Engg	Manufacturing Science &Engg
17	15MA664	Data Mining	Manufacturing	Manufacturing

			Science &Engg	Science &Engg
18	15EC661	Data Structures Using C++	CS/IS/EC/TC	EC/TC
19	15EC662	Power Electronics	EC/TC/EE	EC/TC
20	15EC663	Digital System Design using Verilog	EC/TC	EC/TC
21	15CS661	Mobile Application Development	Any Branch	CS
23	15CS662	Big Data Analytics	CS/IS	CS
24	15CS663	Wireless Networks and Mobile Computing	CS/IS	CS
25	15CS664	Python Application Programming	CS/IS	CS
26	15CS665	Service Oriented Architecture	CS/IS	CS
27	15CS666	Multi-Core Architecture and Programming	IS	CS/IS
28	15EE661	Artificial Neural Networks and Fuzzy Logic	EE/EC	EE
29	15EE662	Sensors and Transducers	EE/EC	EE
30	15EE663	Batteries and Fuel Cells for Commercial, Military and Space Applications	EE	EE
31	15EE664	Industrial Servo Control Systems	EE	EE
32	15EI/BM/ML 661	Mobile Communication	EI/BM/ML/EC/TC	EI/BM/ML
33	15EI662	MEMS and NEMS	EI/BM	EI/BM
34	15BM662	Software Engineering	BM/CS/IS	BM
35	15ML662	Embedded Real Time Systems	ML/BM	ML/BM
36	15EI/BM/ML 663	Embedded System Design and Programming	EI/BM/ML	EI/BM/ML
37	15EI/BM664	Statistics and Numerical Methods	EI/BM/Maths	EI/BM
38	15ML664	Biomaterials and Artificial Organs	ML/BM	ML/BM
39	15MAT661	Linear Algebra	Maths/EC	Basic Science (Maths)
40	15BT661	Biological Data Management	Bio-Tech	Bio-Tech
41	15BT662	Nano BT	Bio-Tech	Bio-Tech
42	15BT663	Good Manufacturing Process	Bio-Tech	Bio-Tech
43	15CH661	Food technology	Chemical	Chemical
44	15CH662	Sugar Technology	Chemical	Chemical
45	15CH663	Petro Chemical Engineering	Chemical	Chemical
46	15CH664	Polymer & Plastic Engineering	Chemical	Chemical
47	15PC661	Modern Separation Technology	Petro-Chem	Petro-Chem
48	15PC662	Process Modelling& Simulation	Petro-Chem	Petro-Chem
49	15PC663	Material Science for Petro-Chemical Engineering	Petro-Chem	Petro-Chem
50	15PC664	Catalysis Science & Technology	Petro-Chem	Petro-Chem

51	15AE661	Unmanned Aerial Vehicles Basics & Applications	Aeronautical Engg.	Aeronautical Engg.
52	15AE662	Fundamentals of Aerodynamic Theory	Aeronautical Engg.	Aeronautical Engg.
53	15AE663	Elements of Jet Propulsion Systems	Aeronautical Engg.	Aeronautical Engg.
54	15AE664	Maintenance, Overhaul & Repair of Air Craft Systems	Aeronautical Engg.	Aeronautical Engg.
55	15NT661	Nanotechnology in Electrical & electronics Engineering	Nanotechnology/EE/ EC	Nanotechnology
56	15NT662	Nanotechnology in Civil & Environmental Engineering	Nanotechnology /CV/EV	Nanotechnology
57	15NT663	Nanotechnology in Mechanical & Aerospace Engineering	Nanotechnology/ME /AE	Nanotechnology
58	15NT664	Nanotechnology in Bio-Medical Engineering	Nanotechnology/BM /BT	Nanotechnology
59	15AU661	Engineering Economics and Cost Estimation	Automobile Engineering	Automobile Engineering
60	15AU662	Hybrid and Electric Vehicle	Automobile Engineering	Automobile Engineering
61	15AU663	Non- destructive Testing	Automobile Engineering	Automobile Engineering
62	15MN661	Tunneling Engineering	Mining Engineering	Mining Engineering
63	15MN662	Underground Space Technology	Mining Engineering	Mining Engineering

ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ
"ವಿಟಿಯು ಅಧಿನಿಯಮ ೧೯೯೪"ರ ಅಡಿಯಲ್ಲಿ ಕರ್ನಾಟಕ ಸರ್ಕಾರದಿಂದ ಸ್ಥಾಪಿತವಾದ ರಾಜ್ಯ ವಿಶ್ವವಿದ್ಯಾಲಯ
"ಜ್ಞಾನ ಸಂಗಮ", ಬೆಳಗಾವಿ-೫೯೦೦೧೮, ಕರ್ನಾಟಕ, ಭಾರತ

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Ref: VTU/BGM/BOS/A9/2020-21 /211

Date: 8 APR 2021

CIRCULAR

Subject: New Open Elective Subjects added to the existing list of B.E. in ECE/TCE program's Syllabus (2018 scheme) regarding.

Reference:

1. Chairperson BOS in ECE email dated 06.04.2021
2. Hon'ble Vice-Chancellor's approval dated 08.04.2021

Concerning the subject cited above, the OPEN Elective subjects are added to the existing list in the scheme and Syllabus of B.E. in Electronics & Communication Engineering and Electronics & Telecommunication Engineering programs. The complete list of subjects along with the syllabus of added subject is enclosed with this circular for kind reference to the concerned. And also uploaded on the VTU web portal **@ https://vtu.ac.in/en/category/administration-circulars/** and updated syllabus with addition open elective subjects **@ https://vtu.ac.in/en/b-e-scheme-syllabus/#menu0**

All the Principals of Engineering Colleges are hereby requested to inform the faculty of the ECE/TCE to counsel the students regarding the OPEN elective subjects.

Encl: As mentioned above

Sd/-
REGISTRAR

To,

- All the Principals of the Engineering Colleges under the ambit of VTU Belagavi.

Copy to:

1. The Registrar(Evaluation) for information and needful
2. The Registrar's Office, VTU, Belagavi, for information.
3. The Special Officer, Academic Section, VTU Belagavi, for information.
4. The Special Officer CNC section to upload the circular on the VTU web portal.

REGISTRAR

1 / 1

UG Programmes - 2018 Scheme & Syllabus

Purpose: **Additional Open Electives** offered by the Department of **Electronics and Communication Engineering (ECE) & Electronics and Telecommunication Engineering (TCE)**

VI Semester Open Elective A

Sl. No.	Course Code	Subject	Remarks
1	18EC651	Signal Processing	Existing
2	18EC652	Sensors & Signal Conditioning	Existing
3	**18EC653**	**Virtual Instrumentation**	Newly Added
4	**18EC654**	**Microcontrollers**	Newly Added
5	**18EC655**	**Basic VLSI Design**	Newly Added

VII Semester Open Elective B

Sl. No.	Course Code	Subject	Remarks
1	18EC751	Communication Theory	Existing
2	18EC752	Neural Networks	Existing
3	**18EC753**	**ARM Embedded Systems**	Newly Added
4	**18EC754**	**Digital Systems Design using VHDL**	Newly Added

ADDITIONAL OPEN ELECTIVES-A OFFERED BY EC/TC BOARD

B. E. EC/TE Choice Based Credit System (CBCS) and Outcome Based Education (OBE) SEMESTER – VI			
VIRTUAL INSTRUMENTATION			
Course Code	**18EC653**	**CIE Marks**	**40**
Number of Lecture Hours/Week	**03**	**SEE Marks**	**60**
Total Number of Lecture Hours	**40(8Hours/Module)**	**Exam Hours**	**03**
CREDITS – 03			

Course objective: This course will enable students to:

- Understand the fundamental principles of virtual instrumentation
- Acquire, analyze and present data using LabVIEW

Module-1	RBT Level
Graphical System Design: Introduction, Graphical system design model, Design flow with GSD, Virtual Instrumentation, Virtual instrument and traditional instrument, Hardware and software in virtual instrumentation, Virtual instrumentation for Test, control & design, Graphical system design using LABVIEW, Graphical programming & textual programming.	**L1, L2, L3**
Module-2	
Introduction to LabVIEW: Introduction, advantages of LABVIEW software environment, palettes, front panel controls & indicators, Block diagram, Data flow program. **Repetition and Loops**: For loops, while loops, structure tunnels, terminals inside or outside loops, shift registers, feed-back nodes, control timing, case structure.	**L1, L2, L3**
Module-3	
Arrays: Introduction, arrays in LABVIEW, creating one - dimensional array controls, indicators and constants, creating two dimensional arrays, creating multidimensional arrays, initializing array, deleting, inserting, and replacing elements, rows, columns, and pages with in arrays, arrays functions.	**L1, L2, L3**
Module-4	
Plotting Data: Types of waveforms, waveform graphs, waveform charts, XY graphs, Intensity graphs & charts, Digital waveform graphs, 3D graphs, customizing graphs & charts, configuring a graph or chart, Displaying special planners on the XY graph.	**L1,L2, L3**
Module-5	
File Input/ Output: File formats, file write &read, generating filenames automatically, **String handling**: string functions, LABVIEW string formats, parsing of strings. **Instrument Control**: Introduction, GPIB communication, Hardware specification, software architecture, Instrument I/O assistant, VISA, Instrument drivers, serial port communications, using other interfaces.	**L1, L2, L3**

Course Outcomes: After studying this course, students will be able to:

1. Recognize the Graphical system design model and develop programs using the modern tools of Graphical programming & textual programming
2. Develop a virtual instrumentation model using the front panel controls & indicators and loops.
3. Analyze, design the various array and matrix operations using LabVIEW functions.
4. Evaluate the various forms of output representations using graphs & charts
5. Demonstrate Instrument Control, GPIB communication and other interfaces

Students have to conduct the following experiments as a part of CIE marks along with other Activities:

1. Build a VI code to indicate the change in temperature using LabVIEW
2. Develop a code in VI to convert 4-bit binary input to gray output using LabVIEW
3. Generate a VI code to display sinusoidal and triangular waveforms using LabVIEW
4. Build a code using LabVIEW to compute the sum of N numbers (use FOR loop)
5. Develop a VI code using LabVIEW to sort the even numbers (use while loop)
6. Using LabVIEW compute the basic operations of a simple calculator using case structure

Question paper pattern:

- Examination will be conducted for 100 marks with question paper containing 10 full questions, each of 20 marks.
- Each full question can have a maximum of 4 sub questions.
- There will be 2 full questions from each module covering all the topics of the module.
- Students will have to answer 5 full questions, selecting one full question from each module.
- The total marks will be proportionally reduced to 60 marks as SEE marks is 60.

Text Books:

1. "Virtual Instrumentation using LABVIEW", Jovitha Jerome, PHI, 2010
2. "Virtual Instrumentation using LABVIEW", Sanjay Gupta, Joseph John, TMH, McGraw Hill Second Edition, 2011.

Reference:

"Learning with LabView", Robert H Bishop, Prentice Hall, 2009.

ADDITIONAL OPEN ELECTIVES-A OFFERED BY EC/TC BOARD

B. E. EC/TE Choice Based Credit System (CBCS) and Outcome Based Education (OBE) SEMESTER – VI			
MICROCONTROLLERS			
Course Code	**18EC654**	**CIE Marks**	**40**
Number of Lecture Hours/Week	**03**	**SEE Marks**	**60**
Total Number of Lecture Hours	**40(8Hours/Module)**	**Exam Hours**	**03**
CREDITS – 03			

Course objective: This course will enable students to:

- Learn architecture of 8051.
- Learn programming skills using Assembly language and C
- Design and interface microcontroller based embedded systems.
- Build projects

Module-1	RBT Level
Microprocessors and Microcontroller: Introduction, Microprocessors and Microcontrollers, Microcontroller Survey. (Text 1- Chapter 1) **The 8051 Architecture**: Introduction, Architecture of 8051, Pin diagram of 8051, Memory organization. (Text 1- Chapter 2)	**L1, L2**
Module-2	
Addressing Modes in 8051 Microcontroller: Introduction, Addressing Modes, External Data Moves, Code Memory Read only Data Moves, PUSH and POP opcodes, Data Exchanges, Example Programs. (Text 1- Chapter 3)	**L1, L2**
Module-3	
Instruction set: Instruction timings, 8051 instructions: Data transfer instructions, Arithmetic instructions, Logical instructions, Branch instructions, Subroutine instructions, Bit manipulation instruction. (Text 1- Chapter 4, 5 and 6)	**L1, L2, L3**
Module-4	
8051 Microcontroller Interfacing and Applications: Interfacing 8051 to LCD, Keyboard, parallel and serial ADC, DAC interfacing and programming. (Text 2 – Chapter 12 and 13)	**L1,L2, L3**
Module-5	
8051 Microcontroller Interrupts and Timers/counters: Basics of interrupts, 8051 interrupt structure, Timers and Counters, 8051 timers/counters, programming 8051 timers in assembly and C . (Text 2 – Chapter 9, Chapter 11 -11.1) **8051 Microcontroller Serial Communication**: Data communication, Basics of Serial Data Communication, 8051 Serial Communication, connections to RS-232, Serial communication Programming in assembly and C. (Text 2 – Chapter 10- 10.1,10.2, 10.3)	**L1, L2, L3**

Course Outcomes: After studying this course, students will be able to:

1. Explain the basics of Microprocessor and Microcontroller
2. Relate to the 8051 Microcontroller architecture and Pin description
3. Analyze 8051 Addressing modes and use the 8051 instruction set
4. Program the on-chip peripherals in 8051
5. Design and develop applications using 8051 Assembly language and C program

Students have to conduct the following experiments as a part of CIE marks along with other Activities:

1. Write an 8051 ALP to exchange n = 5 bytes of data at location 0027H and at location 0041H.
2. Write an 8051 ALP to sort an array of n = 6 bytes of data in ascending order stored from location 9000H.(use bubble sort algorithm)

3. Write an 8051 ALP to implement (display) an eight bit up/down binary (hex) counters on watch window.
4. Write a program to toggle all the bits of P1 and P2 continuously using CALL and RETURN instructions
5. Write an 8051 ALP to implement ASCII to hexadecimal conversion
6. Write a Program illustrating timer delay Generate a 1second delay continuously using the on-chip timer in interrupt mode.

Question paper pattern:

- Examination will be conducted for 100 marks with question paper containing 10 full questions, each of 20 marks.
- Each full question can have a maximum of 4 sub questions.
- There will be 2 full questions from each module covering all the topics of the module.
- Students will have to answer 5 full questions, selecting one full question from each module.
- The total marks will be proportionally reduced to 60 marks as SEE marks is 60.

Text Books:

1. "The 8051 Microcontroller Architecture, Programming and Applications", Kenneth J Ayala, Thomson learning, 2005.
2. "The 8051 Microcontroller and Embedded Systems-using Assembly and C", Muhammad Ali Mazidi and Janice Gillespie Mazidi and Rollin D McKinaly, Pearson, 2006.

Reference:

"The 8051 Microcontroller: Hardware, Software and Applications" V. Udayashankara and Mallikarjuna Swamy, TMH., 2009.

ADDITIONAL OPEN ELECTIVES-A OFFERED BY EC/TC BOARD

B. E. EC/TE Choice Based Credit System (CBCS) and Outcome Based Education (OBE) SEMESTER – VI			
BASIC VLSI DESIGN			
Course Code	**18EC655**	**CIE Marks**	**40**
Number of Lecture Hours/Week	**03**	**SEE Marks**	**60**
Total Number of Lecture Hours	**40(8Hours/Module)**	**Exam Hours**	**03**
CREDITS – 03			

Course objective: This course will enable students to:

- Understand the fundamental aspects of circuits in silicon
- Relate to VLSI design processes and design rules

Module-1	RBT Level
Moore's law, speed power performance, nMOS fabrication, CMOS fabrication: n-well, p-well processes, BiCMOS, Comparison of bipolar and CMOS. **Basic Electrical Properties of MOS And BiCMOS Circuits**: Drain to source current versus voltage characteristics, threshold voltage, transconductance.	**L1, L2**
Module-2	
Basic Electrical Properties of MOS And BiCMOS Circuits: nMOS inverter, Determination of pull up to pull down ratio: nMOS inverter driven through one or more pass transistors, alternative forms of pull up, CMOS inverter, BiCMOS inverters, latch up. **Basic Circuit Concepts**: Sheet resistance, area capacitance calculation, Delay unit, inverter delay, estimation of CMOS inverter delay, super buffers, BiCMOS drivers.	**L1, L2**
Module-3	
MOS and BiCMOS Circuit Design Processes: MOS layers, stick diagrams, nMOS design style, CMOS design style **Design rules and layout & Scaling of MOS Circuits**: λ - based design rules, scaling factors for device parameters	**L1, L2, L3**
Module-4	
Subsystem Design and Layout-1: Switch logic pass transistor, Gate logic inverter, NAND gates, NOR gates, pseudo nMOS, Dynamic CMOS **Examples of structured design**: Parity generator, Bus arbitration, multiplexers, logic function block, code converter.	**L1,L2, L3**
Module-5	
Subsystem Design and Layout-2: Clocked sequential circuits, dynamic shift registers, bus lines, General considerations, 4-bit arithmetic processes, 4-bit shifter, Regularity-Definition & Computation **Practical aspects and testability**: Some thoughts of performance, optimization and CAD tools for design and simulation.	**L1, L2, L3**

Course Outcomes: After studying this course, students will be able to:

1. Identify the CMOS layout levels, and the design layers used in the process sequence.
2. Describe the general steps required for processing of CMOS integrated circuits.
3. Design static CMOS combinational and sequential logic at the transistor level.
4. Demonstrate different logic styles such as complementary CMOS logic, pass-transistor Logic, dynamic logic, etc.
5. Interpret the need for testability and testing methods in VLSI.

Question paper pattern:

- Examination will be conducted for 100 marks with question paper containing 10 full questions, each of 20 marks.
- Each full question can have a maximum of 4 sub questions.
- There will be 2 full questions from each module covering all the topics of the module.
- Students will have to answer 5 full questions, selecting one full question from each module.
- The total marks will be proportionally reduced to 60 marks as SEE marks is 60.

Text Books:

"Basic VLSI Design", Douglas A Pucknell, Kamran Eshraghian, 3rd Edition, Prentice Hall of India publication, 2005.

References:

1. "CMOS Digital Integrated Circuits, Analysis And Design", Sung – Mo (Steve) Kang, Yusuf Leblebici, Tata McGraw Hill, 3rd Edition, 2003.
2. "VLSI Technology", S.M. Sze, 2nd edition, Tata McGraw Hill, 2003.

ADDITIONAL OPEN ELECTIVES-B OFFERED BY EC/TC BOARD

B. E. EC/TE Choice Based Credit System (CBCS) and Outcome Based Education (OBE) SEMESTER – VII			
ARM EMBEDDED SYSTEMS			
Course Code	**18EC753**	**CIE Marks**	**40**
Number of Lecture Hours/Week	**03**	**SEE Marks**	**60**
Total Number of Lecture Hours	**40(8Hours/Module)**	**Exam Hours**	**03**
CREDITS – 03			

Course objective: This course will enable students to:

- Understand the importance and applications of ARM Design
- Know the architecture of ARM processor
- Use instruction sets of ARM processor
- Analyze the adaptation of C code, firmware, OS, Interrupts, caches, etc. in ARM embedded systems

Module-1	**RBT Level**
ARM Embedded Systems Introduction, RISC design philosophy, ARM design philosophy, Embedded system hardware – AMBA bus protocol, ARM bus technology, Memory, Peripherals, Embedded system software – Initialization (BOOT) code, Operating System, Applications. **ARM Processor Fundamentals** ARM core dataflow model, registers, current program status register, Pipeline, Exceptions, Interrupts and Vector Table, Core extensions.	**L1, L2**
Module-2	
Introduction to the ARM Instruction set Introduction, Data processing instructions, Load - Store instruction, Software interrupt instructions, Program status register instructions, Loading constants, Conditional Execution. ALP programming.	**L1, L2, L3**
Module-3	
Introduction to the THUMB instruction set Introduction, THUMB register usage, ARM – THUMB interworking, Other branch instructions, Data processing instructions, Stack instructions, Software interrupt instructions. ALP programming	**L1, L2, L3**
Module-4	
Efficient C Programming: Overview of C Compilers and optimization, Basic C data types, Local Variable Types, Portability issues **Exception and Interrupt Handling:** Exception Handling-ARM Processor Exceptions and Modes, Vector Table, Exception Priorities, Link Register Offset, Interrupts- Interrupt Latency, Basic Interrupt Stack design and implementation, Interrupt Handling Schemes (**general description only** of the schemes)	**L1, L2, L3, L4**
Module-5	
Firmware: Firmware and Bootloader **Embedded Operating Systems:** Fundamental Components **Caches:** The memory Hierarchy and caches memory-caches and memory management units, Cache architecture basic architecture of caches memory, basic operation of cache controller, the relationship between cache and main memory.	**L1, L2**

Course Outcomes: After studying this course, students will be able to:

1. Depict the organization, architecture, bus technology, memory and operation of the ARM processors
2. Employ the knowledge of Instruction set of ARM processors to develop basic Assembly Language Programs
3. Recognize the importance of the Thumb mode of operation of ARM processors
4. Describe the techniques involved in writing C code for ARM processors and Exception & Interrupt handling in ARM Processors
5. Describe the importance and use of Firmware, OS and cache in ARM Embedded systems

Students have to conduct the following experiments as a part of CIE marks along with other Activities:

Conduct the following experiments by writing Assembly Language Program (ALP) using ARM Cortex M3 Registers using an evaluation simulator and the required software tool.

1. Write an ALP to find the sum of 10 integer numbers.
2. Write an ALP to multiply two 16-bit binary numbers.
3. Write an ALP to find factorial of a number.
4. Write an ALP to add an array of 16-bit numbers and store the 32-bit result in internal RAM
5. Write an ALP to find the square of a number (1 to 10) using look-up table.
6. Write an ALP to find the largest/smallest number in an array of 32 numbers.

Question paper pattern:

- Examination will be conducted for 100 marks with question paper containing 10 full questions, each of 20 marks.
- Each full question can have a maximum of 4 sub questions.
- There will be 2 full questions from each module covering all the topics of the module.
- Students will have to answer 5 full questions, selecting one full question from each module.
- The total marks will be proportionally reduced to 60 marks as SEE marks is 60.

Text Book:

"ARM System Developers Guide", Andrew N Sloss, Dominic System and Chris Wright, Elsevier, Morgan Kaufmann publisher, 1st Edition, 2008, ISBN:1758608745.

References:

1. "ARM System on chip Architecture", Furber S, Addison Wiley, 2nd Edition, 2008, ISBN:9780201675191
2. "Embedded System", Rajkamal, Tata McGraw-Hill Publishers, 2nd Edition, 2008, ISBN: 0070494703.

ADDITIONAL OPEN ELECTIVES-B OFFERED BY EC/TC BOARD

B. E. EC/TE Choice Based Credit System (CBCS) and Outcome Based Education (OBE) SEMESTER – VII			
DIGITAL SYSTEMS DESIGN USING VHDL			
Course Code	**18EC754**	**CIE Marks**	**40**
Number of Lecture Hours/Week	**03**	**SEE Marks**	**60**
Total Number of Lecture Hours	**40(8Hours/Module)**	**Exam Hours**	**03**
CREDITS – 03			

Course objective: This course will enable students to:

- Use the industry-standard hardware description language VHDL into the digital design process.
- Design VHDL models ranging in complexity from a simple adder to more complex circuits.
- Understand the synthesis and testing of the models.

Module-1	**RBT Level**
Review of Logic Design Fundamentals: Combinational logic, Boolean Algebra and Algebraic Simplification, Karnaugh maps, Designing with NAND and NOR gates, Hazards in combinational Networks, Flipflop and Latches, Mealy Sequential Network Design, Design of Moore Sequential Network, Equivalent states and reduction of state Tables, Synchronous Design, Tristate Logic and Buses (Text 1, Chapter 1- 1.1 to 1.9, 1.12, 1.13)	**L1, L2, L3**
Module-2	
Introduction to VHDL: VHDL Description of Combinational Networks, Modeling Flip-flops using VHDL Processes, VHDL Models for a Multiplexer, Modeling a sequential Machine, Variables, signals, and constants, Arrays, VHDL operators, VHDL Functions, VHDL Procedures, Packages and Libraries. (Text 1, Chapter 2- 2.1, 2.2, 2.3, 2.5, 2.6, 2.7, 2.8, 2.9, 2.10, 2.11)	**L1, L2, L3**
Module-3	
Styles of Descriptions: VHDL Data types, VHDL Styles of Description (Text 2, Chapter 1- 1.5, 1.6) **Data flow Description**: Highlights of Data flow Description, Structure of Data flow Description, Data type-vectors, Common VHDL programming Errors (Text 2, Chapter 2- 2.1- to- 2.4)	**L1, L2, L3**
Module-4	
Designing with programmable Logic Devices: Read only memories, Programmable Logic Arrays, Programmable Array Logic, Other sequential programmable Logic Devices (PLDs), Generics, Generate statements. (Text 1, Chapter 3- 3.1, 3.2, 3.3, 3.4) **Design of Networks for Arithmetic Operations:** Design of serial Adder with Accumulator, Design of Binary Multiplier, Multiplication of signed Binary Numbers, Design of Binary Divider (Text 1, Chapter 4- 4.1, 4.3, 4.4, 4.5)	**L1, L2, L3**
Module-5	
Synthesis: Highlights of synthesis, synthesis information from entity and module, Mapping process in the hardware domain- Mapping of signal assignment, variable	**L1, L2, L3**

assignment, if statements, else-if statements, loop statement. (Text 2, Chapter5- 10.1, 10.2, 10.3) **Hardware Testing and Design for Testability**: Testing Combinational Logic, Testing Sequential Logic. (Text 1, Chapter 10- 10.1, 10.2))	

Course Outcomes: After studying this course, students will be able to:

1. Understand the basic concepts of Digital Design
2. Implement various Combinational and sequential circuits using VHDL descriptions. Write simple VHDL programs in different styles.
3. Design and verify the functionality of digital circuits (PLA, PAL, PLD) and Arithmetic Operations.
4. Identify the suitable Abstraction level for a particular digital design.
5. Write the programs more effectively using Verilog tasks and directives. Perform timing and delay Simulation.

Students have to conduct the following experiments as a part of CIE marks along with other Activities:

Conduct the following experiments using an suitable simulator and the required software tool.

1. Write a VHDL code to implement half and full adder using Data flow style.
2. Write a VHDL code to realize various logic gates.
3. Write a VHDL code to implement four-bit full adder using structural style.
4. Write a VHDL code to implement 2*2 unsigned combinational Array Multiplier.
5. Write a VHDL code to implement D Latch.
6. Implement JK flip flop modeling using VHDL process

Question paper pattern:

- Examination will be conducted for 100 marks with question paper containing 10 full questions, each of 20 marks.
- Each full question can have a maximum of 4 sub questions.
- There will be 2 full questions from each module covering all the topics of the module.
- Students will have to answer 5 full questions, selecting one full question from each module.
- The total marks will be proportionally reduced to 60 marks as SEE marks is 60.

Text Books:

1. "Digital Systems Design using VHDL", Charles H. Roth, Jr., The University of Texas at Austin. 2006 reprint, Thomson Asia Pte Ltd, Singapore
2. "HDL Programming VHDL and Verilog", Nazeih M. Botros, 2009 reprint, Dreamtech press

Reference:

"VHDL for Programmable Logic", Kevin Skahill, Pearson education, 2006

Visvesvaraya Technological University

"Jnana Sangama", Belagavi - 590 018

Dr. H. N. Jagannatha Reddy, BE.,ME., Ph.d.
REGISTRAR

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Ref No. VTU/Aca/A12/2017-18/ 3615

Date: 5 AUG 2017

CIRCULAR

Sub: Introduction of Open Elective- reg

It is hereby informed, that university has introduced Open Electives concept for B.E CBCS Scheme in 5th and 6th semester, you are informed to note the following guidelines in offering of Open Electives (guidelines enclosed) and bring the same to the notice of students and faculty. The Course coordinator for offering open elective has to be identified in each department for proper implementation of the concept.

Sd/-

REGISTRAR

To,
The Principals of Affiliated Engineering Colleges.

Copy FWCs to:

1. The Hon'ble Vice Chancellor, through the Secretary to VC, VTU Belagavi, for information
2. The Registrar, VTU Belagavi, for information.
3. The Registrar (Evaluation), VTU Belagavi, for information & necessary action.
4. The In-Charge Regional Director of VTU Regional Offices, for information.
5. The Office Superintendent, for information.
6. CNC to upload on the website.

05/08/17

REGISTRAR

Guidelines for offering Open Elective for the B.E 5th & 6th Semester (CBCS) scheme

Note to Students:

1) All B.E (CBCS) students (except B.Arch, B.Tech) should study one Open elective each in the 5th and 6th Semester as a part of their Programme.

2) Students should register for the Open elective in the beginning of the 5th/6th semester in the department, where the elective is offered. An Open elective is not offered in a department if the registered student's strength is less than 10.

3) All Open electives are offered to students of all B.E Programmes (branches) of engineering in general (except B.Arch, B.Tech). However, if a student of a particular Programme has already studied/going to study, in higher semester a similar Core course with majority of topics same as that of a particular Open elective, then that Open elective is not offered to that student. In which case, the student has to select an alternative Open elective.

4) Having studied/selected a particular Open Elective, a student is not eligible to take a Professional elective of his/her Programme in the Higher semesters/same semester which will have majority of topics same as that of the Open elective studied/selected. In which case, the student has to select an alternative Professional elective.

5) Students are advised to select an Open elective of their interest and if they have a pre-requisite knowledge to study that particular Open elective.

Note to Departments:

1) Above conditions are to be monitored by an Open elective coordinator of the department to which the student belongs to and the Course coordinator of the department where the student registers for the Open elective in the beginning of the 5th/6th semester.
2) The Teaching department(s) for Open Elective is not restricted to only those departments(s) indicated in the list. Any other department faculty who has the requisite expertise to teach a particular Open elective can also teach it.
3) Offering department indicated in the list of Open electives is the department/board which is responsible to set the Syllabus and Question paper for the particular Open elective.

REGISTRAR
Visvesvaraya Technological University,
BELAGAVI - 590 018.

Visvesvaraya Technological University, Belagavi

REGULATIONS GOVERNING

THE DEGREE OF BACHELOR OF ENGINEERING/ TECHNOLOGY (B.E/B.Tech)

UNDER CHOICE BASED CREDIT SYSTEM (CBCS)

Effective from the academic year 2017 – 18

AUGUST2017

Visvesvaraya Technological University, Belagavi

REGULATIONS GOVERNING
THE DEGREE OF BACHELOR OF ENGINEERING/ TECHNOLOGY (B.E/B.Tech)
UNDER CHOICE BASED CREDIT SYSTEM (CBCS)
Effective from the academic year 2017 – 18

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Visvesvaraya Technological University, Belagavi

REGULATIONS GOVERNING
THE DEGREE OF BACHELOR OF ENGINEERING/ TECHNOLOGY (B.E/B.Tech)
UNDER CHOICE BASED CREDIT SYSTEM (CBCS)
Effective from the academic year 2017 – 18

Definitions of Keywords

The following are the definitions/descriptions that have been followed for the different terms used in the Regulations of B.E/B.Tech. Programmes:

1) **Programme:** Is an educational programme in a particular stream/ branch of Engineering/branch of specialization leading to award of Degree. It involves events/activities, comprising of lectures/ tutorials/ laboratory work/ field work, outreach activities/ project work/ vocational training/ viva/ seminars/ Internship/ assignments/ presentations/ self-study etc., or a combination of some of these.
2) **Branch:** Means Specialization or discipline of B.E/B.Tech. Degree Programme, like Civil Engineering, Mechanical Engineering, Textile Engineering, etc.
3) **Semester:** Refers to one of the two sessions of an academic year (vide: serial number 4), each session being of sixteen weeks duration (with working days greater than or equal to ninety).The odd semester may be scheduled from August and even semester from February of the year.
4) **Academic Year:** Refers to the sessions of two consecutive semesters (odd followed by an even) including periods of vacation.
5) **Course:** Refers to usually referred to as 'papers' and is a component of a programme. All Courses need not carry the same weight. The Courses should define learning objectives and learning outcomes. A Course may be designed to comprise lectures/ tutorials/ laboratory work/ field work/ outreach activities/project work/ vocational training/ viva/ seminars/ term papers/assignments/ presentations/ self-study etc., or a combination of some of these.
6) **Credit:** Referstoa unit by which the Course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of lecture or two hours of laboratory/practical Courses/ tutorials/ fieldwork per week etc.
7) **Audit Courses:** Means Knowledge/ Skill enhancing Courses without the benefit of a grade or credit for a Course.
8) **Choice Based Credit System (CBCS):** Refers to customizing the Course work, through Core, Elective and soft skill Courses, to provide necessary support for the students to achieve their goals.
9) **Course Registration:** Refers to formal registration for the Courses of a semester (Credits) by every student under the supervision of a Faculty Advisor (also called Mentor, Counselor etc.,) in each Semester for the Institution to maintain proper record.
10) **Course Evaluation:** Means Continuous Internal Evaluation (CIE) and Semester End Examinations (SEE) to constitute the major evaluations prescribed for each Course. SEE and CIE to carry 60% and 40% respectively, to enable each Course to be evaluated for 100 marks, irrespective of its Credits.
11) **Continuous Internal Evaluation (CIE):** Refers to evaluation of students' achievement in the learning process. CIE shall be by the Course Instructor and includes tests, homework, problem solving, group discussion, quiz, mini-project and seminar throughout the Semester, with weightage for the different components being fixed at the University level.

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Under Choice Based Credit System (CBCS)
(Effective from the academic year 2017 – 18)

12) **Semester end examinations (SEE):** Refers to examination conducted at the University level covering the entire Course Syllabus. For this purpose, Syllabi to be modularized and SEE questions to be set from each module, with a choice confined to the concerned module only. SEE is also termed as university examination.

13) **First Attempt:** Refers to a student who has completed all formalities and has become eligible to attend the SEE and has attended at least one head of passing, such attempt shall be considered as first attempt.

14) **Credit Based System (CBS):** Refers to quantification of Course work, after a student completes teaching – learning process, followed by passing in both CIE and SEE. Under CBS, the requirement for awarding degree is prescribed in terms of total number of credits to be earned by the students.

15) **Credit Representation:** Refers to Credit Values for different academic activities considered, as per the Table.1. Credits for seminar, project phases, project viva–voce and internship shall be as specified in the Scheme of Teaching and Examination (Annexure -1).

Table 1: Credit Values

Theory/Lectures (L) (hours/week/Semester)	Tutorials (T) (hours/week/Semester)	Laboratory/Practical (P) (hours/week/Semester)	Credits (L:T:P)	Total Credits
4	0	0	4:0:0	4
3	0	0	3:0:0	3
2	2	0	2:1:0	3
2	0	2	2:0:1	3
2	2	2	2:1:1	4
0	0	6	0:0:3	3

NOTE: Activities like, practical training, study tour and participation in Guest lectures not to carry Credits.

16) **Letter Grade:** It is an index of the performance of students in a said Course. Grades are denoted by letters S, A, B, C, D, E and F.

17) **Grading:** Grade refers to qualitative measure of achievement of a student in each Course, based on the percentage of marks secured in (CIE plus SEE). Grading is done by Absolute Grading [Refer: 17OB6.0]. The rubric attached to letter grades are as follows:
S – Outstanding, A – Excellent, B – Very Good, C – Good, D – Above Average, E – Average and F – Fail.

18) **Grade Point (GP):** Refers to a numerical weightage allotted to each letter grade on a 10-point scale as under.

Letter Grade and corresponding Grade Points on a typical 10 – Point scale							
Letter Grade	S	A	B	C	D	E	F
Grade Point	10	09	08	07	06	04	00

19) **Passing Standards:** Refers to passing a Course only when getting GP greater than or equal to 04 (as per serial number 18).

20) **Credit Point:** Is the product of grade point (GP) and number of credits for a Course i.e.,
Credit Point (CrP) = GP $\times$ Credits for the Course

21) **Semester Grade Point Average (SGPA):** Refers to a measure of academic performance of student/s in a semester. It is the ratio of total credit points secured by a student in various Courses of a semester and the total Course credits taken during that semester. [Refer:17OB6.0]

22) **Cumulative Grade Point Average (CGPA):** Is a measure of overall cumulative performance of a student over all semesters. The CGPA is the ratio of total credit points earned by a student in various Courses in all semesters and the sum of the total credits of all Courses in all the semesters. It is expressed up to two decimal places. [Refer: 17OB6.0]

23) **Transcript or Grade Card or Certificate:** Refers to a certificate showing the grades earned by a student. A grade certificate shall be issued to all the registered students after every semester. The grade certificate will display the programme details (Course code, title, number of credits, grades secured) along with SGPA of that semester and CGPA earned till that semester.

24) **University:** Visvesvaraya Technological University (VTU), Belagavi.

Visvesvaraya Technological University, Belagavi
Regulations Governing the Degree of Bachelor of Engineering/ Technology (B.E/B.Tech.)
Under Choice Based Credit System (CBCS)
(With effective from the academic year 2017 – 18)

17OB 1.0	**Title, Duration and Credits of the Programme of Study**
17OB 1.1	The programme of study shall be called the degree of Bachelor of Engineering (Subject of Specialization) /Bachelor of Technology (Subject of Specialization), abbreviated as B.E. / B.Tech. (Subject of Specialization).
17 OB1.2	The program to which students are admitted to I semester of the programme shall be of four academic year duration divided into eight semesters and each semester is of 16 weeks duration. The programme to which students are admitted to III semester of the programme under lateral entry shall be of three academic year duration divided into six semesters and each semester is of 16 weeks duration. The programme (conducted during evening) to which students are admitted to III semester of the programme under lateral entry shall be of three academic year duration divided into six semesters and each semester is of 16 weeks duration. The deficit contact hours of the programme, conducted during evening on all working days, shall be compensated on all Sundays (except on general holidays).
17 OB 1.3	The calendar of events in respect of the program of study shall be notified by the University in advance.
17 OB 1.4	The University examination in all programs of study shall be conducted at the end of each semester for all the eight semesters.
17 OB 1.5	**Maximum Duration for Programme Completion:** a) i. Students admitted to I year B.E/ B.Tech shall complete the programme within a period of eight academic years from the date of first admission, failing which they have to discontinue the Course. ii. Students admitted II Year B.E./B.Tech. under lateral entry scheme shall complete the Programme within a period of six academic years from the date of first admission, failing which he/she has to discontinue the Course. b) i. A student who has not obtained the eligibility for III semester even after three academic years from the date of admission to I semester shall discontinue the Programme or get readmitted to I semester of first year B.E./B.Tech. with a new University Seat Number but retaining the same year of admission. ii. A student (under lateral entry scheme) who has not obtained the eligibility for V semester even after three academic years from the date of admission to III semester shall discontinue the Programme or get readmitted to III semester of II year B.E./B.Tech. with a new University Seat Number but retaining the same year of admission.
17 OB 1.6	Prescribed Number of Credits for the Programme: (a) The number of credits to be completed by students admitted I semester of B.E./B.Tech. programme shall be 200 **(b)** The number of credits to be completed by students admitted to III semester of B.E./B.Tech. programme under lateral entry scheme shall be 152

17 OB2.0	**Eligibility for Admission(As per the Government orders issued from time to time)**
17 OB2.1	Admission to I year/ I semester Bachelor Degree in Engineering/ shall be open to the students who have passed the II PUC/ XII Standard/ Equivalent Examination with English as one of the Languages and obtained a Minimum of 45% of Marks in aggregate in Physics and Mathematics along with Chemistry / Bio-Technology / Biology / Electronics / Computer. In case of SC/ST, Category -1 and OBC (2A, 2B, 3A and 3B) category students from Karnataka (Karnataka candidates) the minimum marks for eligibility shall be 40 %. With regard to the qualification earned from foreign countries, Equivalence certificate from the Association of Indian Universities is Mandatory for admission to B.E./B.Tech. programme. In case of any dispute about the equivalence in qualification earned from foreign countries, the decision of the Equivalence committee shall be the final in establishing the eligibility of the student. Admission to II year/ III semester Bachelor Degree in Engineering/ Technology (Lateral Entry) shall be open to the Diploma holders and B.Sc. graduates.
17 OB2.2	**(i) Diploma Holders** (a) Must have passed diploma or equivalent examination as recognized by University and secured not less than forty five percentage (45%) marks in the final year examination (fifth and sixth semesters) in the appropriate branch of engineering. In case of SC/ST and OBC students from Karnataka the minimum marks for eligibility shall be forty percent (40%). (b) Those candidates who have completed Diploma from other than Karnataka state shall provide the Equivalence/ Eligibility Certificate from the Director of Technical Education, Karnataka. **(ii) B.Sc. Graduates** Must have passed B.Sc. degree from a recognized University under the UGC or equivalent qualification as recognized by University and secured not less than forty five percentage (45%) marks in aggregate (considering the marks of all six semesters). In case of SC/ST and OBC students from Karnataka (Karnataka candidates) the minimum marks for eligibility shall be forty percent (40%). Candidates must have studied Mathematics as subject of study at XII Standard.
	(i) Diploma Holders for the programme conducted during evening A candidate who has passed diploma examination or equivalent examination and obtained an aggregate minimum of 45 % marks taken together in all the subjects of the final year (fifth and sixth semesters) diploma exanimation is eligible to B.E Courses, and 40 % of marks in case of SC/ST and backward classes of Karnataka candidates. In addition to this a candidate after passing the diploma, must have minimum of two years full time professional experience as on first September of the year of admission, in a registered firm/company/industry/ educational / Government / Autonomous organizations in the branch of Engineering/ Technology, in which the candidates hold a diploma, and in which admission is sought by him/her.

17 OB2.2 (continued)	Further that employment shall be in an establishment situated within the 15 km from the place of the institution to which the candidate is seeking admission. Professional experience refers to the experience earned as an employee on regular basis in, (a) Government, Government Undertaking, Public Sector Undertaking, Corporation or, (b) In a private company registered under the Directorate of Industries and Commerce or the Directorate of Small Scale Industries or, (c) Government, Government recognized Institutions as technical staff. Provided that the period of apprenticeship undergone shall also be treated as professional experience, if sponsored by the Board of Apprenticeship Training, Southern Region, Chennai or by Government, Government undertakings and Public Sector undertakings. Further, those candidates who have completed Diploma from other than Karnataka state shall provide the Equivalence/ Eligibility Certificate from the Director of Technical Education, Karnataka.
17 OB2.3	Those students, who have passed a qualifying examination other than the PUC II examination of the Pre-University Education Board of Karnataka, have to obtain eligibility certificate for seeking admission to B.E./B.Tech. Degree Programme from Visvesvaraya Technological University, Belagavi.
17 OB3.0	**Courses**
17 OB3.1	There shall be the following types of Courses: a) Humanities and Social Sciences (HSS) including Management. These are mandatory for all disciplines. b) Basic Sciences (BS): Physics, Chemistry and Mathematics. These are mandatory for all disciplines. c) Engineering Sciences (ES): Materials, Workshop, Drawing, and Basics of Electrical/ Electronics/ Instrumentation/ Civil/ Mechanical/ Computer Engineering. These are mandatory for all disciplines. d) Professional Subjects (PS) - Core: Are the professional Core (PC) Courses, relevant to the chosen specialization/ branch. The core Courses are to be compulsorily studied by a student and are mandatory to complete them to fulfill the requirements of a programme. e) Professional Subjects (PS) - Elective: Are the professional Electives (PE), relevant to the chosen specialization/ branch and can be chosen from the pool of papers. It shall be supportive to the discipline providing extended scope/enabling an exposure to some other discipline /domain and nurturing student proficiency skills. f) Open Subjects - Electives (OE): Are from other technical areas and/ or from emerging fields. g) Mini project and Main Project: Carried out at the Institution or at an Industry. h) Seminar: Deliverable at the Institution under the supervision of a Faculty. i) Internship: Preferably at an industry/R and D organization/IT company/ Government organization of significant repute for a specified period mentioned in the Scheme of Teaching and Examination. j) Mandatory Courses (MC): These Courses are mandatory, without the benefit of a grade or credit, for students admitted to B.E./B.Tech. program. A pass in each mandatory Course is required to qualify for Degree award from the University.

17 OB3.1 (continued)	k) Audit Courses (AC): Knowledge/ skill enhancement Courses without the benefit of a grade or credit for a Course. i) The Audit Course/s (other than the Course/s considered for completing the prescribed program credits) can be any Course offered by the program to which the student is admitted to other programs offered in the institution, where the student is studying. ii) The students who are interested in audit Courses can register for one audit Course at a time during III to VIII semesters. Students, who have opted for audit Courses and considered on par with students registered for credit Courses, have to satisfy the attendance and CIE requirements. However, they need not have to appear for SEE. The number of registrations to an audit Course is restricted to 10 % of the AICTE intake. iii) Registration for any audit Course, in writing, shall be completed at the beginning of semesters. The Institution should intimate the Registrar (Evaluation) about the registration at the beginning of the semester and obtain a formal approval for inclusion of the audit Course/s in the Grade cards/ Transcripts issued to the students.
17 OB3.2	The minimum number of students registered to any Elective offered by the Departments shall be not less than ten.
17 OB3.3	A student shall exercise his option in respect of Elective Courses and register for the same at the beginning of the concerned semester. The student may be permitted to opt for a change of Elective Course within 15 days from the date of commencement of the semester as per the calendar of the University.
17 OB3.4	**Course Registration:** Every student shall register for the Courses of a semester (Credits) under the supervision of a Faculty Advisor (also called Mentor, Counselor etc.,) in each Semester for the Institution to maintain proper record.
17OB4.0	**Internship/Professional Practice**
17OB4.1	**Internship / Professional Practice:** 1) The Internship shall be completed during the period specified in the Scheme of Teaching and Examination. 2) The internship can be carried out in any industry/R and D Organization/Research Institute/ Educational institute of repute. 3) (a) The Department/college shall nominate staff member/s to facilitate, guide and supervise students under internship. (b) The Internal Guide has to visit place of internship at least once during the student's internship. 4) The students shall report the progress of the internship to the guide in regular intervals and seek his/her advice. 5) After the completion of Internship, students shall submit a report with completion and attendance certificates to the Head of the Department with the approval of both internal and external guides. 6) There will be 50 marks for CIE (Seminar: 25, Internship report: 25) and 50 marks for Viva – Voce conducted during SEE. The minimum requirement of CIE marks shall be 50% of the maximum marks. [To be read along with 17 OB 8.6] 7) The internal guide shall award the marks for seminar and internship report after evaluation. He/she will also be the internal examiner for Viva – Voce conducted during SEE.

	8) The external guide from the industry shall be an examiner for the viva voce on Internship. Viva-Voce on internship shall be conducted at the college and the date of Viva-Voce shall be fixed in consultation with the external Guide. The Examiners shall jointly award the Viva - Voce marks. 9) In case the external Guide expresses his inability to conduct viva voce, the Chief Superintendent of the institution shall appoint a senior faculty of the Department to conduct viva-voce along with the internal guide. The same shall be informed in writing to the concerned Chairperson, Board of Examiners (BOE). 10) The students are permitted to carry out the internship anywhere in India or abroad. The University will not provide any kind of financial assistance to any student for carrying out the Internship.
17OB4.2	**Failing to undergo Internship:** Internship is one of the head of passing. Completion of internship is mandatory. If any student fails to undergo /complete the internship, he/she shall be considered as failed in that Course and shall not be permitted to appear for SEE in that Course. However, student shall appear for SEE after satisfying the conditions prescribed for Internship. The reappearance shall be considered as an attempt.
17OB5.0	**Seminar and Project**
17OB5.1	**Seminar:** Seminar is one of the head of passing. i) Each candidate shall deliver seminar as per the Scheme of Teaching and Examination on the topics chosen from the relevant fields for about 30 minutes. ii) The Head of the Department shall make arrangements for conducting seminars through concerned faculty members of the Department. The committee constituted for the purpose by the Head of the Department shall award the CIE marks for the seminar. The committee shall consist of three faculty from the Department and the senior most acting as the Chairman/Chairperson. [To be read along with 17 OB 8.6].
17OB5.2	**Project Work:** Project is one of the head of passing. Project work shall preferably be batch wise, the strength of each batch shall not exceed maximum of four students.
17OB5.3	Viva-voce examination in project work shall be conducted batch-wise.
17OB 6.0	**Computation of SGPA and CGPA**
17OB 6.1	(i) The University adopts absolute grading system wherein the marks are converted to grades, and every semester results will be declared with semester grade point average (SGPA) and Cumulative Grade Point Average (CGPA). The CGPA will be calculated for every semester, except for the first semester. (ii) The grading system with the letter grades and the assigned range of marks under absolute grading system are as given below:

Level	**Outstanding**	**Excellent**	**Very Good**	**Good**	**Above Average**	**Average**	**Fail**
Letter Grade	S	A	B	C	D	E	F
Grade Points	10	9	8	7	6	4	00
Percentage of Marks Scored in a Course	≥ 90	<90 ≥80	< 80 ≥70	< 70 ≥60	< 60 ≥ 45	< 45 ≥40	< 40
	(90 -100)	(80 - 89)	(70 - 79)	(60 - 69)	(45 - 59)	(40 - 44)	(0 - 39)

	(iii) A student obtaining Grade 'F' in a Course shall be considered failed and is required to reappear in subsequent SEE. Whatever the letter grade secured by the student during his / her reappearance shall be retained. However the number of attempts taken to clear a Course shall be indicated in the grade cards/ transcripts.
17OB 6.2	**Computation of SGPA and CGPA (as per UGC Guidelines)** The following procedures shall be used to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA) respectively: i) The SGPA is the ratio of sum of the product of the number of credits with the grade points secured by a student in all the Courses taken by him/her and the sum of the number of credits of all the Courses undergone by a student, i.e., $$SGPA = \frac{\sum (C_i \times G_i)}{\sum C_i}$$ Where C_i is the number of credits of the ith Course and G_i is the grade point scored by the student in the ith Course. ii) The CGPA is also calculated in the same manner taking into account all the Courses undergone by a student over all the semesters of a programme, i.e., $$CGPA = \frac{\sum (C_i \times S_i)}{\sum C_i}$$ Where S_i is the SGPA of the ith semester and C_i is the total number of credits in that semester. The SGPA and CGPA shall be rounded off to 2 decimal places and reported in the transcripts.

17OB 6.2 (continued)

Illustration for Computation of SGPA and CGPA

Computation of SGPA

Illustration No.1

Course	Credit	Grade letter	Grade point	$Credit\ Point = (Credit \times Grade)$
Course 1	4	B	08	4 × 08 = 32
Course 2	4	D	06	4 × 06 = 24
Course 3	4	C	07	4 × 07 = 28
Course 4	3	S	10	3 ×10 = 30
Course 5	3	E	04	3 × 04 = 12
Course 6	3	D	06	3 ×06 = 18
Course 7	2	A	09	2 × 09 = 18
Course 8	2	D	06	2 × 06 = 12
Total	25	--	--	174

Thus, **SGPA= 174/25 = 6.96**

Illustration No.2

Course	Credit	Grade letter	Grade point	$Credit\ Point = (Credit \times Grade)$
Course 1	4	B	08	4 × 08 = 32
Course 2	4	D	06	4 × 06 = 24
Course 3	4	C	07	4 × 07 = 28
Course 4	3	S	10	3 × 10 = 30
Course 5	3	F	00	3 × 00 = 00
Course 6	3	D	06	3 × 06 = 18
Course 7	2	A	09	2 × 09 = 18
Course 8	2	D	06	2 ×06 = 12
Total	25	--	--	162

Thus, **SGPA= 162/25=6.48**

If a Student secures letter grade C during reappearance then the SGPA is Calculated as shown below.

Illustration No. 2(a)

Course	Credit	Grade letter	Grade point	$Credit\ Point = (Credit \times Grade)$
Course 5	3	C	07	7× 03 = 21

Total Credit Points = Credit Points of first Attempt) + Credit Points of subsequent attempt
=162 + 21 = 183

Total credits of the semester = 25

Thus, **SGPA= 183/25=7.32**

Illustration No.3

Course	Credit	Grade letter	Grade point	Credit Point = (Credit x Grade)
Course 1	4	B	08	4 x 08 = 32
Course 2	4	D	06	4 x 06 = 24
Course 3	4	C	07	4 x 07 = 28
Course 4	3	S	10	3 x10 = 30
Course 5	3	A	09	3 x 04 = 18
Course 6	3	D	06	3 x 06 = 18
Course 7	2	A	09	2 x 09 = 18
Course 8	2	D	06	2 x 06 = 12
Total	25	--	--	189

Thus, **SGPA= 189/25=7.56**

$$CGPA\ (from\ illustrations\ 2\ and\ 3) = \frac{25 \times 7.32 + 25 \times 7.56}{50} = 7.44$$

17OB 6.2 (continued)

Semester	I	II	III	IV	V	VI	VII	VIII
Credits of the semester	24	24	27	27	24	24	24	26
SGPA	7.00	8.50	9.20	6.86	8.18	7.73	8.68	9.40

$$Thus\ CGPA = \frac{(24 \times 7.00 + 24 \times 8.50 + 27 \times 9.20 + 27 \times 6.86 + 24 \times 8.18 - 24 \times 7.73 + 24 \times 8.68 + 26 \times 9.40)}{200} = 8.20$$

17OB 6.3 **Transcript Format:** Based on the secured letter grades, grade points, SGPA and CGPA, the transcript for each semester and a consolidated transcript indicating the performance in all semesters shall be issued.

17OB 7.0 **Conversions of Grades into Percentage and Declaration of Class**

17OB 7.1 Conversion Formula For The Conversion Of CGPA Into Percentage Is Given Below

Percentage Of Marks Secured, $P = [CGPA\ Earned - 0.75] \times 10$

Illustration For A CGPA Of 8.20:

$P = [CGPA\ Earned\ 8.2 - 0.75] \times 10 = 74.5\ \%$

17OB 7.2 **Class Declaration:**

After the conversion of final CGPA into percentage of marks (P), a graduating student is declared to have passed in

(i) First Class with Distinction (FCD) if $P \geq 70\%$

(ii) First Class (FC) if $P \geq 60\%$ but <70% and

(iii) Second Class (SC) if $P < 60\%$.

17OB8.0 **Continuous Internal Evaluation**

17OB8.1 For each theory and practical paper, the CIE marks shall be 40.
For Technical seminar, the CIE marks shall be 100.
For Internship/ Professional Practice, the CIE marks shall be 50.
For Project Phase –I and Project seminar and Project Phase –II, the CIE shall be 100 respectively.

17OB8.2 CIE Marks in each theory Course shall be the sum of marks prescribed for test and assignment.

Marks prescribed for test shall be 30 and that for assignment is 10.

The CIE marks for test in a theory Course shall be based on three tests generally conducted at the end of fifth, tenth and fourteenth week of each semester. Each test shall be conducted for a maximum of 30 marks and the final marks shall be the average of three tests.

The remaining 10 marks shall be awarded based on the evaluation of Assignments/Unit tests/written Quizzes that support to cover some of the Course/program outcomes. Final CIE marks awarded shall be the sum of these two out of maximum of 40 marks.

The candidates shall write the Internal Assessment Tests and Assignments/Unit-tests/written Quizzes in Blue Books which shall be preserved by the Principal/ Head of the Department for at least three years after the announcement of University results and shall be made available for verification at the direction of the Registrar (Evaluation).

17OB8.3	In the case of a Practical, the CIE marks shall be based on the laboratory journals/ records (30 Marks on continuous evaluation based on conduct of experiment, viva and report writing) and one practical test (10 Marks) to be conducted at the end of the semester.
17OB8.4	(i) The CIE marks for I year Computer Aided Engineering / Drawing: a) 24 marks for class work (sketching and Computer Aided engineering Drawing). b) 16 marks for test conducted in the same pattern as that of SEE (The marks secured can be taken as best of the two tests). (ii) The CIE marks for other Drawings/ Design Drawings offered by various branches shall be based on the evaluation of the sheets and one test in the ratio 60:40.
17OB8.5	The CIE marks in the case of projects and seminars in the final year shall be based on the evaluation at the end of VIII semester by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the project / seminar guide.
17OB8.6	i. For theory Courses, there shall not be any minimum requirements of CIE marks. ii. Minimum requirement of CIE marks for Practical/ Internship/Project work shall be 50% of the maximum marks. iii. For seminar, the minimum requirement of CIE marks shall be 40% of the maximum marks.
17OB8.7	i) Students failing to secure a minimum of 50% of the CIE marks in Practical/ Internship/Project work shall not be eligible for the Practical / Internship/Project examination conducted by the University and they shall be considered as failed in that/those Course/s. However, they can appear for University examinations conducted in other Courses of the same semester and backlog Courses if any. Students after satisfying the prescribed minimum CIE marks in the Course/s when offered during subsequent semester shall appear for SEE. ii) If any student fails to secure a minimum of 40% of the maximum CIE marks in seminar/ fails to deliver the seminar, he/she shall be considered as failed in that Course and shall not be eligible for the award of degree. However, the student shall become eligible for the award of degree after satisfying the requirements prescribed for seminar during the subsequent semester/s. iii) The Course/s under 17OB8.6 (ii) and (iii), when repeated are considered as attempts.
17OB8.8	CIE marks of those students, who come under 17OB8.7, shall be sent separately to the Registrar (Evaluation).
17OB8.9	If a student remains absent for all the CIE tests conducted, the CIE Marks shall be marked as AB for the Courses against the University Seat Number (USN) of the student in the marks sheet submitted to the University by the Principal of the College.
17OB8.10	Improvement of CIE marks shall not be allowed in a. Theory Courses and b. Laboratory/Workshop/Seminar/Internship/Project where the student has already secured the minimum required marks.
17OB8.11	The final list, incorporating corrections (if any) of CIE marks awarded to the students in the Theory/Practical/Internship/Project work/ Seminar, shall be displayed on the notice board of the college at least seven days before the closure of the semester and a certified copy of the same shall be sent by the Principal to the University Examination Section within the stipulated date. Every page of the CIE marks sheet shall bear the signatures of the concerned Teacher/Teachers, Head of the Department and Principal.
17OB8.12	Any corrections or overwriting of CIE marks shall bear the signature(s) of concerned Teacher(s) and in such cases the Head of the Department shall indicate the number of corrections on every sheet and attest it with his/her signature.

17OB8.13	CIE marks shall reach the University before the commencement of examination as per the notification issued from the office of the Registrar (Evaluation) from time to time. After the submission of CIE marks to the University, any request under any circumstances for change of CIE marks shall not be considered.
17OB 9.0	**Eligibility for Passing and Award of Degree(To be read along with 17OB4.2, 5.1, 5.2, 8.6 and8.7)**
17OB 9.1	(a) For a pass in a theory Course/Drawing, the student shall secure minimum of 35% of the maximum marks prescribed in the University examination and in total 40% of the maximum marks (i.e., prescribed for SEE and CIE) including the CIE marks secured by the student. (b) The Minimum Passing letter grade in a Course is 'E'. (c) For a pass in a Practical/Internship/Project/Viva-voce examination, a student shall secure a minimum of 40% of the maximum marks prescribed for the University Examination. The Minimum Passing Grade in a Course is 'E'.
17OB 9.2	1) A student who obtain any grade from 'S' to 'E' shall be considered as passed. 2) If a student secure F grade in any of the head of passing (17 OB 4.2, 17 OB 5.1, 17 OB 5.2 and 17 OB 11.2) he/she has to reappear in that head for the SEE. 3) A student will be declared successful at the end of academic year if he/she has not more than four 'F' grades in the immediate preceding two semesters. 4) A student will be declared successful at the end of program, when he/she has none of the Courses remaining with F grade and shall have CGPA of greater than or equal to 5.00. 5) In case, the CGPA falls below 5.00 at the end of the program, the student shall be permitted to appear again for SEE in full or part of the previous semester Courses by rejecting the performance for required number of Course/s (other than seminar, Project and Practical's) and times, subject to the provision of 17OB1.5, to make up CGPA equal to or greater than 5.0. The student should reject the SEE results of the previous attempt and obtain written permission from the Registrar (Evaluation) to reappear in the subsequent SEE.
17OB 9.3	The students who do not satisfy the provision 17OB9.2 (1) and the students who remain absent for the University examinations shall be deemed to have failed in that Course/s. They have to reappear for the University examination in the subsequent examinations. The CIE marks awarded to the student/s at first attempt in the concerned theory Course/s will be carried forward. Revised CIE marks are considered only in cases under the provisions of 17OB8.7.
17OB 9.4	Students who pass a Course of a semester as per 17OB 9.1 and has earned CGPA equal to or greater than 5.00 shall not be allowed to appear for any individual Course/s again, unless they opt for rejection of results of entire semester as per 17OB 9.5.
17OB9.5	A student may, at his/her desire, reject the total performance of a semester (including CIE marks) or reject only the result of his/her performance in University examination of a semester. The rejection is permitted only once during the entire programme of study.
17OB9.6	The student who desires to reject the results of a semester shall reject performance in all the Courses of the semester, irrespective of whether the student has passed or failed in any Course. However, the rejection of performance of VIII semester project shall not be permitted.

17OB9.7	A student, who desires to reject the total performance of a semester including CIE marks, has to take readmission for that semester. Application for approval of readmission shall be sent to the Registrar through the Principal of College within 30 days from the date of the announcement of the results. Late submission of application shall not be accepted for any reasons. Readmission to First semester in such cases shall not be considered as fresh admission and therefore the student will continue to have the same University Seat Number, which was allotted earlier. The Course duration (as per 17OB1.5) will be counted with reference to old USN.
17OB9.8	The student, who rejects only the results of University examination of a semester, shall be permitted to re-appear for University examinations of all the Courses of that semester in the subsequent examinations. However, the CIE marks obtained by the student in the rejected semester shall be retained. Applications for rejection and approval to reappear for University examination shall be sent to the Registrar (Evaluation) through the Principal of the College within 30 days from the date of announcement of the results. Late submission of applications shall not be accepted for any reasons. If the rejection of results of University examination is of odd semester, the student shall be allowed to take admission to the immediate next even semester. However, if the rejection of results of University examination is of even semester, then the student shall not be allowed to take admission to the next odd semester (as per 17OB11.2).
17OB9.9	Students who opt for rejection of results of University examination are eligible for the award of class and distinction, but are not eligible for the award of ranks.
17OB9.10	A student shall be declared to have completed the program of B.E. / B.Tech. degree, provided the student has undergone the stipulated Course work as per the Scheme of Teaching and Examination and has earned the prescribed number of credits as per the provision 17OB1.6, having CGPA ≥ 5 with none of the registered courses remaining with 'F' grade.
17OB10.0	**Attendance Requirement**
17OB10.1	Courses of each semester shall be treated as a separate unit for calculation of the attendance. The candidate has to put in a minimum attendance of 85% in each Course with a provision to condone 10% of the attendance by the Vice-Chancellor on the specific recommendations of the Principal of the college where the candidate is studying, based on medical grounds, participation in University/State/ National/ International level sports and cultural activities, seminars, workshops, paper presentation etc., of significant value. The supporting documents for condoning the shortage of attendance are to be submitted along with the recommendations.
17OB 10.2	The datum for the calculation of attendance shall be the number of Teaching hours prescribed for a Course [50 hours for 04 credit Courses (theory), and 40 hours for 03 credit Courses (theory) counted from the date of commencement of the semester. In case of Laboratories, the number of classes (deemed as teaching hours) is equal to the number of experiments prescribed under main heading]. In case of late admission, approved by competent authority (DTE/VTU), to I semester/III semester (lateral entry scheme)/ III semester (lateral entry scheme) of Engineering programme conducted during evening the attendance shall be reckoned from the date of admission to the programme.

17OB10.3	The Course Instructor/ Mentor/College shall inform the students as well as their parents about the attendance status periodically. Students who are facing the shortage of attendance be mentored to make up the shortage. Principals shall also notify every month, the list of candidates who are under short of attendance.
17OB10.4	A candidate, who does not satisfy the attendance requirement (in one or more Courses) as mentioned in 17OB10.1 shall not be eligible to appear for the SEE of that semester and shall not be permitted to take admission to next higher semester. The candidate shall be required to repeat that semester during the subsequent year.
17OB 10.5	The list of the candidates falling short of attendance shall be sent to Registrar (Evaluation) at least once in a month and final list shall be sent one week prior to the commencement of the examination. The detained students should obtain permission from Registrar, VTU for readmission to the semester concerned as a repeater.
17OB 11.0	**Promotion and Eligibility**
17OB 11.1	There shall be no restriction for promotion from an odd semester to the next even semester, provided the student has fulfilled the attendance requirement.
17OB 11.2	A student shall be eligible for promotion from an even semester to next odd semester if the student has not failed in more than four heads of passing of the immediately preceding two semesters and has passed in all the Courses of all the lower semester examinations. Each credit Course shall be treated as a head of passing. **Illustrations:** a) A student seeking eligibility to III semester should not have failed in more than 4 heads of passing of I and II semesters considered together. b) A student seeking eligibility to V semester should have passed in all the subjects of I and II semesters and should not have failed in more than 4 heads of passing of III and IV semesters considered together. c) A student seeking eligibility to VII semester should have passed in all the subjects up to IV semester and should not have failed in more than 4 heads of passing of V and VI semesters considered together. **Lateral entry scheme:** a. A student seeking eligibility to V semester should not have failed in more than 4 heads of passing of III and IV semesters considered together. b. A student seeking eligibility to VII semester should have passed in all the subjects of III and IV semesters and should not have failed in more than 4 heads of passing of fifth and sixth semesters considered together.

17OB 11.3	a. All students admitted to I semester and to III semester under lateral entry scheme to B.E./B.Tech. programme have to undergo the Mandatory non – credit Courses viz., Environmental Studies and English Language. However these Courses shall not be considered for the Eligibility criterion prescribed for promotion, award of Class, calculation of SGPA and CGPA. b. The Courses viz., Advanced Mathematics I and II, to be completed by the candidates (diploma holders) admitted to III semester under lateral entry scheme shall not be considered for the eligibility criterion prescribed for promotion, award of Class, calculation of SGPA and CGPA. However, a pass in the above Courses is mandatory for the completion of the programme and award of degree. c. The Courses Viz., (i) Computer Aided Engineering Drawing (ii) Programming in C and Data structure and (iii) Environmental Studies (if not studied at B.Sc. level), to be completed by the candidates who have passed B.Sc. degree and admitted to III semester of the programme, shall not be considered for the award of Class, calculation of SGPA and CGPA. However, a pass in the above Courses is mandatory for the completion of the programme and award of degree.
17OB 12.0	**Temporary Discontinuation/Break in the Program**
17OB 12.1	a) If a candidate, for any reason, temporarily discontinues the Programme or take a break from the programme during any semester intentionally, he/she may be permitted to continue the programme by registering to the same semester of the prevailing scheme. The candidate shall complete all the remaining Course work subject to the provision 17 OB 1.5. Also the Candidates may have to complete additional Course/s, if any, as per the decision of concerned Board of Studies and approval of Dean, Faculty of Engineering, on establishing equivalence between two schemes. A Grade card shall be issued to that effect. Additional Course/s shall not be considered for the eligibility criterion prescribed for promotion. However, based on the individual cases, it is considered to decide the SGPA and CGPA to admit the student for the award of degree. Such candidates shall not be eligible for the award of rank. b) Candidates who takes admission to any semester of the existing scheme from another scheme, as a repeater/fresher because of various reasons have to complete additional Course/s, if any, as per the decision of concerned Board of Studies and approval of Dean, Faculty of Engineering, on establishing equivalence between two schemes. A Grade card shall be issued to that effect. Additional Course/s shall not be considered for the eligibility criterion prescribed for promotion. However, based on the individual cases, it is considered to decide the SGPA and CGPA to admit the student for the award of degree. Such candidate shall not be eligible for the award of rank.

17OB 13.0	**Award of Prizes, Medals and Ranks**
17OB 13.1	For the award of Prizes and Medals, the conditions stipulated by the Donor shall be considered subject to the provisions of the statutes framed by the University for such awards.
17OB 13.2	1) For award of rank in a Specialization of Bachelor of Engineering/ Technology, the CGPA secured by the students from III to VIII semester is considered. 2) A student shall be eligible for a rank at the time of award of degree of Bachelor of Engineering/ Technology, provided the student, a) (i) Has passed I to VIII semester in all the Courses in first attempt only in case of candidates admitted I year. (ii) Has passed III to VIII semester in all the Courses in first attempt only in case of candidates admitted under lateral entry scheme. (iii) Has completed all the prescribed Audit/mandatory Courses. b) Is not a repeater in any semester because of rejection of result of a semester/ shortage of attendance etc. c) Has completed all the semesters without any break/discontinuity. d) Has completed all the semesters (I to VIII/III to VIII) in VTU constituent college or in any VTU affiliated non-autonomous college. e) Has not been transferred from autonomous institution affiliated to VTU or from any other University. 3) The total number of ranks awarded shall be 10% of total number of students appeared in VIII semester subject to a maximum of 10 ranks in a Specialization. 4) For award of ranks in a Specialization, a minimum of 10 students should have appeared in the VIII semester examination. **Illustration:** a. If 1228 students appeared for the VIII semester in Electronics and Communication Engineering programme, the number of ranks to be awarded for Electronics and Communication Engineering shall be 10. b. If 90 students appeared for the VIII semester in Biomedical Engineering, the number of ranks to be awarded for Biomedical Engineering will be 09. 5) In case of fractional number of ranks, it is rounded to higher integer only when the first decimal place value is greater than or equal to 5.
17 OB 13.3	Ranks are awarded based on the merit of the students as determined CGPA. If two or more students get the same CGPA, the tie shall be resolved by considering the number of times a student has obtained higher SGPA. If it is not resolved even at this stage, the number of times a student has obtained higher grades like S, A, B etc., shall be taken into account to decide the order of the rank.

17OB 14.0	**Transfers of Students**
17OB 14.1	Transfer of students from one college to another college within Karnataka state shall be permitted only at the beginning of third, fifth, and seventh semesters, subject to availability of seats within the permitted intake in respective Colleges and subject to the prior approval of the University. (a) Transfer of students from one non - autonomous to another non – autonomous college affiliated to VTU is permitted with the approval of the Registrar, VTU subject to the provision 17OB11.2. The students seeking transfer shall have to, (i) Obtain No Objection certificate for admission from the University and from both the colleges before the commencement of term as notified by VTU. (ii) Complete the programme subject to the provision 17OB1.5. (b) Transfer of students from an autonomous to non – autonomous college affiliated to VTU is permitted with the approval of the Registrar, VTU provided the candidates have passed in all the Courses of the previous semesters. The students seeking transfer shall have to, (i) Obtain No Objection certificate for admission from the University and from both the colleges before commencement of term as notified by VTU. (ii) Complete additional Course/s, if any, as per the decision of concerned Board of Studies and approval of Dean, Faculty of Engineering, on establishing equivalence between two schemes. A Grade card shall be issued to that effect. Additional Course/s shall not be considered for the Eligibility criterion prescribed for promotion, Class, calculation of SGPA and CGPA. However, a pass in the Additional Courses, if any, is mandatory before the completion of Degree. iii) Complete the programme subject to the provision 17OB1.5. (c) In the case of students from Universities other than VTU, the students must have passed in all the Courses of I and II semesters for admission to III semester and all the Courses of I to IV semesters for admission to V semester and all the Courses of I to VI semesters for admission to VII semester. The students seeking admission from other Universities to VTU shall have to, i) Apply for establishment of equivalence with prescribed fees as notified by the VTU and obtain No Objection certificate for admission from the University before commencement of term as notified by VTU. ii) Produce No Objection certificate for admission from both the colleges before commencement of term as notified by VTU. iii) Complete additional Course/s, if any, as per the decision of concerned Board of Studies and approval of Dean, Faculty of Engineering, on establishing equivalence between two schemes. A Grade card shall be issued to that effect. Additional Course/s shall not be considered for the eligibility criterion prescribed for promotion, Class, calculation of SGPA and CGPA. However, a pass in the additional Courses, if any, is mandatory before the completion of Degree. (ii) Complete the programme subject to the provision 17OB1.5.
17 OB 14.2	Transfer of students within the College from one branch to another branch at the start of III semester shall be permitted with the approval of the Registrar, VTU subject to the provisions made by the Government of Karnataka and AICTE in this behalf.
17OB 14.3	The University may prescribe fee for administrative purpose, which shall be notified from time to time, for transfer from one college to another (Change of College) or one branch to another branch (change of branch within the college).

17 OB 15.0	**Applicability and Power to Modify**
17 OB15.1	The regulations governing the Degree of Bachelor of Engineering/Technology of Visvesvaraya Technological University shall be a binding on all concerned.
17 OB15.2	i) Notwithstanding anything contained in the foregoing, the University shall have the power to issue directions/ orders to address any difficulty. ii) Nothing in the foregoing may be construed as limiting the power of the University to amend, modify or repeal any or all of the above.

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Annexure -1

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2017-2018
Choice Based Credit System (CBCS)

I SEMESTER B.E./B.Tech. (PHYSICS GROUP)

Sl. No	Course Code	Course Title	Teaching Department	Board	Teaching Hours /Week		Examination				Credits
					Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17MAT11	Engineering Mathematics -I	Mathematics	Basic Science	04	--	03	60	40	100	4
2	17PHY12	Engineering Physics	Physics	Basic Science	04	--	03	60	40	100	4
3	17CIV13	Elements of Civil Engineering and Mechanics	Civil Engineering	Civil Engineering	04	--	03	60	40	100	4
4	17EME14	Elements of Mechanical Engineering	Mechanical Engineering	Mechanical Engineering	04	--	03	60	40	100	4
5	17ELE15	Basic Electrical Engineering	E and E Engineering	E and E Engineering	04	--	03	60	40	100	4
6	17WSL16	Workshop Practice	ME, Auto, IP, IEM, Mfg Engineering	Mechanical Engineering	01Hour Instruction 02Hour Practical		03	60	40	100	2
7	17PHYL17	Engineering Physics Laboratory	Physics	Basic Science	01Hour Instruction 02Hour Practical		03	60	40	100	2
8	17ENG18	Language – English (Audit Course)	Humanities	--	01		--	--	--	--	--
				TOTAL	**Theory:21 hours Practical: 06 hours**		**21**	**420**	**280**	**700**	**24**

II SEMESTER B.E./B.Tech. (CHEMISTRY GROUP)

1	17MAT21	Engineering Mathematics -II	Mathematics	Basic Science	04	--	03	60	40	100	4
2	17CHE22	Engineering Chemistry	Chemistry	Basic Science	04	--	03	60	40	100	4
3	17PCD23	Programming in C and Data Structures	Any Engineering Department	Computer Science and Engineering	04	--	03	60	40	100	4
4	17CED24	Computer Aided Engineering Drawing	ME, Auto, IP, IEM, Mfg Engineering	Mechanical Engineering	02Hour Instruction 04-Hour Practice		03	60	40	100	4
5	17ELN25	Basic Electronics	ECE/EEE/TC/E and I.	E and C Engineering	04	--	03	60	40	100	4
6	17CPL26	Computer Programming Laboratory	Any Engineering Department	Computer Science and Engineering	01Hour Tutorial 02Hour Practical		03	60	40	100	2
7	17CHEL27	Engineering Chemistry Laboratory	Chemistry	Basic Science	01Hour Tutorial 02Hour Practical		03	60	40	100	2
8	17CIV28	Environmental Studies (Audit Course)	Civil/ Environmental Engineering	Civil Engineering	01Tutorial		--	30	20	50	--
				TOTAL	**Theory:21 hours Practical: 08 hours**		**21**	**450**	**300**	**750**	**24**

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Regulations Governing the Degree of Bachelor of Engineering/ Technology (B.E/B.Tech.)
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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2017-2018
Choice Based Credit System (CBCS)

I SEMESTER B.E./B.Tech (CHEMISTRY GROUP)

Sl. No	Course Code	Course Title	Teaching Department	Board	Teaching Hours /Week		Examination				Credits
					Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17MAT11	Engineering Mathematics -I	Mathematics	Basic Science	04	--	03	60	40	100	4
2	17PHY12	Engineering Chemistry	Chemistry	Basic Science	04	--	03	60	40	100	4
3	17PCD13	Programming in C and Data Structures	Any Engineering Department	Computer Science and Engineering	04	--	03	60	40	100	4
4	17CED14	Computer Aided Engineering Drawing	ME, Auto, IP, IEM, Mfg Engineering	Mechanical Engineering	02Hour Instruction 04Hour Practice		03	60	40	100	4
5	17ELN15	Basic Electronics	ECE/EEE/TC/E and I.	E and C Engineering	04	--	03	60	40	100	4
6	17CPL16	Computer Programming Laboratory	Any Engineering Department	Computer Science and Engineering	01Hour Tutorial 02Hour Practical		03	60	40	100	2
7	17CHEL17	Engineering Chemistry Laboratory	Chemistry	Basic Science	01Hour Tutorial 02Hour Practical		03	60	40	100	2
8	17CIV18	Environmental Studies (Audit Course)	Civil/ Environmental Engineering	Civil Engineering	01HourTutorial		--	30	20	50	--
				TOTAL	**Theory:21 hours Practical: 08 hours**		**21**	**450**	**300**	**750**	**24**

II SEMESTER B.E./B.Tech (PHYSICS GROUP)

1	17MAT21	Engineering Mathematics -II	Mathematics	Basic Science	04	--	03	60	40	100	4
2	17PHY22	Engineering Physics	Physics	Basic Science	04	--	03	60	40	100	4
3	17CIV23	Elements of Civil Engineering and Mechanics	Civil Engineering	Civil Engineering	04	--	03	60	40	100	4
4	17EME24	Elements of Mechanical Engineering	Mechanical Engineering	Mechanical Engineering	04	--	03	60	40	100	4
5	17ELE25	Basic Electrical Engineering	E and E Engineering	E and E Engineering	04	--	03	60	40	100	4
6	17WSL26	Workshop Practice	ME, Auto, IP, IEM, Mfg Engineering	Mechanical Engineering	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
7	17PHYL27	Engineering Physics Laboratory	Physics	Basic Science	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17ENG28	Language – English (Audit Course)	Humanities	--	01		--	--	--	--	--
				TOTAL	**Theory:21 hours Practical: 06 hours**		**21**	**420**	**280**	**700**	**24**

Visvesvaraya Technological University, Belagavi
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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

Scheme of Teaching and Examination 2017-2018
Choice Based Credit System (CBCS)

B.E./B.Tech_____

III SEMESTER

Sl. No	Course Code	Course	Course Title	Teaching Department	Teaching Hours /Week		Examination				Credits
					Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17MAT31	Core Course	Engineering Mathematics-III		04	--	03	60	40	100	4
2	17XX32	Core Course			04	--	03	60	40	100	4
3	17XX33	Core Course			04	--	03	60	40	100	4
4	17XX34	Core Course			04	--	03	60	40	100	4
5	17XX35	Core Course			04	--	03	60	40	100	4
6	17XX36	Foundation Course			03	--	03	60	40	100	3
7	17XXL37	Laboratory			01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17XXL38	Laboratory			01-Hour Instruction 02-Hour Practical		03	60	40	100	2
9	17KL/CPH39/49	Core Course	Kannada/Constitution of India, Professional Ethics and Human Rights	Humanities	01		01	30	20	50	01
				TOTAL	**Theory:24hours Practical: 06 hours**		**25**	**510**	**340**	**850**	**28**

1. Core Course: This is the course, which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study.
2. Foundation Course: The courses based upon the content that leads to Knowledge enhancement.
3. Kannada/Constitution of India, Professional Ethics and Human Rights: 50 % of the programs of the Institution have teach Kannada/ Constitution of India, Professional Ethics and Human Rights in cycle based concept during III and IV semesters.
4. Audit Course:
(i) All lateral entry students (except B.Sc candidates) have to register for Additional Mathematics – I which is 04 contact hours per week.
(ii) Language English (Audit Course) be compulsorily studied by all lateral entry students (except B. Sc candidates)

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IV SEMESTER

Sl. No	Course Code	Course	Course Title	Teaching Department	Teaching Hours /Week		Examination				Credits
					Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17MAT41	Core Course	Engineering Mathematics-IV		04	--	03	60	40	100	4
2	17XX42	Core Course			04	--	03	60	40	100	4
3	17XX43	Core Course			04	--	03	60	40	100	4
4	17XX44	Core Course			04	--	03	60	40	100	4
5	17XX45	Core Course			04	--	03	60	40	100	4
6	17XX46	Foundation Course			03	--	03	60	40	100	3
7	17XXL47	Laboratory			01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17XXL48	Laboratory			01-Hour Instruction 02-Hour Practical		03	60	40	100	2
9	17KL/CPH39/49	Core Course	Kannada/Constitution of India, Professional Ethics and Human Rights	Humanities	01		01	30	20	50	01
				TOTAL	**Theory:24hours Practical: 06 hours**		**25**	**510**	**340**	**850**	**28**

1. Core Course: This is the course, which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study.
2. Foundation Course: The courses based upon the content that leads to Knowledge enhancement.
3. Kannada/Constitution of India, Professional Ethics and Human Rights: 50 % of the programs of the Institution have teach Kannada/ Constitution of India, Professional Ethics and Human Rights in cycle based concept during III and IV semesters.
4.Audit Course:
(i) All lateral entry students (except B. Sc candidates) have to register for Additional Mathematics – II which is 04 contact hours per week.
(ii) Language English (Audit Course) be compulsorily studied by all lateral entry students (except B. Sc candidates)

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V SEMESTER

Sl. No	Course Code	Course	Course Title	Teaching Department	Teaching Hours /Week		Examination				Credits
					Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17XX51	Core Course	Management and Entrepreneurship **Excluding CSE, ISE and EV Programs.** (The course must be related to Management and Entrepreneurship. However, the title and syllabus content can be as per the programme requirement).		04	--	03	60	40	100	4
2	17XX52	Core Course			04	--	03	60	40	100	4
3	17XX53	Core Course			04	--	03	60	40	100	4
4	17XX54	Core Course			04	--	03	60	40	100	4
5	17XX55X	Professional Elective			03	--	03	60	40	100	3
6	17XX56Y	Open Elective			03	--	03	60	40	100	3
7	17XXL57	Laboratory			01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17XXL58	Laboratory			01-Hour Instruction 02-Hour Practical		03	60	40	100	2
				TOTAL	**Theory:22hours Practical: 06 hours**		**24**	**480**	**320**	**800**	**26**

Electives

Professional Elective		**Open Elective*** Offered by the Department of _____**	
Courses under Code 17XX55X	**Course Title**	**Courses under Code 17XX56Y**	**Course Title**
17XX551		17XX561	
17XX552		17XX562	
17XX553		17XX563	
17XX554		17XX564	

*** Students can select any one of the open electives offered by any Department (Please refer to consolidated list of VTU for open electives). Selection of an open elective is not allowed provided;

- The candidate has pre – requisite knowledge.
- The candidate has not studied during I and II year of the programme.
- The syllabus content of open elective is similar to that of Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters.

Registration to electives shall be documented under the guidance of Programme Coordinator and Adviser.

1. Core subject: This is the course, which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study.
2. Professional Elective: Electives relevant to chosen specialization/ branch.
3. Open Elective: Electives from other technical and/ or emerging subject areas.

Visvesvaraya Technological University, Belagavi
Regulations Governing the Degree of Bachelor of Engineering/ Technology (B.E/B.Tech.)
Under Choice Based Credit System (CBCS)
(w.e.f. academic year 2017 – 18)
Annexure -1 (page -6)

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

Scheme of Teaching and Examination 2017-2018
Choice Based Credit System (CBCS)

B.E./B.Tech_____

VI SEMESTER

Sl. No	Course Code	Course	Course Title	Teaching Department	Teaching Hours /Week		Examination				Credits
					Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17XX61	Core Course	Management and Entrepreneurship **Excluding CSE, ISE and EV Programs.** (The course must be related to Management and Entrepreneurship. However, the title and syllabus content can be as per the programme requirement).		04	--	03	60	40	100	4
2	17XX62	Core Course			04	--	03	60	40	100	4
3	17XX63	Core Course			04	--	03	60	40	100	4
4	17XX64	Core Course			04	--	03	60	40	100	4
5	17XX65X	Professional Elective			03	--	03	60	40	100	3
6	17XX66Y	Open Elective			03	--	03	60	40	100	3
7	17XXL67	Laboratory			01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17XXL68	Laboratory			01-Hour Instruction 02-Hour Practical		03	60	40	100	2
			TOTAL		**Theory:22hours Practical: 06 hours**		**24**	**480**	**320**	**800**	**26**

Electives

Professional Elective		**Open Elective*** Offered by the Department of _____**	
Courses under Code 17XX65X	**Course Title**	**Courses under Code 17XX66Y**	**Course Title**
17XX651		17XX661	
17XX652		17XX662	
17XX653		17XX663	
17XX654		17XX664	

*** Students can select any one of the open electives offered by any Department (Please refer to consolidated list of VTU for open electives). Selection of an open elective is not allowed provided;

- The candidate has pre – requisite knowledge.
- The candidate has not studied during I and II year of the programme.
- The syllabus content of open elective is similar to that of Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters.

Registration to electives shall be documented under the guidance of Programme Coordinator and Adviser.

1. Core subject: This is the course, which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study.
2. Professional Elective: Electives relevant to chosen specialization/ branch.
3. Open Elective: Electives from other technical and/ or emerging subject areas.

Visvesvaraya Technological University, Belagavi
Regulations Governing the Degree of Bachelor of Engineering/ Technology (B.E/B.Tech.)
Under Choice Based Credit System (CBCS)
(w.e.f. academic year 2017 – 18)
Annexure -1 (page -7)

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

Scheme of Teaching and Examination 2017-2018
Choice Based Credit System (CBCS)

B.E./B.Tech_____

VII SEMESTER

Sl. No	Course Code	Course	Course Title	Teaching Department	Teaching Hours /Week		Examination				Credits
					Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17XX71	Core Course			04	--	03	60	40	100	4
2	17XX72	Core Course			04	--	03	60	40	100	4
3	17XX73	Core Course			04	--	03	60	40	100	4
4	17XX74 X	Professional Elective			03	--	03	60	40	100	3
5	17XX75Y	Professional Elective			03	--	03	60	40	100	3
6	17XXL76	Laboratory			01-Hour Instruction 02-Hour Practical		03	60	40	100	2
7	17XXL77	Laboratory			01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17XXP78	Core Course	Project Phase – I and Project seminar			03	--	--	100	100	2
			TOTAL		**Theory:18 hours Practical and Project: 09 hours**		**21**	**420**	**380**	**800**	**24**

Electives

Professional Elective		**Professional Elective**	
Courses under Code 17XX74X	**Course Title**	**Courses under Code 17XX75Y**	**Course Title**
17XX741		17XX751	
17XX742		17XX752	
17XX743		17XX753	
17XX744		17XX754	

1. Core subject: This is the course, which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study.
2. Professional Elective: Electives relevant to chosen specialization/ branch.
3. **Project Phase – I andProject seminar:** Comprises of Literature Survey, Problem identification, Objectives and Methodology. CIE marks shall be based on the report covering Literature Survey, Problem identification, Objectives and Methodology and seminar presentation skill.

Visvesvaraya Technological University, Belagavi
Regulations Governing the Degree of Bachelor of Engineering/ Technology (B.E/B.Tech.)
Under Choice Based Credit System (CBCS)
(w.e.f. academic year 2017 – 18)
Annexure -1 (page -8)

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

Scheme of Teaching and Examination 2017-2018
Choice Based Credit System (CBCS)

B.E./B.Tech_____

VIII SEMESTER

Sl. No	Course Code	Course	Course Title	Teaching Department	Teaching Hours /Week		Examination				Credits
					Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17XX81	Core Course			04	--	03	60	40	100	4
2	17XX82	Core Course			04	--	03	60	40	100	4
3	17XX83X	Professional Elective			03	--	03	60	40	100	3
4	17XX84	Core Course	Internship/ Professional Practice		Working hours of the place of Internship		03	50	50	100	2
5	17XXP85	Core Course	Project work Phase -II		--	06	03	100	100	200	6
6	17XXS86	Core Course	Technical Seminar		--	04	--	--	100	100	1
			TOTAL		**Theory:11 hours Project and Seminar: 10 hours**		**15**	**390**	**310**	**700**	**20**

Professional Electives

Courses under Code 17XX83X	Course Title
17XX831	
17XX832	
17XX833	
17XX834	

1. Core subject: This is the course, which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study.
2. Professional Elective: Electives relevant to chosen specialization/ branch.
3. Internship/ Professional Practice: To be completed between the V and VI semester vacation and/or VI and VII semester vacation period.

Visvesvaraya Technological University

"Jnana Sangama", Belagavi - 590 018

Dr. H. N. Jagannatha Reddy, BE.,ME., Ph.d.
REGISTRAR

Phone: (0831) 2405468
Fax : (0831) 2405467

Ref No. VTU/Aca/A12/2017-18/ 3615

Date: 5 AUG 2017

CIRCULAR

Sub: Introduction of Open Elective- reg

It is hereby informed, that university has introduced Open Electives concept for B.E CBCS Scheme in 5th and 6th semester, you are informed to note the following guidelines in offering of Open Electives (guidelines enclosed) and bring the same to the notice of students and faculty. The Course coordinator for offering open elective has to be identified in each department for proper implementation of the concept.

Sd/-

REGISTRAR

To,
The Principals of Affiliated Engineering Colleges.

Copy FWCs to:

1. The Hon'ble Vice Chancellor, through the Secretary to VC, VTU Belagavi, for information
2. The Registrar, VTU Belagavi, for information.
3. The Registrar (Evaluation), VTU Belagavi, for information & necessary action.
4. The In-Charge Regional Director of VTU Regional Offices, for information.
5. The Office Superintendent, for information.
6. CNC to upload on the website.

05/08/17

REGISTRAR

Guidelines for offering Open Elective for the B.E 5th & 6th Semester (CBCS) scheme

Note to Students:

1) All B.E (CBCS) students (except B.Arch, B.Tech) should study one Open elective each in the 5th and 6th Semester as a part of their Programme.

2) Students should register for the Open elective in the beginning of the 5th/6th semester in the department, where the elective is offered. An Open elective is not offered in a department if the registered student's strength is less than 10.

3) All Open electives are offered to students of all B.E Programmes (branches) of engineering in general (except B.Arch, B.Tech). However, if a student of a particular Programme has already studied/going to study, in higher semester a similar Core course with majority of topics same as that of a particular Open elective, then that Open elective is not offered to that student. In which case, the student has to select an alternative Open elective.

4) Having studied/selected a particular Open Elective, a student is not eligible to take a Professional elective of his/her Programme in the Higher semesters/same semester which will have majority of topics same as that of the Open elective studied/selected. In which case, the student has to select an alternative Professional elective.

5) Students are advised to select an Open elective of their interest and if they have a pre-requisite knowledge to study that particular Open elective.

Note to Departments:

1) Above conditions are to be monitored by an Open elective coordinator of the department to which the student belongs to and the Course coordinator of the department where the student registers for the Open elective in the beginning of the 5th/6th semester.
2) The Teaching department(s) for Open Elective is not restricted to only those departments(s) indicated in the list. Any other department faculty who has the requisite expertise to teach a particular Open elective can also teach it.
3) Offering department indicated in the list of Open electives is the department/board which is responsible to set the Syllabus and Question paper for the particular Open elective.

REGISTRAR
Visvesvaraya Technological University,
BELAGAVI - 590 018.

Visvesvaraya Technological University

"Jnana Sangama", Belagavi - 590 018

Dr. H. N. Jagannatha Reddy, BE.,ME., Ph.d.
REGISTRAR

Phone: (0831) 2405468
Fax : (0831) 2405467

Ref No. VTU/Aca/A12/2017-18/4880 Date: 14 SEP 2017.

NOTIFICATION

Sub: Regulations B.E/B.Tech & Scheme for 2017-18 admitted students and onwards

Ref: 1. Resolution No 2 of 133rd Extraordinary Executive Council Meeting, dated: 11st September 2017.
2. Vice-Chancellor's order, dated 14.09.2017

With reference to the above subject, the Scheme & Regulations governing B.E/B.Tech programme from the academic year 2017-18 has been updated on the website.

In this regard following is brought to the notice:

1. The Course Evaluation shall be carried in the ratio 60 and 40 for SEE (Semester End Examination) and CIE (Continuous Internal Evaluation) respectively.
   - The SEE will be conducted for 100 marks and proportionally reduced to 60 marks.
   - The CIE is prescribed for maximum of 40 marks. Marks prescribed for test shall be 30 and that for assignment is 10.The CIE marks for test in a theory Course shall be based on three tests generally conducted at the end of fifth, tenth and fourteenth week of each semester. Each test shall be conducted for a maximum of 30 marks and the final marks shall be the average of three tests. The remaining 10 marks shall be awarded based on the evaluation of Assignments/Unit tests/written Quizzes that support to cover some of the Course/program outcomes. Final CIE marks awarded shall be the sum of these two out of maximum of 40 marks.
   - In the case of Practical, the CIE marks shall be based on the laboratory journals/ records (30 Marks for continuous evaluation based on conduct of experiment, viva and report writing) and one practical test (10 Marks) to be conducted at the end of the semester.
2. The Scheme of teaching from the academic year 2017-18 admitted batch and onwards has been changed by retaining the contents of the syllabus of 2015-16 scheme as it is.

Principals of Constituent and Affiliated Engineering Colleges are required to conduct an orientation program for the students, clearly mentioning the guidelines of Regulations & Scheme.

Contents of this notification may kindly be brought to the notice of all the concerned.

By order,
Sd/-
REGISTRAR

To,
The Principals of Constituent & Affiliated Engineering Colleges.

Copy FWCs to:

1. The Vice Chancellor, through Secretary to VC, VTU, Belagavi, for information.
2. The Registrar, VTU, Belagavi, for information.
3. The Registrar (Evaluation), VTU, Belagavi, for information and needful.
4. The In-Charge Regional Director's of VTU Regional Offices at Belagavi, Bengaluru, Mysuru & Kalaburagi, for information.
5. The Special Officer, Academic Section, VTU, for information.
6. Office Superintendent, Academic Section, VTU, for information.
7. CNC to upload.

REGISTRAR 14/09/17

PRINCIPAL
The Oxford College of Engineering
Bommanahalli, Hosur Road
Bengaluru-560 068.

Visvesvaraya Technological University
"Jnana Sangama", Belagavi - 590 018

REGISTRAR

Phone: (0831) 2405468
Fax : (0831) 2405467

Ref. No. VTU/Aca/A6/2014-15/1379 Date: 25 MAY 2015

CIRCULAR

This is to bring to the notice of the Principals of affiliated Engineering colleges that,

> ***"As per the directions of University Grants Commission, New Delhi, the Choice Based Credit System (CBCS) will be introduced for B.E./B.Tech. Programs from the academic year 2015-16. In light of this it is decided to retain 2010 syllabus to the students admitted to B.E./B.Tech. during the academic year 2014-15".***

Hence, the students who are admitted to:

1. ***FIRST Semester B.E./B.Tech. during the academic year 2014-15 will study the 2010 scheme and syllabus from III to VIII Semesters without any modification,***
2. ***THIRD Semester B.E./B.Tech. (Lateral Entry) during the academic year 2015-16 will study the 2010 scheme and syllabus from III to VIII Semesters without any modification, and***
3. ***The Question Paper Pattern (answering 5 out of 8 questions) will remain the same as that of the 2010 scheme.***

The Principals of affiliated Engineering Colleges are requested to bring the contents of this circular to the notice of all the concerned.

Sd/-
REGISTRAR
(Dr. K. E. Prakash)

To, The Principals of affiliated Engineering colleges.

Copy FWCs to:

1. The Registrar (Evaluation), VTU Belgaum, for information and needful.
2. The Special Officers of VTU Regional Offices, for information.
3. The Special Officer, Academic Section, VTU, for information.
4. The Secretary to VC, VTU Belgaum, for information.

PRINCIPAL
The Oxford College of Engineering
Bommanahalli, Hosur Road
Bengaluru-560 068.

Visvesvaraya Technological University

"Jnana Sangama", Belagavi - 590 018, Karnataka State

Prof. A S. Deshpande B.E. M.Tech., Ph.D.
REGISTRAR
Phone : (0831) 2498100
Fax : (0831) 2405467

Ref VTU/BGM/Aca-OS/Gen-Cirs/2019-20/ 3013 Date : 1 AUG 2019

NOTIFICATION

Sub: Regulations Governing the Degree of B.E./ B.Tech. under OBE and CBSE (Revised-2018) – reg...

Ref: Executive Council Resolution. No. 2.2.1 dt: 30th May, 2019

Pursuant to the aforesaid Executive Council Resolution, the **"Regulations Governing the Degree of B.E./ B.Tech. under outcome Based Education and Choice Based Credit System – (Revised – 2018)"** are hereby notified.

These Regulations are applicable for the following students:

1. Admitted to I semester/I year from the academic year 2018-19 (i.e. USN XXX18XXXXX)
2. Admitted to III semester/II year from the academic year 2019-20 (i.e. USN XXX19XX4XX)

You are hereby directed to bring the same to the notice of all the concerned and to follow them scrupulously.

The previous regulations in this regard (published on VTU website and printed in syllabus books are treated as null and void.

Encl: as above

BY ORDER

01.08.2019

REGISTRAR

To,
The of Principals of All Engineering Colleges under the ambit of VTU, Belagavi

Copy to:

1. Hon'ble Vice-Chancellor through the Secretary to VC, VTU, Belagavi for kind information
2. The Registrar (Evaluation), VTU, Belagavi
3. The Regional Directors (I/C) of all the Regional Offices of VTU for circulation
4. The Computer Network Centre, VTU, Belagavi- to upload on VTU website
5. PS to Registrar, VTU, Belagavi
6. All the concerned Special Officer and Case-workers of Academic Section, VTU, Belagavi

PRINCIPAL
The Oxford College of Engineering
Bommanahalli, Hosur Road
Bengaluru-560 068.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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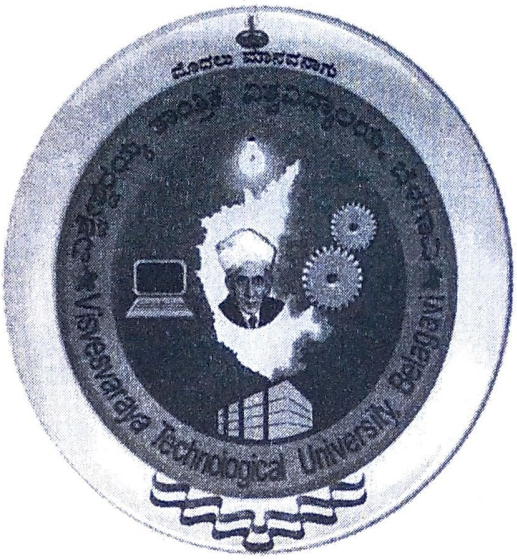

REGULATIONS GOVERNING THE DEGREE OF BACHELOR OF ENGINEERING / TECHNOLOGY (BE/B.Tech) UNDER OUTCOME BASED EDUCATION (OBE) AND CHOICE BASED CREDIT SYSTEM (CBCS)

Effective from the academic year 2018 – 19

PRINCIPAL
The Oxford College of Engineering
Bommanahalli, Hosur Road
Bengaluru-560 068.

AUGUST - 2018

Visvesvaraya Technological University, Belagavi

Regulations Governing the Degree of Bachelor of Engineering/ Technology (B.E/B.Tech)
Under Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

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Definitions of Keywords

The following are the definitions/descriptions that have been followed for the different terms used in the Regulations of BE/B.Tech Programmes:

1) **Programme:** Is an educational programme in a particular stream/ branch of Engineering/ branch of specialization leading to award of the Degree. It involves events/activities, comprising of lectures/ tutorials/ laboratory work/ field work, outreach activities/ project work/ vocational training/ viva voce/ seminars/ internship/ assignments/ presentations/ self-study etc., or a combination of some of these.
2) **Branch:** Means Specialization or discipline of BE/B.Tech Degree Programme, like Civil Engineering, Mechanical Engineering, Textile Engineering, etc.
3) **Semester:** Refers to one of the two sessions of an academic year (vide: serial number 4), each session being of sixteen weeks duration (with working days greater than or equal to ninety).The odd and even semesters shall be as per the University academic calendar.
4) **Academic Year:** Refers to the sessions of two consecutive semesters (odd followed by an even) including periods of vacation.
5) **Course:** Refers to usually referred to as 'papers' and is a component of a programme. All Courses need not carry the same weight. The Courses should define learning objectives and learning outcomes. A Course may be designed to comprise lectures/ tutorials/ laboratory work/ field work/ outreach activities/project work/ vocational training/ viva voce/ seminars/ term papers/assignments/ presentations/ self-study etc., or a combination of some of these.
6) **Credit:** Refers to a unit by which the Course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of lecture or two hours of laboratory/practical Courses/ tutorials/ fieldwork per week etc.
7) **Audit Courses:** Means the Knowledge/ Skill enhancing Courses without the benefit of a grade or credit for a Course.
8) **Choice Based Credit System (CBCS):** Refers to customizing the Course work, through Core, Elective and soft skill Courses, to provide necessary support for the students to achieve their goals.
9) **Course Registration:** Refers to formal registration for the Courses of a semester (Credits) by every student under the supervision of a Faculty Advisor (also called Mentor, Counselor etc.,) in each semester for the Institution to maintain proper record.
10) **Course Evaluation:** Means Continuous Internal Evaluation (CIE) and Semester End Examinations (SEE) to constitute the major evaluations prescribed for each Course. CIE and SEE to carry 40% and 60% respectively, to enable each Course to be evaluated for 100 marks, irrespective of its Credits.

11) **Continuous Internal Evaluation (CIE):** Refers to evaluation of students' achievement in the learning process. CIE shall be by the Course Instructor and includes tests, homework, problem solving, group discussion, quiz, mini-project and seminar throughout the semester, with a weightage for the different components being fixed by the University.

12) **Semester End Examinations(SEE):** Refers to the examinations conducted by the University covering the entire Course Syllabus. For this purpose, Syllabi to be modularized and SEE questions to be set from each module, with a choice confined to the concerned module only. SEE is also termed as University examination.

13) **First Attempt:** Refers to a student who has completed all formalities and has become eligible to attend the SEE and has attended at least one head of passing, such attempt shall be considered as first attempt.

14) **Credit Based System (CBS):** Refers to quantification of Course work, after a student completes teaching – learning process, followed by passing in both CIE and SEE. Under CBS, the requirement for awarding degree is prescribed in terms of total number of credits to be earned by the students.

15) **Credit Representation:** Refers to the Credit Values for different academic activities considered, as per the Table.1. Credits for seminar, project phases, project viva–voce and internship shall be as specified in the Scheme of Teaching and Examination.

16) **Letter Grade** : It is an index of the performance of students in a said Course. Grades are denoted by letters S, A, B, C, D, E and F.

Table 1: Credit Values

Theory/Lectures (L) (hours/week/Semester)	Tutorials (T) (hours/week/Semester)	Laboratory/Practical (P) (hours/week/Semester)	Credits (L:T:P)	Total Credits
4	0	0	4:0:0	4
3	0	0	3:0:0	3
2	2	0	2:1:0	3
2	0	2	2:0:1	3
2	2	2	2:1:1	4
0	0	6	0:0:3	3

NOTE: Activities like, practical training, study tour and participation in Guest lectures not to carry Credits.

17) **Grading:** Grade refers to qualitative measure of achievement of a student in each Course, based on the percentage of marks secured in CIE and SEE. Grading is done by Absolute Grading [Refer: 18OB6.0]. The rubric attached to letter grades are as follows:
S – Outstanding, A – Excellent, B – Very Good, C – Good, D – Above Average, E – Average and F – Fail.

18) **Grade Point (GP):** Refers to a numerical weightage allotted to each letter grade on a 10-point scale as under.

Letter Grade and corresponding Grade Points on a typical 10 – Point scale							
Letter Grade	S	A	B	C	D	E	F
Grade Point	10	09	08	07	06	04	00

19 **Passing Standards:** Refers to passing a Course only when getting GP greater than or equal to 04 (as per serial number 18).

20 **Credit Point:** Is the product of grade point (GP) and number of credits for a Course i.e.,
Credit points (CrP) = GP × Credits for the Course.

21 **Semester Grade Point Average (SGPA):** Refers to the measure of academic performance of student/s in a semester. [Refer:18 OB6.2]

22 **Cumulative Grade Point Average (CGPA):** Is a measure of overall cumulative performance of a student over all semesters. [Refer:18OB 6.2]

23 **Grade Card:** Refers to the certificate showing the grades earned by a student. A grade card shall be issued to all the registered students after every semester end examination. The grade card will display the Programme details (Course code, title, number of credits, grades secured) along with SGPA of that semester and CGPA earned till that semester.

24 **University:** Visvesvaraya Technological University (VTU), Belagavi.

18OB 1.0	Title, Duration and Credits of the Programme of Study
18OB 1.1	The Programme of study shall be called the degree of Bachelor of Engineering /Bachelor of Technology, abbreviated as BE / B.Tech.
18OB 1.2	(a) The Programme to which students are admitted to I semester of BE / B.Tech Programme shall be of four academic years duration divided into VIII semesters. The actual Teaching and Learning days shall be for at least 90 working days in a semester. (b) The Programme to which students are admitted to III semester of BE / B.Tech Programme under lateral entry shall be of three academic years duration divided into VI semesters. The actual Teaching and Learning days shall be for at least 90 working days in a semester. (c) The Programme (conducted during evening) to which students are admitted to III semester of BE / B.Tech Programme under lateral entry shall be of three academic years duration divided into VI semesters. The actual Teaching and Learning days shall be for at least 90 working days in a semester. The deficit contact hours of the Programme, conducted during evening on all working days, shall be compensated on all Sundays (except on general holidays).
18OB 1.3	The calendar of events in respect of the programme of study shall be notified by the University in advance.
18OB 1.4	**Maximum Duration for Programme Completion:** (a) (i) Students admitted to First year BE/ B.Tech shall complete the Programme within a period of **eight academic years** from the date of first admission, failing which they have to discontinue the Programme. (ii) Students admitted to second Year BE/B.Tech under lateral entry scheme shall complete the Programme within a period of **six academic years** from the date of first admission, failing which he/she has to discontinue the Programme. (b) (i) A student who has not obtained the eligibility to III semester even after **three academic years** from the date of admission to I semester shall **discontinue the Programme or get readmitted** to I semester of first year BE/B.Tech with a new University Seat Number but retaining the same year of admission. (ii) If a student does not get eligibility to III semester even after **two academic years** from the date of readmission to I semester [as per 18OB1.4 (b) (i)], he/she shall **discontinue the Programme or seek fresh admission** to I semester of first year BE/B.Tech as

18OB 1.4 (Continued)	the leeway (scope) of satisfying 18OB 1.4 (a) (i) is not possible. (c) (i) A student (under lateral entry scheme) who has not obtained the eligibility for V semester even after **two academic years** from the date of admission to III semester shall **discontinue the Programme or get readmitted** to III semester of II year BE/B.Tech with a new University Seat Number but retaining the same year of admission. (ii) If a student (under lateral entry scheme) does not get eligibility to V semester even after **two academic year** from the date of readmission to III semester [as per 18OB 1.4 (c) (i)] shall **discontinue the Programme or seek fresh admission** to III semester BE/B.Tech as the leeway of satisfying 18OB 1.4 (a) (ii) is not possible.
18OB 1.5	Prescribed Number of Credits for the Programme [to be read along with 18OB 8.14 and 18OB 11.2] (a) The number of credits to be completed by students admitted to I semester of BE/B.Tech Programme shall be 175. (b) The number of credits to be completed by students admitted to III semester of BE/B.Tech Programme under lateral entry scheme shall be 135.
18OB 1.6	**Definition of Credits:** 1 hour Lecture (L) per week per semester =1 Credit 2 hour Tutorial (T) per week per semester =1 Credit 2 hour Practical/Laboratory/Drawing (P) per week per semester =1 Credit.
18OB 2.0	**Eligibility for Admission to BE/B.Tech Programmes (As per the Government orders issued from time to time)**
18OB 2.1	(a) Day Engineering College (Eligibility: Candidates who have Passed in Second PUC/ Twelfth standard) (i) Passed in Second PUC/ 12th standard/ Equivalent examination with English as one of the Languages and obtained a minimum of 45 % of Marks in aggregate in Physics and Mathematics along with Chemistry/Bio-Technology/ Biology/ Electronics/ Computer. 40 % for SC, ST, Category – 1, 2A, 2B, 3A and 3B category candidates. (ii) Those students, who have passed a qualifying examination other than the PUC II examination of the Pre-University Education Board of Karnataka, have to obtain eligibility certificate for seeking admission to BE/B.Tech Degree Programme from Visvesvaraya Technological University, Belagavi.

18OB 2.1 (Continued)

(b) Day Engineering College (Eligibility: Candidates who have Passed 3 year Diploma)

(i) A candidate who has passed any diploma examination or equivalent examination and obtained an aggregate minimum of 45 % marks taken together in all the subjects of the final year (V and VI semester) diploma examination (qualified examination) is eligible for admission to BE/ B.Tech Programmes, and 40 % of marks in qualified examination in case of SC, ST and Backward Classes of Karnataka candidates.

(ii) Those candidates who have completed Diploma from other than Karnataka state shall provide the Equivalence/ Eligibility Certificate issued from the Director of Technical Education, Karnataka.

(c) Evening Engineering College (Eligibility: Candidates who have Passed 3 year Diploma):

(i) A candidate who has passed any diploma examination or equivalent examination and obtained an aggregate minimum of 45 % marks taken together in all the subjects of the final year (V and VI semesters) diploma examination (qualified examination) is eligible for admission to BE/ B.Tech Programmes, and 40 % of marks in qualified examination in case SC, ST and Backward Classes of Karnataka candidates.

In addition to this a candidate after passing the diploma, must have minimum of Two years full-time work experience as on 1st September of the year of admission, in a registered firm/Company/ Industry/ Educational and Government Autonomous Organizations in the branch of Engineering/ Technology, in which the candidates holds a diploma, and in which admission is sought by him/ her.

Professional experience refers to the experience earned as an employee on regular basis in Government, Government Undertaking, Public Sector Undertaking, Corporation or Private company registered under the Directorate of Industries and Commerce or the Directorate of Small Scale Industries or Government, Government recognized Institutions as technical staff.

Provided that the period of apprenticeship undergone shall also be treated as professional experience, if sponsored by the Board of Apprenticeship Training, Southern Region, Chennai or by Government, Government Undertakings and Public Sector Undertakings.

18OB 2.1 (Continued)	**Note:** In case where geniunity of the employment certificate is questionable, such candidates have to produce supportive documents specifying the registration details of the Industry/Company (e.g., SSI Registration) and or identity cards provided to them together with latest salary certificate and provident fund certificate. However, the employer has to fill up the NOC duly signed by the company authority. (d) Day Engineering College (Eligibility: Candidates who have Passed B.Sc Degree) Passed B.Sc. Degree from a recognized University as defined by UGC, with at least 45% marks (40% in case of candidates belonging to reserved category) and passed 10+2 examination with Mathematics as a subject.
18 OB 2.2	With regard to the qualification earned from foreign countries, Equivalence certificate from the University/ Association of Indian Universities is mandatory for admission to BE/B.Tech Programmes. In case of any dispute about the equivalence in qualification earned from foreign countries, the decision of the University Equivalence Committee shall be the final in establishing the eligibility of the student.
18 OB 3.0	**Courses**
18 OB 3.1	There shall be the following types of Courses: a) Humanities, Social Sciences and Management Courses (HSMC): These are mandatory for all disciplines. b) Basic Sciences Courses (BSC): Physics, Chemistry and Mathematics. These are mandatory for all disciplines. c) Engineering Sciences Courses (ESC): Materials, Workshop, Drawing and Basics of Electrical/ Electronics/ Instrumentation/ Civil/ Mechanical/ Computer Engineering etc. These are mandatory for all disciplines. d) Professional Core Courses (PCC) : Are the professional Core Courses, relevant to the chosen specialization/ branch. The core Courses are to be compulsorily studied by students and are mandatory to complete them to fulfill the requirements of a Programme. e) Professional Elective Courses (PEC): Are the professional Electives, relevant to the chosen specialization / branch and can be chosen from the pool of papers. It shall be supportive to the discipline providing extended scope/enabling an exposure to some other discipline /domain and nurturing student proficiency skills.

18OB 3.1 (Continued)	f) Open Elective Courses (OEC): Are the Elective Courses from other technical areas and/ or from emerging fields. g) Project Work (PROJ): Mini project and Main Project. Carried out at the Institution or elsewhere without interfering with the regular classwork. h) Seminar: Deliverable at the Institution under the supervision of a Faculty. i) Internship: Preferably at an industry/R and D organization/IT company/Government organization or elsewhere of significant repute for a specified period as mentioned in Scheme of Teaching and Examination. j) Mandatory Courses (MC): These Courses are mandatory, without the benefit of a grade or credit, for students admitted to BE/B.Tech programme. A pass in each mandatory Course is required to qualify for award the award of degree.
18 OB 3.2	The minimum number of students registered to any Elective Course offered by the Departments shall be not less than ten. However, the above condition shall not be applicable to programmes having a class strength less than 10.
18 OB 3.3	A student shall exercise his option in respect of Elective Course/s and register for the same at the beginning of the concerned semester. The student may be permitted to opt for a change of Elective Course/s within 15 days from the date of commencement of the semester as per the calendar of the University.
18 OB 3.4	**Course Registration:**
	Every student shall register for the Courses of a semester (Credits) under the supervision of a Faculty Advisor (also called Mentor, Counselor etc.,) in each semester for the Institution to maintain proper record.
18OB 4.0	**Internship/Professional Practice**
18 OB 4.1	**Internship / Professional Practice** The Internship shall be completed during the period specified in the Scheme of Teaching and Examination. 1) The internship shall preferably be at an industry/ R and D organization/ IT company/ Government organization of significant repute for a specified period as mentioned in Scheme of Teaching and Examination. 2) The Department/college shall nominate staff member/s to facilitate, Guide and supervise students under internship.

(Continued)

students shall report the progress of the internship to the Guide in regular intervals and seek his/her advice. The Guide shall maintain the progress record of the candidates undergoing internship.

4) After the completion of Internship, students shall submit a report with completion certificate and attendance certificate to the Head of the Department with the approval of both internal and external Guides.

5) There shall be 40 marks for CIE and 60 marks for SEE. The minimum requirement of CIE marks shall be 50% of the maximum marks.

6) The internal Guide shall be the internal examiner for the SEE. [To be read along with 18OB 8.2 (d)]

7) The external Guide for Internship shall be an examiner for SEE. Examination in internship shall be conducted at the college and the date shall be fixed in consultation with the external Guide. The Examiners shall jointly award the SEE marks. [To be read along with 18OB 8.9 (f)]

8) In case the external Guide expresses his inability to conduct Examination, the Chief Superintendent of the institution shall appoint a senior faculty of the Department to conduct the Examination along with the internal Guide. The same shall be informed in writing to the concerned Chairperson, Board of Examiners (BOE).

9) The students are permitted to carry out the internship anywhere in India or abroad. The University will not provide any kind of financial assistance to any student for carrying out the Internship.

18 OB 5.0 Technical Seminar and Project

18 OB 5.1 Technical Seminar: Technical Seminar is one of the head of passing.

(i) Each candidate shall deliver Technical seminar as per the Scheme of Teaching and Examination on the topic chosen from the relevant fields.

(ii) The Head of the Department shall make an arrangement for conducting seminars through concerned faculty members of the Department. The committee, constituted for the purpose by the Head of the Department, shall award the CIE marks for the seminar. The committee shall consist of two senior faculty members of the Department and the senior most acting as the Chairperson. [To be read along with 18OB 8.2 (e)].

18OB 5.2	**Project:** Project (Mini and Main) is one of the head of passing. Mini Project Work and Main Project Work shall preferably be batch wise, the strength of each batch shall not exceed a maximum of four students.
18OB 5.3	Examination in Mini Project Work and Main Project Work shall be conducted batch-wise.
18OB 6.0	**Computation of SGPA and CGPA**
18OB 6.1	(i) The University adopts absolute grading system wherein the marks are converted to grades, and every semester results shall be declared with Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA). The CGPA will be calculated for every semester, except for the first semester. (ii) The grading system with the letter grades and the assigned range of marks under absolute grading system are as given below:

Level	Outstanding	Excellent	Very Good	Good	Above Average	Average	Fail
Letter Grade	S	A	B	C	D	E	F
Grade Points	10	9	8	7	6	4	00
Percentage of Marks Scored in a Course	≥ 90	<90 ≥80	< 80 ≥70	< 70 ≥60	< 60 ≥ 45	< 45 ≥40	< 40
	(90 -100)	(80 - 89)	(70 - 79)	(60 - 69)	(45 - 59)	(40 - 44)	(0 - 39)

(iii) A student obtaining Grade F in a Course shall be considered fail and is required to reappear in the subsequent SEE. Whatever the letter grade secured by the student during his /her reappearance shall be awarded. The number of attempts taken to clear Course/s shall be indicated in the grade card.

18 OB 6.2 **Computation of SGPA and CGPA**

The following expressions shall be used to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA) respectively:

$$SGPA = \frac{\Sigma[\textit{Course Credits} \times \textit{Grade Points}] \textit{ for all the Courses in that Semester}}{\Sigma[\textit{Course Credits}] \textit{ for all the Courses in that Semester}}$$

$$CGPA = \frac{\Sigma[\textit{Course Credits} \times \textit{Grade Points}] \textit{ for all Courses excluding those with F and transitional grades until that Semester}}{\Sigma[\textit{Course Credits}] \textit{ for all Courses excluding those with F gradees until that Semester}}$$

18OB 6.2 (continued)

(a) SGPA and CGPA Calculations: An Illustrative Example for one academic year

Semester (Odd:1,Even:II)	Course Number	Credits	Grade	Grade Points	Credit Points	SGPA, CGPA
I	XX101	5:0:0	B	8	40	
I	XX102	3:2:0	Absent(F)	-	--	*SGPA*
I	XX103	3:0:0	A	9	27	*= 117/20*
I	XX104	0:1:1	F	0	00	***=5.85***
I	XX105	4:1:0	D	6	30	
I	XX106	5:0:0	E	4	20	
Total		20 (18*)	Total		117	
II	XX107	3:1:1	C	7	35	*SGPA*
II	XX108	4:0:0	B	8	32	*= 157/25*
II	XX109	3:0:0	D	6	18	***=6.28***
II	XX110	4:1:0	E	4	20	
II	XX111	2:1:1	A	9	36	
II	XX112	2:0:0	F	0	00	*CGPA*
II	XX113	0:2:0	B	8	16	*=274/41*
Total		25 (23*)	Total		157	***=6.68***

If the Student secures letter grades as detailed below after reappearance to SEE, then the SGPA and CGPA shall be calculated as indicated below.

I	XX102	3:2:0	D	6	30	*SGPA*
I	XX104	0:1:1	C	7	14	*= 56/9*
						=6.22
II	XX112	2:0:0	D	6	12	*CGPA*
	Total	9	Total		56	*=330/50*
						=6.60

(b) CGPA Calculation of the Programme:An Illustrative Example

Semester	I	II	III	IV	V	VI	VII	VIII
Credits of the semester	20	20	24	24	25	24	20	18
SGPA	7.00	8.50	9.20	6.86	8.18	7.73	8.68	9.40

$$CGPA = \frac{(20\times7.00+20\times8.50+24\times9.20+24\times6.86+25\times8.18+24\times7.73+20\times8.68+18\times9.40)}{175} = 8.16$$

18OB 6.3

Grade Card: Based on the secured letter grades, grade points, SGPA and CGPA, a grade card for each semester and a consolidated grade card indicating the performance in all semesters shall be issued.

18OB 7.0	**Conversions of CGPA into Percentage of marks and Class Equivalence**
18OB 7.1	**Conversion Formula for the conversion of CGPA into percentage is given below.** Percentage of marks secured, "P = [CGPA Earned - 0.75] × 10" Illustration for a CGPA of 8.20: **P = [CGPA Earned 8.20 - 0.75]× 10 = 74.5 %**
18OB 7.2	**Class Equivalence:** Subsequent to the conversion of final CGPA, after successful completion of the Programme, into percentage of marks (P), a graduating student is reckoned to have passed in (i) First Class with Distinction (FCD) if P ≥ 70% (ii) First Class (FC) if P ≥ 60% but <70% and (iii) Second Class (SC) if P < 60%.
18OB 8.0	**Continuous Internal Evaluation, Semester End Evaluation and minimum standards**
18OB 8.1	**Continuous Internal Evaluation Marks:** (a) Except for Vyavaharika Kannada (Kannada for communication)/ Aadalitha Kannada (Kannada for Administration), Technical seminar and Project work phase -1, the CIE marks for all credit Courses, shall be 40. (b) Minimum CIE marks for all theory Courses shall be 40 % of the marks prescribed for Continuous Internal Evaluation i.e., 16 marks. (c) Minimum CIE marks for Practical/ Mini-project / Internship/ Technical Seminar/ Project work – Phase 2 shall be 50 % of the maximum marks i.e., 20 marks. (d) The CIE marks for Vyavaharika Kannada (Kannada for communication)/ Aadalitha Kannada (Kannada for Administration), Technical seminar and Project work phase -1 shall be 100. (e) Minimum CIE marks for Vyavaharika Kannada (Kannada for communication)/ Aadalitha Kannada (Kannada for Administration) shall be 40 % of the marks prescribed for Continuous Internal Evaluation i.e., 40 marks. (f) Minimum CIE marks for Project work – Phase 1 and Technical seminar shall be 50 % of the maximum marks i.e., 50 marks. (g) Minimum CIE marks for Additional Mathematics I and II, and the courses (Engineering Graphics and Elements of Civil Engineering and Mechanics of the First Year Engineering) to be completed by B.Sc. graduates under lateral entry shall be 40 % of the marks prescribed for Continuous Internal Evaluation i.e., 16 marks.

18 OB 8.2 **Continuous Internal Evaluation Procedure:** [To be read along with 18 OB 8.1and 8.3]

(a) Theory Courses :

(i) CIE Marks in each theory Course [including "Technical English I and II", "Constitution of India, Professional Ethics and Human Rights", "Environmental Studies", "Additional Mathematics I and II", and the courses (Engineering Graphics and Elements of Civil Engineering and Mechanics of the First Year Engineering) to be completed by B.Sc. graduates under lateral entry] shall be the sum of marks prescribed for tests and assignments. Marks prescribed for tests shall be 30 and that for assignments 10.

(ii) The CIE marks awarded for tests in the theory Course/s shall be based on three tests generally conducted at the end of fifth, tenth and fifteenth week of each semester. Each test shall be conducted for a maximum of 50 marks and the final test marks shall be the average of three tests, proportionately reduced to a maximum of 30 marks.

(iii) The remaining 10 marks shall be awarded based on the evaluation of assignments/unit tests/written quizzes that support to cover both lower and higher order thinking skills as per Bloom's Revised Taxonomy and Course/programme outcomes.

(iv) Final marks awarded shall be the sum of 18OB 8.2 (a) (ii) and (iii) for a maximum of 40 marks.

(v) The candidates shall write the tests, assignments/unit-tests/ written quizzes in Blue Books which shall be preserved by the Principal/ Head of the Department for at least six months after the announcement of University results and shall be made available for verification at the direction of the Registrar (Evaluation).

(b) Drawing/Field work Courses :

(i) The CIE marks awarded for I year Engineering Graphics Course shall be based on

(a) Class work for 24 marks (sketching and Computer Aided Engineering Drawing).

(b) Two Tests conducted in the same pattern as that of SEE for 16 marks (The marks secured Can be taken as best of the two tests).

(ii) The CIE marks awarded for higher semester Drawings/ Design Drawings offered by various branches shall be based on the evaluation of the sheets and one test in the ratio 60:40.

18OB 8.2
(Continued)

(iii) The CIE marks awarded for field work (like Surveying Practice) shall be based on the evaluation of the associated field work and one test in the ratio 60:40.

(c) Practical Courses :

The CIE marks awarded in case of Practical, shall be based on the weekly evaluation of laboratory journals/ reports after the conduction of every experiment and one practical test in the ratio 60:40.

(d) Internship :

The CIE marks awarded for internship, shall be based on the evaluation of Internship Report, Presentation skill and Question and Answer session in the ratio 50:25:25.

(e) Technical Seminar :

The CIE marks awarded for Technical Seminar, shall be based on the evaluation of Seminar Report, Presentation skill and Question and Answer session in the ratio 50:25:25.

(f) Mini - Project :

The CIE marks awarded for Mini - Project, shall be based on the evaluation of Mini - Project Report, Project Presentation skill and Question and Answer session in the ratio 50:25:25.The marks awarded for Mini - Project report shall be the same for all the batch mates.

(g) Main Project Work :

(i) Project Work Phase – 1

The CIE marks awarded for project work phase -1, shall be based on the evaluation of project work phase -1 Report, Project Presentation skill and Question and Answer session in the ratio 50:25:25.The marks awarded for the Project report shall be the same for all the batch mates.

(ii) Project Work Phase - 2

The CIE marks awarded for project work phase -2, shall be based on the evaluation of project work phase -2 Report, Project Presentation skill and Question and Answer session in the ratio 50:25:25.The marks awarded for the Project report shall be the same for all the batch mates.

(h) Vyavaharika Kannada (Kannada for communication)/ Aadalitha Kannada (Kannada for Administration)

(i) CIE Marks in Vyavaharika Kannada (Kannada for communication)/Aadalitha Kannada (Kannada for Administration) shall be the sum of marks prescribed for tests and assignments. Marks prescribed for tests shall be 75 and that for assignments be 25.

18OB 8.2 (Continued)	(ii) The CIE marks awarded for the tests shall be based on three tests generally conducted at the end of fifth, tenth and fifteenth week of each semester. Each test shall be conducted for a maximum of 25 marks and the final CIE marks shall be the sum of the marks of all the three tests. (iii) The remaining 25 marks shall be awarded based on the evaluation of assignments/unit tests/written quizzes that support to cover both lower and higher order thinking skills as per Bloom's Revised Taxonomy and Course/programme outcomes. (iv) Final marks awarded shall be the sum of 18OB 8.2 (h) (ii) and (iii) for a maximum of 100 marks. (v) The candidates shall write the tests, assignments/unit-tests /written quizzes in Blue Books which shall be preserved by the Principal/ Head of the Department for at least six months after the announcement of University results and shall be made available for verification at the direction of the Registrar (Evaluation).
18 OB 8.3	(a) The CIE marks in the case of Internship/Technical Seminar/Mini-Project and Project Work Phase 1 and 2 shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide. (b) A committee constituted by the Head of the Department of Humanities and Social Science shall award the CIE marks for the Course Vyavaharika Kannada (Kannada for communication)/ Aadalitha Kannada (Kannada for Administration). The committee shall consist of two senior faculty members of the Department and the senior most acting as the Chairperson.
18 OB 8.4	(i) Students failing to secure the minimum percentage of CIE marks of any Course/s shall not be eligible for the SEE conducted by the University and they shall be considered as fail in that Course /those Courses. However, they can appear for University examinations conducted in other Courses of the same semester and backlog Course/s if any. (ii) Improvement in CIE marks shall not be allowed during the current semester. (iii) Students who have satisfied the attendance requirement but not the CIE requirements are permitted to register afresh and appear for SEE after satisfying the CIE requirements in the same Course/s (with or without satisfying the attendance requirement)when offered during subsequent semester/s. (iv) The Course/s when repeated are considered as attempts.

18OB 8.5	CIE marks of those students, who come under 18OB 8.4, shall be sent separately to the Registrar (Evaluation).
18 OB 8.6	The final list, incorporating corrections (if any) of CIE marks awarded to the students in the Theory/Practical/Internship/ Technical Seminar / Mini – Project/Project work –phase 1 and 2, shall be displayed on the notice board of the college much before the closure of the semester. The institution shall enter the CIE marks of each semester in the format of the VTU online CIE marks portal and submit a certified copy of the same to the University Examination Section within the stipulated date notified by University. Every page of the CIE marks sheet shall bear the signatures of the concerned Teacher/Teachers, Head of the Department and Principal.
18 OB 8.7	Any corrections or overwriting of CIE marks shall bear the signature(s) of concerned Teacher(s) and in such cases the Head of the Department shall indicate the number of corrections on every sheet and attest it with his/her signature.
18 OB 8.8	CIE marks shall reach the University before the commencement of examination as per the notification from the office of the Registrar (Evaluation) from time to time. After the submission of CIE marks to the University, any request under any circumstances for change of CIE marks shall not be considered.
18 OB 8.9	**Semester End Examination and Passing standards** (a) For all credit Courses including "Additional Mathematics I and II", and the courses (Engineering Graphics and Elements of Civil Engineering and Mechanics of the First Year Engineering) to be completed by B.Sc. graduates under lateral entry) the SEE marks shall be 60. (b) University examination for all Courses under SEE are conducted for a maximum of 100 Marks. (c) The University examination in all programmes of study shall be conducted at the end of each semester for all the eight semesters. The examinations shall not be considered as overlapping if at all a student appears for examinations conducted in the morning and afternoon session. Further, the examinations shall not also be considered as overlapping if the same student appears for the next days examinations. (d) The pattern of the SEE question paper for Courses Technical English I and II, Constitution of India, Professional Ethics and Human Rights, and Environmental Studies shall be objective type [Multiple Choice Questions (MCQ)]. (e) For a pass in a theory Course/ Drawing, students shall secure a minimum 35 % of the maximum marks prescribed for the University examination and in total 40 % of the maximum marks prescribed for the Course including the CIE marks secured by the students (i.e., SEE + CIE).

18OB 8.9 (Continued)	(f) For a pass in Practical/ Mini-project / Internship/Technical Seminar/Project work, students shall secure a minimum of 40 % of the maximum marks prescribed in the University examination. (g) Students who satisfy the conditions 18OB 8.9 (e) and (f), and obtain any grade from S to E shall be considered as passed. (h) A student shall be declared fail if the candidate (h.a) Fails to satisfy the conditions 18OB 8.9 (g). (h.b) Absents himself / herself to the University examination. (h.c) Is held guilty of examination malpractice and for any other reasons, and declared the performance of any Course/s null and void by a competent authority. (i) If a student secures F grade in any of the Course/s, he/she shall reappear in that Course/s during the subsequent SEE. The CIE marks awarded to the student at first attempt in the concerned Course/s shall be carried forward. Revised CIE marks is considered only in cases under the provisions of 18 OB 8.4(iii).
18 OB 8.10	Students who pass a Course of a semester as per 18OB 8.9 (g) shall not be allowed to appear for any individual Course again, unless they opt for rejection of results of entire semester. However, students who have CGPA less than 5.00 at the end of an academic year shall be allowed to appear for Course/s to make up the deficiency in CGPA.
18 OB 8.11	A student may, at his/her desire, can reject the total performance of a semester (including CIE marks) or reject only the result of his/her performance in University examination of a semester. The rejection is permitted only once during the entire Programme of study.
18 OB 8.12	(a) The student who desires to reject the results of a semester shall reject performance in all the Courses of the semester, irrespective of whether the student has passed or failed in any Course. However, the rejection of performance of VIII semester project shall not be permitted. A student, who desires to reject the total performance of a semester including CIE marks, has to take readmission for that semester. Application for approval of readmission shall be sent to the Registrar through the Principal of College within 30 days from the date of the announcement of the results. Late submission of application shall not be accepted for any reasons. (b) Readmission to any semester in such cases shall not be considered as fresh admission and therefore the student will continue to have the same University Seat Number, which was

18OB 8.12 (Continued)	allotted earlier. The Course duration (as per 18OB1.4) will be counted with reference to old USN. The student, who rejects only the results of University examination of a semester, shall be permitted to re-appear for University examinations of all the Courses of that semester in the subsequent examinations. However, the CIE marks obtained by the student in the rejected semester shall be retained. Applications for rejection and approval to reappear for University examination shall be sent to the Registrar (Evaluation) through the Principal of the College within 30 days from the date of announcement of the results. Late submission of applications shall not be accepted for any reasons. (c) If the rejection of results of University examination is of odd semester, the student shall be allowed to take admission to the immediate next even semester. However, if the rejection of results of University examination is of even semester, then the student shall not be allowed to take admission to the next odd semester (as per 18OB10.3).
18 OB 8.13	Students who opt for rejection of results of University examination shall be eligible for the award of degree and not for the award of ranks.
18 OB 8.14	A student shall be declared to have completed the programme of BE / B.Tech degree, provided the student has undergone the stipulated Course work of all the semesters under the same Scheme of Teaching and Examination and has earned the prescribed number of credits as per the provision 18 OB1.5.
18 OB 9.0	**Attendance Requirement**
18OB 9.1	Each semester shall be considered as a unit for calculation of the attendance and the Candidates have to put in a minimum attendance of 85% in each Course with a provision of condonation of 10% of the attendance by the Vice-Chancellor on the specific recommendations of the Principal of the college where the candidate is studying, based on medical grounds, participation in University/ State/ National/ International level sports and cultural activities, seminars, workshops, paper presentation etc., of significant value. The supporting documents for condoning the shortage of attendance are to be submitted along with the recommendations.
18 OB 9.2	(a) The basis for the calculation of attendance shall be the period prescribed by the University by its calendar of events. (b) For Course/s having lecture and tutorial hours, attendance shall be with respect to 85 % of attendance in lecture hours and 85 % of attendance in tutorial hours. If the attendance

18OB 9.2 (Continued)	requirement is not satisfied in any one of them, the candidate shall be considered as not satisfied the attendance condition. Condonation of 10 % shall be applied separately to lecture and tutorial hour to make up the deficiency in attendance. Faculties shall also maintain the attendance of students of lecture and tutorial hours separately in the same register or in separate registers. (c) In case of late admission, approved by competent authority (DTE/VTU), to I semester, III semester (lateral entry scheme) of day college and III semester (lateral entry scheme) of Engineering Programme conducted during evening the attendance shall be reckoned from the date of admission to the Programme.
18OB9.3	The Course Instructor/ Mentor/College shall inform the students as well as their parents /guardians about the attendance status periodically. Students who are facing the shortage of attendance shall be mentored to make up the shortage. Principals shall also notify every month, the list of candidates who are under short of attendance.
18OB9.4	A candidate, who does not satisfy the attendance requirement (in one or more Courses) as mentioned in 18OB9.1/18OB 9.2 (b) shall not be eligible to appear for the SEE of that semester and shall not be permitted to take admission to next higher semester. The candidate shall be required to repeat that semester during the subsequent year.
18OB 10.0	**Vertical Progression (Promotion/ Eligibility to higher semesters)**
18OB 10.1	There shall be no restriction for promotion from an odd semester to the next even semester, provided the student has fulfilled the attendance requirement.
18 OB 10.2	A student shall be declared fail if the candidate (i) Fails to satisfy the conditions 18OB 8.9 (g). (ii) Absents himself / herself to the University examination. (iii) Is held guilty of examination malpractice and for any other reasons, and declared the performance of any Course/s null and void by a competent authority. (iv) Has not satisfied the CIE requirements of any credit Course/s. (v) Has not registered for the SEE even after satisfying the attendance and CIE requirements.
18 OB 10.3	**A) Vertical Progression in case of students admitted to First year:** (a) A student with CGPA $\geq$ 5.00 at the end of First academic year and having no F grade or having not more than four F grades

18OB 10.3 (Continued)

in the two semesters of first year of the Programme shall be eligible to move to II Year.

(a.1) A Student with CGPA ≥5.00 at the end of Second academic year and having no F grade or having not more four F grades in the four semesters of I and II year shall be eligible to move to III year.

(a.2) A student with CGPA ≥5.00 at the end of Third academic year, and has earned all the prescribed credits of I year, and having no F grade or having not more than four F grades in the four semesters of II and III year shall be eligible to move to IV year.

(b) A student shall also be eligible for the first time, with a warning to move to higher odd semester, if he/she has failed to secure a minimum CGPA = 5.00 at the end of any academic year.

(c) For the award of degree, a CGPA ≥5.00 at the end of Programme shall be mandatory. [to be read with 18OB 10.4 (a)]

(B) Vertical Progression in case of students admitted to Second year (Lateral Entry)

(a) A student with CGPA ≥5.00 at the end of Second academic year and having no F grade or not having more than four F grades (excluding the Fail or pass status of Additional Mathematics I and II) in the two semesters of second year of the Programme shall be eligible to move to III Year.

(a.1) A students with CGPA ≥5.00 at the end of Third academic year and having no F grade or having not more than four F grades (including the fail status of Additional Mathematics I and II, if any) in the four semesters of II and III year shall be eligible to move to IV year.

(b) A student is also eligible for the first time, with a warning to move to higher odd semester, if he/she has failed to secure a minimum CGPA = 5.00 at the end of any academic year provided:

The mandatory non – credit Courses Additional Mathematics I and II prescribed at III and IV semesters respectively, to lateral entry Diploma holders admitted to III semester of BE/B.Tech programmes, shall compulsorily be registered during the respective semesters to complete all the formalities of the Course and appear for the University examinations.

Further, Additional Mathematics I and II, shall be completed to secure eligibility to VII semester. However, these Courses shall not considered for vertical progression from II year to III year but considered as head of passing along with credit Courses of the Programme for eligibility to VII semester.

18OB 10.3 (Continued)

(c) For the award of degree, a CGPA ≥5.00 at the end of Programme shall be mandatory. [to be read with 18OB 10.4 (b)].

(C) Vertical Progression in case of B.Sc students admitted to Second year (Lateral Entry)

(a) A student with CGPA ≥5.00 at the end of Second academic year and having no F grade or not having more than four F grades (excluding the Fail or pass status of Engineering Graphics and Design, and Civil Engineering and Mechanics of First Year Engineering Programme) in the two semesters of second year of the Programme shall be eligible to move to III Year.

(a.1) A students with CGPA ≥5.00 at the end of Third academic year and having no F grade or having not more than four F grades (including fail status of Engineering Graphics and Design, and Civil Engineering and Mechanics of First Year Engineering Programme, if any) in the four semesters of II and III year shall be eligible to move to IV year.

(b) A student is also eligible for the first time, with a warning to move to higher odd semester, if he/she has failed to secure a minimum CGPA = 5.00 at the end of any academic year provided:

Lateral entrant students from B.Sc. Stream, shall clear the non-credit Courses Engineering Graphics and Elements of Civil Engineering and Mechanics of the First Year Engineering Programme. These Courses shall not be considered for vertical progression from II year to III year but considered as head of passing along with credit Courses of the Programme for eligibility to VII semester.

(c) For the award of degree, a CGPA ≥5.00 at the end of Programme shall be mandatory [to be read with 18OB 10.4 (b)].

18 OB 10.4

(1) Noncompliance of CGPA ≥5.00 at the end of an academic year

(i) In case, the CGPA falls below 5.00 at the end of an academic year for the second time during the subsequent academic years, the student shall not be permitted for the next higher odd semester.

(ii) In cases of 18OB 10.4 (a) (i), the students are permitted to appear again for SEE in full or part of the corresponding previous semester Course/s by rejecting the performance them [other than Internship, Technical seminar, Project (Mini and Main), and Laboratories] for any number of times, subject to the provision of 18OB1.4, to make up the CGPA equal to or greater than 5.00 for enrollment to next higher odd semester or for the award of the Degree.

(iii) The student should reject the SEE results of the previous attempt and obtain written permission from the Registrar (Evaluation) to reappear in the subsequent SEE.

2. Noncompliance of Mini-project

(a) The mini-project shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take-up/complete the mini-project shall be declared as fail and shall have to complete the same during subsequent University examination after satisfying the Mini-project requirements. Also, mini-project shall be considered for eligibility to VII semester.

3. Noncompliance of Internship

(a) All the students admitted to III year of BE/B.Tech shall have to undergo mandatory internship of 4 weeks during the vacation of VI and VII semesters and /or VII and VIII semesters. A University examination shall be conducted during VIII semester and the prescribed credits shall be included with the credits of VIII semester. Internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take-up/complete the internship shall be declared as failed and shall have to complete the same during subsequent University examination after satisfying the internship requirements.

Temporary Discontinuation/Break in the Programme

(a) If a candidate, for any reason, temporarily discontinues the Programme or take a break from the Programme during any semester intentionally, he/she may be permitted to continue the Programme by registering to the same semester of the prevailing scheme. The candidate shall complete all the remaining Course work subject to the provision 18OB 1.4. Also the Candidates may have to complete additional Course/s, if any, as per the decision of concerned Board of Studies and approval of Dean, Faculty of Engineering, on establishing the equivalence between two schemes. A Grade card shall be issued to that effect. Additional Course/s shall not be considered for the eligibility criteria prescribed for promotion. However, based on the individual cases, it is considered to decide the SGPA and CGPA to admit the student for the award of degree. Such candidates shall not be eligible for the award of rank.

(b) Candidates who take admission to any semester of the existing scheme from another scheme, as a repeater/ fresher because of various reasons, including the case of 18OB11.1 (a), shall attend and complete all the remaining semester/s of the Programme adhering to the regulations of the prevailing scheme, and shall complete additional Course/s, if any, as per the decision of concerned Board of Studies and approval of

18OB 10.4 (Continued)	(iii) The student should reject the SEE results of the previo attempt and obtain written permission from the Registr (Evaluation) to reappear in the subsequent SEE. **2. Noncompliance of Mini-project** (a) The mini-project shall be considered as a head of passing ar shall be considered for the award of degree. Those, who d not take-up/complete the mini-project shall be declared as fa and shall have to complete the same during subseque University examination after satisfying the Mini-proje requirements. Also, mini-project shall be considered fo eligibility to VII semester. **3. Noncompliance of Internship** (a) All the students admitted to III year of BE/B.Tech shall hav to undergo mandatory internship of 4 weeks during th vacation of VI and VII semesters and /or VII and VII semesters. A University examination shall be conducte during VIII semester and the prescribed credits shall b included with the credits of VIII semester. Internship shall b considered as a head of passing and shall be considered for th award of degree. Those, who do not take-up/complete the internship shall be declared as failed and shall have to complete the same during subsequent University examination after satisfying the internship requirements.
18 OB 11.0	**Temporary Discontinuation/Break in the Programme**
18 OB 11.1	(a) If a candidate, for any reason, temporarily discontinues the Programme or take a break from the Programme during any semester intentionally, he/she may be permitted to continue the Programme by registering to the same semester of the prevailing scheme. The candidate shall complete all the remaining Course work subject to the provision 18OB 1.4. Also the Candidates may have to complete additional Course/s, if any, as per the decision of concerned Board of Studies and approval of Dean, Faculty of Engineering, on establishing the equivalence between two schemes. A Grade card shall be issued to that effect. Additional Course/s shall not be considered for the eligibility criteria prescribed for promotion. However, based on the individual cases, it is considered to decide the SGPA and CGPA to admit the student for the award of degree. Such candidates shall not be eligible for the award of rank. (b) Candidates who take admission to any semester of the existing scheme from another scheme, as a repeater/ fresher because of various reasons, including the case of 18OB11.1 (a), shall attend and complete all the remaining semester/s of the Programme adhering to the regulations of the prevailing scheme, and shall complete additional Course/s, if any, as per the decision of concerned Board of Studies and approval of

ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ
"ವಿಟಿಯು ಅಧಿನಿಯಮ ೧೯೯೪ರ ಅಡಿಯಲ್ಲಿ ಕರ್ನಾಟಕ ಸರ್ಕಾರದಿಂದ ಸ್ಥಾಪಿತವಾದ ರಾಜ್ಯ ವಿಶ್ವವಿದ್ಯಾಲಯ
"ಜ್ಞಾನ ಸಂಗಮ", ಬೆಳಗಾವಿ-೫೯೦೦೧೮, ಕರ್ನಾಟಕ, ಭಾರತ

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Ref: VTU/BGM/BOS/A9/2021-22 / 6315

Date: 14 MAR 2022

CIRCULAR

Subject: Updated 3-8 semester 2021 Scheme regarding
Reference: Proceeding of JBOS meeting held on 28.02.2022 and approved by EC resolution dated 09.03.2022

The 2021 scheme of Teaching and Examinations for B.E./B.Tech., programs of University is updated as per the proceedings referred above. The common template to all the B.E./B.Tech., programs is attached with this circular for reference. The separate for the details of updates made in the 2021 scheme is enclosed with this circular.

The Principals of all Engineering Colleges coming under the ambit of University are hereby informed to bring the content of the circular to the notice of all concerned.

Encl:

- 2021 Scheme of Teaching and Examinations template for B.E./B.Tech., programs
- Details of updates made in the 2021 scheme

Sd/-
REGISTRAR

To,

1. The Principals of all Affiliated/Constituent /Autonomous Engineering Colleges and all Schools of Architecture under the ambit of VTU Belagavi.

Copy to.

- The Hon'ble Vice-Chancellor through the secretary to VC, VTU Belagavi for information
- The Registrar (Evaluation), VTU Belagavi for information.
- The Regional Directors (I/c) of all the regional offices of VTU for circulation.
- The Director SMU ITI CNC VTU Belagavi for uploading on VTU website
- The Special Officer Sports Section VTU Belagavi
- All the concerned Special Officer/s and Caseworker/s of the academic section, VTU, Belagavi

REGISTRAR

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

B.E. in name of the Program

Scheme of Teaching and Examinations2021

Outcome Based Education (OBE) and Choice Based Credit System (CBCS)

(Effective from the academic year 2021 - 22)

III SEMESTER

Sl. No	Course and Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week				Examination				Credits
				Theory Lecture	Tutorial	Practical/ Drawing	Self -Study	Duration in hours	CIE Marks	SEE Marks	Total Marks	
				L	T	P	S					
1	BSC 21MAT31	Mathematics Course (Common to all)	TD- Maths PSB-Maths					03	50	50	100	3
2	IPCC 21XX32	Integrated Professional Core Course	TD: PSB	3	0	2		03	50	50	100	4
3	IPCC 21XX33	Integrated Professional Core Course	TD: PSB	3	0	2		03	50	50	100	4
4	PCC 21XX34	Professional Core Course	TD: PSB					03	50	50	100	3
5	PCC 21XXL35	Professional Core Course Lab	TD: PSB	0	0	2		03	50	50	100	1
6	UHV 21UH36	Social Connect and Responsibility	Any Department	0	0	1		01	50	50	100	1
7	HSMC 21KSK37/47	Samskrutika Kannada	TD and PSB HSMC	1	0	0		01	50	50	100	1
	HSMC 21KBK37/47	Balake Kannada										
	OR											
	HSMC 21CIP37/47	Constitution of India and Professional Ethics										
8	AEC 21XX38X	Ability Enhancement Course - III	TD: Concerned department PSB: Concerned Board	If offered as Theory Course: 1	0	0		01	50	50	100	1
				If offered as lab. course: 0	0	2		02				
								Total	**400**	**400**	**800**	**18**

9	**Scheduled activities for III to VIII semesters**	NMDC 21NS83	National Service Scheme (NSS)	NSS	All students have to register for any one of the courses namely National Service Scheme, Physical Education (PE)(Sports and Athletics), and Yoga with the concerned coordinator of the course during the first week of III semester. The activities shall be carried ou between III semester to VIII semester (for 5 semesters). SEE in the above courses shall be conducted during VIII semester examinations and the accumulated CIE marks shall be added to the SEE marks. Successful completion of the registered course is mandatory for the award of the degree. The events shall be appropriately scheduled by the colleges and the same shall be reflected in the calendar prepared for the NSS, PE, and Yoga activities.
		NMDC 21PE83	Physical Education (PE)(Sports and Athletics)	PE	
		NMDC 21YO83	Yoga	Yoga	

Course prescribed to lateral entry Diploma holders admitted to III semester B.E./B.Tech programs

1	NCMC 21MATDIP31	Additional Mathematics - I	Maths	02	02	--	--	---	100	---	100	0

Note: BSC: Basic Science Course, **IPCC:** Integrated Professional Core Course, **PCC:** Professional Core Course, **INT** –Internship, **HSMC:** Humanity and Social Science & Management Courses, **AEC**–Ability Enhancement Courses. **UHV:** Universal Human Value Course.
L –Lecture, **T –** Tutorial, P- Practical/ Drawing, **S –** Self Study Component, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Examination.**TD-** Teaching Department, **PSB**: Paper Setting department

21KSK37/47 Samskrutika Kannada is for students who speak, read and write Kannada and **21KBK37/47** Balake Kannada is for non-Kannada speaking, reading, and writing students.

Integrated Professional Core Course (IPCC): Refers to Professional Theory Core Course Integrated with practical of the same course. Credit for IPCC can be 04 and its Teaching–Learning hours (L : T : P) can be considered as (3 : 0 : 2) or (2 : 2 : 2). The theory part of the IPCC shall be evaluated both by CIE and SEE. The practical part shall be evaluated by only CIE (no SEE). However, questions from the practical part of IPCC shall be included in the SEE question paper. For more details, the regulation governing the Degree of Bachelor of Engineering /Technology (B.E./B.Tech.) 2021-22 may be referred.

21INT49 Inter/Intra Institutional Internship: All the students admitted to engineering programs under the lateral entry category shall have to undergo a mandatory 21INT49 Inter/Intra Institutional Internship of 03 weeks during the intervening period of III and IV semesters. The internship shall be slated for CIE only and will not have SEE. The letter grade earned through CIE shall be included in the IV semester grade card. The internship shall be considered as a head of passing and shall be considered for vertical progression and for the award of degree. Those, who do not take up / complete the internship shall be declared fail and shall have to complete during subsequently after satisfying the internship requirements. The faculty coordinator or mentor shall monitor the students' internship progress and interact with them for the successful completion of the internship.

Non–credit mandatory courses (NCMC):

(A) Additional Mathematics I and II:

(1) These courses are prescribed for III and IV semesters respectively to lateral entry Diploma holders admitted to III semester of B.E./B.Tech., programs. They shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the Continuous Internal Evaluation (CIE). In case, any student fails to register for the said course/fails to secure the minimum 40 % of the prescribed CIE marks, he/she shall be deemed to have secured an F grade. In such a case, the student has to fulfill the course requirements during subsequent semester/s to earn the qualifying CIE marks. These courses are slated for CIE only and have no SEE.

(2) Additional Mathematics I and II shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the courses shall be mandatory for the award of degree.

(3) Successful completion of the courses Additional Mathematics I and II shall be indicated as satisfactory in the grade card. Non-completion of the courses Additional Mathematics I and II shall be indicated as Unsatisfactory.

(B) National Service Scheme/Physical Education (Sport and Athletics)/ Yoga:

(1) Securing 40 % or more in CIE,35 % or more marks in SEE and 40 % or more in the sum total of CIE + SEE leads to successful completion of the registered course.

(2) In case, students fail to secure 35 % marks in SEE, they have to appear for SEE during the subsequent examinations conducted by the University.

(3) In case, any student fails to register for NSS, PE or Yoga/fails to secure the minimum 40 % of the prescribed CIE marks, he/she shall be deemed to have not completed the requirements of the course. In such a case, the student has to fulfill the course requirements during subsequent semester/s to earn the qualifying CIE marks.

(4) Successful completion of the course shall be indicated as satisfactory in the grade card. Non-completion of the course shall be indicated as Unsatisfactory.

(5) These courses shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the courses shall be mandatory for the award of degree.

Ability Enhancement Course - III			
21XX381		21XX383	
21XX382		21XX384	

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
B.E. in name of the Program
Scheme of Teaching and Examinations 2021
Outcome-Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2021 - 22)

IV SEMESTER

Sl. No	Course and Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week				Examination				Credits
				Theory Lecture	Tutorial	Practical/ Drawing	Self -Study	Duration in hours	CIE Marks	SEE Marks	Total Marks	
				L	T	P	S					
1	BSC **21XX41**	Content of the Mathematics course may be decided in consultation with concerned BoS.	TD, PSB-Maths					03	50	50	100	3
2	IPCC 21XX42	Integrated Professional Core Course		3	0	2		03	50	50	100	4
3	IPCC 21XX43	Integrated Professional Core Course		3	0	2		03	50	50	100	4
4	PCC 21XX44	Professional Core Course						03	50	50	100	3
5	AEC 21BE45	Biology For Engineers	BT, CHE, PHY	2	0	0		02	50	50	100	2
6	PCC 21XXL46	Professional Core Course Lab		0	0	2		03	50	50	100	1
7	HSMC 21KSK37/47	Samskrutika Kannada	HSMC	1	0	0		01	50	50	100	1
	HSMC 21KBK37/47	Balake Kannada										
	OR											
	HSMC 21CIP37/47	Constitution of India & Professional Ethics										
8	AEC 21XX48X	Ability Enhancement Course- IV	TD and PSB: Concerned department	If offered as theory Course: 1	0	0		01	50	50	100	1
				If offered as lab. course: 0	0	2		02				
9	UHV 21UH49	Universal Human Values	Any Department	1	0	0		01	50	50	100	1
10	INT 21INT49	Inter/Intra Institutional Internship	Evaluation By the appropriate authorities	Completed during the intervening period of II and III semesters by students admitted to first year of BE./B.Tech and during the intervening period of III and IV semesters by Lateral entry students admitted to III semester.				3	100	--	100	2
								Total	**550**	**450**	**1000**	**22**

Course prescribed to lateral entry Diploma holders admitted to III semester of Engineering programs

1	NCMC 21MATDIP41	Additional Mathematics - II	Maths	02	02	--	--	--	100	--	100	0

Note: BSC: Basic Science Course, IPCC: Integrated Professional Core Course, PCC: Professional Core Course, AEC –Ability Enhancement Courses, HSMC: Humanity and Social Science and Management Courses, UHV- Universal Human Value Courses.
L –Lecture, T – Tutorial, P- Practical/ Drawing, S – Self Study Component, CIE: Continuous Internal Evaluation, SEE: Semester End Examination.

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Integrated Professional Core Course (IPCC): Refers to Professional Theory Core Course Integrated with Practical of the same course. Credit for IPCC can be 04 and its Teaching–Learning hours (L : T : P) can be considered as (3 : 0 : 2) or (2 : 2 : 2). The theory part of the IPCC shall be evaluated both by CIE and SEE. The practical part shall be evaluated by only CIE (no SEE). However, questions from the practical part of IPCC shall be included in the SEE question paper. For more details, the regulation governing the Degree of Bachelor of Engineering /Technology (BE/B.Tech.) 2021-22 may be referred.

Non – credit mandatory course (NCMC):

Additional Mathematics - II:

(1) Lateral entry Diploma holders admitted to III semester of B.E./B.Tech., shall attend the classes during the IV semester to complete all the formalities of the course and appear for the Continuous Internal Evaluation (CIE). In case, any student fails to register for the said course/fails to secure the minimum 40 % of the prescribed CIE marks, he/she shall be deemed to have secured an F grade. In such a case, the student has to fulfill the course requirements during subsequent semester/s to earn the qualifying CIE marks. These courses are slated for CIE only and have no SEE.

(2) Additional Mathematics I and II shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the courses shall be mandatory for the award of degree.

(3) Successful completion of the course Additional Mathematics II shall be indicated as satisfactory in the grade card. Non-completion of the courses Additional Mathematics II shall be indicated as Unsatisfactory.

Ability Enhancement Course - IV

21XX481		21XX483	
21XX482		21XX484	

Internship of 04 weeks during the intervening period of IV and V semesters; 21INT68 Innovation/ Entrepreneurship/ Societal based Internship.

(1) All the students shall have to undergo a mandatory internship of 04 weeks during the intervening period of IV and V semesters. The internship shall be slated for CIE only and will not have SEE. The letter grade earned through CIE shall be included in the VI semester grade card. The internship shall be considered as a head of passing and shall be considered for vertical progression and for the award of degree. Those, who do not take up / complete the internship shall be considered under F (fail) grade and shall have to complete during subsequently after satisfying the internship requirements.

(2) Innovation/ Entrepreneurship Internship shall be carried out at industry, State and Central Government /Non-government organizations (NGOs), micro, small and medium enterprises (MSME), Innovation centres, or Incubation centers. Innovation need not be a single major breakthrough; it can also be a series of small or incremental changes. Innovation of any kind can also happen outside of the business world.

Entrepreneurship internships offer a chance to gain hands-on experience in the world of entrepreneurship and helps to learn what it takes to run a small entrepreneurial business by performing intern duties with an established company. This experience can then be applied to future business endeavours. Start-ups and small companies are a preferred place to learn the business tack ticks or future entrepreneurs as earning how a small business operates will serve the intern well when he/she manages his/her own company. Entrepreneurship acts as a catalyst to open the minds to creativity and innovation. Entrepreneurship internships can be from several sectors, including technology, small and medium-sized, and the service sector.

(3) Societal or social internship.

Urbanization is increasing on a global scale; and yet, half the world's population still resides in rural areas and is devoid of many things that urban population enjoys. The rural internship is a work-based activity in which students will have a chance to solve/reduce the problems of the rural place for better living.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

B.E. in name of the Program

Scheme of Teaching and Examinations 2021

Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

(Effective from the academic year 2021 - 22)

V SEMESTER

Sl. No	Course and Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week				Examination				Credits
				Theory Lecture	Tutorial	Practical/ Drawing	Self -Study	Duration in hours	CIE Marks	SEE Marks	Total Marks	
				L	T	P	S					
1	BSC 21XX51	Professional Core Course						03	50	50	100	3
2	IPCC 21XX52	Integrated Professional Core Course		3	0	2		03	50	50	100	4
3	PCC 21XX53	Professional Core Course						03	50	50	100	3
4	PCC 21XX54	Professional Core Course						03	50	50	100	3
5	PCC 21XXL55	Professional Core Course Lab		0	0	2		03	50	50	100	1
6	AEC 21XX56	Research Methodology & Intellectual Property Rights	TD: Any Department PSB: As identified by University	2	0	0		02	50	50	100	2
7	HSMC 21CIV57	Environmental Studies	TD: Civil/ Environmental /Chemistry/ Biotech. PSB: Civil Engg	1	0	0		1	50	50	100	1
8	AEC 21XX58X	Ability Enhancement Course-V	Concerned Board	If offered as Theory courses: 1	0	0		01	50	50	100	1
				If offered as lab. courses: 0	0	2		02				
								Total	**400**	**400**	**800**	**18**

Ability Enhancement Course - IV

21XX581		21XX583	
21XX582		21XX584	

Note: BSC: Basic Science Course, PCC: Professional Core Course, IPCC: Integrated Professional Core Course, AEC –Ability Enhancement Course INT – Internship, HSMC: Humanity and Social Science & Management Courses.
L –Lecture, T – Tutorial, P- Practical/ Drawing, S – Self Study Component, CIE: Continuous Internal Evaluation, SEE: Semester End Examination.

Integrated Professional Core Course (IPCC): refers to Professional Theory Core Course Integrated with Practical of the same course. Credit for IPCC can be 04 and its Teaching – Learning hours (L : T : P) can be considered as (3 : 0 : 2) or (2 : 2 : 2). The theory part of the IPCC shall be evaluated both by CIE and SEE. The practical part shall be evaluated by CIE only and there shall be no SEE. For more details the regulation governing the Degree of Bachelor of Engineering /Technology (BE/B.Tech.) 2021-22 may be referred.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
B.E. in name of the Program
Scheme of Teaching and Examinations 2021
Outcome-Based Education(OBE) and Choice Based Credit System (CBCS)
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VI SEMESTER

Sl. No	Course and Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week				Examination				Credits
				Theory Lecture	Tutorial	Practical/ Drawing	Self -Study	Duration in hours	CIE Marks	SEE Marks	Total Marks	
				L	T	P	S					
1	HSMC 21XX61	This course is to be as per the requirement of the concerned program. However, the title of the course should have the word Management and the syllabus has to have management topic/s	Any Department					03	50	50	100	3
2	IPCC 21XX62	Integrated Professional Core Course		3	0	2		03	50	50	100	4
3	PCC 21XX63	Professional Core Course						03	50	50	100	3
4	PEC 21XX64x	Professional Elective Course-I						03	50	50	100	3
5	OEC 21XX65x	Open Elective Course-I	Concerned Department					03	50	50	100	3
6	PCC 21XXL66	Professional Core Course Lab		0	0	2		03	50	50	100	1
7	MP 21XXMP67	Mini Project		Two contact hours /week for interaction between the faculty and students.				--	100	--	100	2
8	INT 21INT68	Innovation/Entrepreneurship /Societal Internship	Completed during the intervening period of IV and V semesters.					--	100	--	100	3
								Total	**500**	**300**	**800**	**22**

Professional Elective - I

21XX641		21XX643	
21XX642		21XX644	

Open Electives – I offered by the Department to other Department students

21XX651		21XX653	
21XX652		21XX654	

Note: HSMC: Humanity and Social Science & Management Courses, **IPCC:** Integrated Professional Core Course, **PCC:** Professional Core Course, **PEC:** Professional Elective Courses, O**EC**–Open Elective Course, **MP** –Mini Project, INT –Internship.
L –Lecture, **T** – Tutorial, **P** - Practical / Drawing, **S** – Self Study Component, **CIE**: Continuous Internal Evaluation, **SEE**: Semester End Examination.

Integrated Professional Core Course (IPCC): Refers to Professional Theory Core Course Integrated with Practical of the same course. Credit for IPCC can be 04 and its Teaching – Learning hours (L : T : P) can be considered as (3 : 0 : 2) or (2 : 2 : 2). The theory part of the IPCC shall be evaluated both by CIE and SEE. The practical part shall be evaluated by CIE only and there shall be no SEE. For more details, the regulation governing the Degree of Bachelor of Engineering /Technology (BE/B.Tech) 2021-22 may be referred.

Professional Elective Courses(PEC):
A professional elective (PEC) course is intended to enhance the depth and breadth of educational experience in the Engineering and Technology curriculum. Multidisciplinary courses that are added supplement the latest trend and advanced technology in the selected stream of engineering. Each group will provide an option to select one course out of five courses. The minimum students' strength for offering professional electives is 10. However, this conditional shall not be applicable to cases where the admission to the programme is less than 10.

Open Elective Courses:
Students belonging to a particular stream of Engineering and Technology are not entitled for the open electives offered by their parent Department. However, they can opt an elective offered by other Departments, provided they satisfy the prerequisite condition if any. Registration to open electives shall be documented under the guidance of the Program Coordinator/ Advisor/Mentor.

Selection of an open elective shall **not be allowed** if,

(i) The candidate has studied the same course during the previous semesters of the program.

(ii) The syllabus content of open electives is similar to that of the Departmental core courses or professional electives.

(iii) A similar course, under any category, is prescribed in the higher semesters of the program.

In case, any college is desirous of offering a course (not included in the Open Elective List of the University) from streams such as Law, Business (MBA), Medicine, Arts, Commerce, etc., can seek permission, at least one month before the commencement of the semester, from the University by submitting a copy of the syllabus along with the details of expertise available to teach the same in the college.

The minimum students' strength for offering open electives is 10. However, this conditional shall not be applicable to cases where the admission to the programme is less than 10.

Mini-project work: Mini Project is a laboratory-oriented course which will provide a platform to students to enhance their practical knowledge and skills by the development of small systems/applications.

Based on the ability/abilities of the student/s and recommendations of the mentor, a single discipline or a multidisciplinary Mini- project can be assigned to an individual student or to a group having not more than 4 students.

CIE procedure for Mini-project:

(i) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two faculty members of the Department, one of them being the Guide. The CIE marks awarded for the Mini-project work shall be based on the evaluation of project report, project presentation skill, and question and answer session in the ratio of 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

(ii) Interdisciplinary: Continuous Internal Evaluation shall be group-wise at the college level with the participation of all the guides of the project.

The CIE marks awarded for the Mini-project, shall be based on the evaluation of project report, project presentation skill, and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

No SEE component for Mini-Project.

VII semester Class work and Research Internship /Industry Internship (21INT82)

Swapping Facility

Institutions can swap VII and VIII Semester Scheme of Teaching and Examinations to accommodate research internship/ industry internship after the VI semester**.**

(2) Credits earned for the courses of VII and VIII Semester Scheme of Teaching and Examinations shall be counted against the corresponding semesters whether VII or VIII semester is completed during the beginning of IV year or later part of IV year of the program.

Elucidation:

At the beginning of IV year of the programme i.e., after VI semester, VII semester classwork and VIII semester Research Internship /Industrial Internship shall be permitted to be operated simultaneously by the University so that students have ample opportunity for internship. In other words, a good percentage of the class shall attend VII semester classwork and a similar percentage of others shall attend to Research Internship or Industrial Internship.

Research/Industrial Internship shall be carried out at an Industry, NGO, MSME, Innovation centre, Incubation centre, Start-up, Centers of Excellence (CoE), Study Centre established in the parent institute and /or at reputed research organizations / institutes. The internship can also be rural internship.

The mandatory Research internship /Industry internship is for 24 weeks. The internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take up/complete the internship shall be declared fail and shall have to complete during the subsequent University examination after satisfying the internship requirements.

INT21INT82Research Internship/ Industry Internship/Rural Internship

Research internship: A research internship is intended to offer the flavour of current research going on in the research field. It helps students get familiarized with the field and imparts the skill required for carrying out research.

Industry internship: Is an extended period of work experience undertaken by students to supplement their degree for professional development. It also helps them learn to overcome unexpected obstacles and successfully navigate organizations, perspectives, and cultures. Dealing with contingencies helps students recognize, appreciate, and adapt to organizational realities by tempering their knowledge with practical constraints.

The faculty coordinator or mentor has to monitor the students' internship progress and interact with them to guide for the successful completion of the internship.

The students are permitted to carry out the internship anywhere in India or abroad. University shall not bear any expenses incurred in respect of internship.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
B.E. in name of the Program
Scheme of Teaching and Examinations 2021
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2021 - 22)

Swappable VII and VIII SEMESTER

VII SEMESTER

Sl. No	Course and Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week				Examination				Credits
				Theory Lecture	Tutorial	Practical/ Drawing	Self -Study	Duration in hours	CIE Marks	SEE Marks	Total Marks	
				L	T	P	S					
1	PCC 21XX71	Professional Core Course						3	50	50	100	3
2	PCC 21XX72	Professional Core Course						3	50	50	100	2
3	PEC 21XX72X	Professional elective Course-II						3	50	50	100	3
4	PEC 21XX73X	Professional elective Course-III						3	50	50	100	3
5	OEC 21XX74X	Open elective Course-II	Concerned Department					3	50	50	100	3
6	Project 21XXP75	Project work		Two contact hours /week for interaction between the faculty and students.				3	100	100	200	10
								Total	**350**	**350**	**700**	**24**

VIII SEMESTER

Sl. No	Course and Course Code		Course Title	Teaching Department	Teaching Hours /Week				Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Self -Study	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	S					
1	Seminar 21XX81		Technical Seminar		One contact hour /week for interaction between the faculty and students.				--	100	--	100	01
2	INT 21INT82		Research Internship/ Industry Internship		Two contact hours /week for interaction between the faculty and students.				03 (Batch wise)	100	100	200	15
3	NCMC	21NS83	National Service Scheme (NSS)	NSS	Completed during the intervening period of III semester to VIII semester.				--	50	50	100	0
		21PE83	Physical Education (PE) (Sports and Athletics)	PE									
		21YO83	Yoga	Yoga									
									Total	**250**	**150**	**400**	**16**

Professional Elective - II

21XX721		21XX724	
21XX722		21XX725	
21XX723			

Professional Elective - III

21XX731		21XX734	
21XX732		21XX735	
21XX733			

Open Electives - II offered by the Department to other Department students			
21XX741		21XX744	
21XX742		21XX745	
21XX743			

Note: PCC: Professional Core Course, **PEC:** Professional Elective Courses, **OEC**–Open Elective Course, **AEC** –Ability Enhancement Courses.
L –Lecture, T – Tutorial, P- Practical / Drawing, S – Self Study Component, CIE: Continuous Internal Evaluation, SEE: Semester End Examination.

Note: VII and VIII semesters of IV year of the programme

(1) Institutions can swap VII and VIII Semester Scheme of Teaching and Examinations to accommodate research internship/ industry internship after the VI semester**.**

(2) Credits earned for the courses of VII and VIII Semester Scheme of Teaching and Examinations shall be counted against the corresponding semesters whether VII or VIII semester is completed during the beginning of IV year or later part of IV year of the program.

PROJECT WORK (21XXP75): The objective of the Project work is

(i) To encourage independent learning and the innovative attitude of the students.
(ii) To develop interactive attitude, communication skills, organization, time management, and presentation skills.
(iii) To impart flexibility and adaptability.
(iv) To inspire team working.
(v) To expand intellectual capacity, credibility, judgment and intuition.
(vi) To adhere to punctuality, setting and meeting deadlines.
(vii) To install responsibilities to oneself and others.
(viii) To train students to present the topic of project work in a seminar without any fear, face the audience confidently, enhance communication skills, involve in group discussion to present and exchange ideas.

CIE procedure for Project Work:

(1) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide.

The CIE marks awarded for the project work, shall be based on the evaluation of project work Report, project presentation skill, and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

(2) Interdisciplinary: Continuous Internal Evaluation shall be group-wise at the college level with the participation of all guides of the college. Participation of external guide/s, if any, is desirable. The CIE marks awarded for the project work, shall be based on the evaluation of project work Report, project presentation skill, and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

SEE procedure for Project Work: SEE for project work will be conducted by the two examiners appointed by the University. The SEE marks awarded for the project work shall be based on the evaluation of project work Report, project presentation skill, and question and answer session in the ratio 50:25:25.

TECHNICAL SEMINAR (21XXS81): The objective of the seminar is to inculcate self-learning, present the seminar topic confidently, enhance communication skill, involve in group discussion for exchange of ideas. Each student, under the guidance of a Faculty, shall choose, preferably, a recent topic of his/her interest relevant to the programme of Specialization.

(i) Carry out literature survey, systematically organize the content.
(ii) Prepare the report with own sentences, avoiding a cut and paste act.
(iii) Type the matter to acquaint with the use of Micro-soft equation and drawing tools or any such facilities.
(iv) Present the seminar topic orally and/or through PowerPoint slides.
(v) Answer the queries and involve in debate/discussion.
(**vi)** Submit a typed report with a list of references.

The participants shall take part in the discussion to foster a friendly and stimulating environment in which the students are motivated to reach high standards and become self-confident.

Evaluation Procedure:

The CIE marks for the seminar shall be awarded (based on the relevance of the topic, presentation skill, participation in the question and answer session, and quality of report) by the committee constituted for the purpose by the Head of the Department. The committee shall consist of three teachers from the department with the senior-most acting as the Chairman.

Marks distribution for CIE of the course:

Seminar Report:50 marks
Presentation skill:25 marks
Question and Answer: 25 marks. ■No SEE component for Technical Seminar

Non – credit mandatory courses (NCMC):

National Service Scheme/Physical Education (Sport and Athletics)/ Yoga:

(1) Securing 40 % or more in CIE,35 % or more marks in SEE and 40 % or more in the sum total of CIE + SEE leads to successful completion of the registered course.

(2) In case, students fail to secure 35 % marks in SEE, they have to appear for SEE during the subsequent examinations conducted by the University.

(3) In case, any student fails to register for NSS, PE or Yoga/fails to secure the minimum 40 % of the prescribed CIE marks, he/she shall be deemed to have not completed the requirements of the course. In such a case, the student has to fulfill the course requirements during subsequently to earn the qualifying CIE marks subject to the maximum program period.

(4) Successful completion of the course shall be indicated as satisfactory in the grade card. Non-completion of the course shall be indicated as Unsatisfactory.

(5) These course shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the courses shall be mandatory for the award of degree.

Updates in 2021 Scheme

Summer Internship-I	Is renamed as "**Inter /Intra Institutional Internship**" **Inter /Intra Institutional Internship (21INT49):** All the students admitted to the 1st semester of engineering programs shall have to undergo a mandatory internship of **03 weeks** during the intervening period of the 2ndand 3rdsemesters. The internship shall include Inter / Intra Institutional activities. A Viva-Voce examination CIE (Presentation followed by question-answer session) shall be conducted during the 3rd semester and the prescribed credit shall be included in the 4th-semester grade card. All the students admitted to the 3rd semester of engineering programs (Lateral Entry Category) shall have to undergo a mandatory internship of **03 weeks** during the intervening period of the 3rdand 4thsemesters. The internship shall include Inter / Intra Institutional activities. A Viva-Voce examination CIE (Presentation followed by question-answer session) shall be conducted during the 4th semester and the prescribed credit shall be included in the 4th-semester grade card. The internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take up / complete the internship shall be declared fail and shall have to complete during subsequent University examination after satisfying the internship requirements. (The faculty coordinator or mentor has to monitor the students' internship progress and interact to guide them for the successful completion of the internship). **The internship shall be slated for CIE only and will not have SEE.**
Summer Internship-II	Is renamed as "**Innovation/ Entrepreneurship/ Societal based Internship."** **Innovation/ Entrepreneurship/ Societal based Internship (21INT68)**. **(1)**All the students shall have to undergo a mandatory internship of 04 weeks during the intervening period of IV and V semesters. The internship shall be slated for CIE only and will not have SEE. The letter grade earned through CIE shall be included in the VI semester grade card. The internship shall be considered as a head of passing and shall be considered for vertical progression and for the award of degree. Those, who do not take up / complete the internship shall be considered under F (fail) grade and shall have to complete during subsequently after satisfying the internship requirements. **(2)** Innovation/ Entrepreneurship Internship shall be carried out at industry, State, and Central Government /Non-government organizations (NGOs), micro, small and medium enterprise (MSME), Innovation centers or Incubation centers. Innovation need not be a single major breakthrough; it can also be a series of small or incremental changes. Innovation of any kind can also happen outside of the business world. Entrepreneurship internships offer a chance to gain hands-on experience in the world of entrepreneurship and help to learn what it takes to run a small entrepreneurial business by performing intern duties with an established company. This experience can then be applied to future business endeavors. Start-ups and small companies are a preferred place to learn the business tack ticksfor future entrepreneurs aslearning how a small business operates will serve the intern well when he/she manages his/her own company. Entrepreneurship acts as a catalyst to open minds to creativity and innovation.

	Entrepreneurship internships can be from several sectors, including technology, small and medium-sized, and the service sector. **(3)** Societal or social internship. Urbanization is increasing on a global scale; and yet, half the world's population still resides in rural areas and is devoid of many things that the urban population enjoys. The rural internship is a work-based activity in which students will have a chance to solve/reduce the problems of the rural place for better living. **The internship shall be slated for CIE only and will not have SEE.**
Practical Courses	SEE shall be conducted jointly by the two examiners of the same institute one act as internal and another as external examiner. Examiners are appointed by the University. This is also applicable to the theory course/s whose SEE component shall be conducted similar to SEE of practical/s.
Engineering Visualization	SEE shall be conducted and evaluated for maximum marks 100. Marks obtained shall be accounted for SEE final marks, reducing it by 50% 1. Question paper shall be set jointly by both Internal and External Examiner and made available for each batch as per schedule. Examiners may refer to the question bank. 2. Evaluation shall be carried out jointly by both the examiners. Scheme of Evaluation: To be defined by the examiners jointly as per VTU norms
MATDIP31 and MATDIP41 courses	**(A) Additional Mathematics I and II:** These courses are prescribed for III and IV semesters respectively to lateral entry Diploma holders admitted to III semester of B.E./B.Tech., programs. They shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the Continuous Internal Evaluation (CIE). In case, any student fails to register for the said course/fails to secure the minimum 40 % of the prescribed CIE marks, he/she shall be deemed to have secured an F grade. In such a case, the student has to fulfill the course requirements during subsequent semester/s to earn the qualifying CIE marks. Additional Mathematics I and II shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the courses shall be mandatory for the award of degree. Successful completion of the courses Additional Mathematics I and II shall be indicated as satisfactory in the grade card. Non-completion of the courses Additional Mathematics I and II shall be indicated as Unsatisfactory. **These courses are slated for CIE only and have no SEE.**
Integrated Professional Core Course (IPCC):	**Integrated Professional Core Course (IPCC):** refers to Professional Theory Core Course Integrated with Practical of the same course. Credit for IPCC can be 04 and its Teaching–Learning hours (L : T : P) can be considered as (3 : 0 : 2) or (2 : 2 : 2). The theory part of the IPCC shall be evaluated both by CIE and SEE. The practical part shall be evaluated by CIE only and there shall be no SEE.
Mini-Project	**Mini-project work:** Mini Project is a laboratory-oriented course that will provide a platform for students to enhance their practical knowledge and skills through the development of small systems/applications. Based on the ability/abilities of the student/s and recommendations of the mentor, a single discipline or a multidisciplinary Mini- project can be assigned to an individual

	student or to a group having not more than 4 students. **CIE procedure for Mini-project:** **(i) Single discipline:** The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two faculty members of the Department, one of them being the Guide. The CIE marks awarded for the Mini-project work shall be based on the evaluation of project report, project presentation skill, and question and answer session in the ratio of 50:25:25. The marks awarded for the project report shall be the same for all the batch mates. **(ii) Interdisciplinary:** Continuous Internal Evaluation shall be group-wise at the college level with the participation of all the guides of the project. The CIE marks awarded for the Mini-project, shall be based on the evaluation of project report, project presentation skill, and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates. **No SEE component for Mini-Project.**
Technical Seminar	**TECHNICAL SEMINAR (21XXS81):** The objective of the seminar is to inculcate self-learning, present the seminar topic confidently, enhance communication skills, involve in group discussion for the exchange of ideas. Each student, under the guidance of a Faculty, shall choose, preferably, a recent topic of his/her interest relevant to the program of Specialization. **(i)** Carry out literature survey, systematically organize the content. **(ii)** Prepare the report with own sentences, avoiding a cut and paste act. **(iii)**Type the matter to acquaint with the use of Micro-soft equation and drawing tools or any such facilities. **(iv)** Present the seminar topic orally and/or through PowerPoint slides. **(v)** Answer the queries and involve in debate/discussion. (**vi)** Submit a typed report with a list of references. The participants shall take part in the discussion to foster a friendly and stimulating environment in which the students are motivated to reach high standards and become self-confident. **Evaluation Procedure:** The CIE marks for the seminar shall be awarded (based on the relevance of the topic, presentation skill, participation in the question and answer session, and quality of report) by the committee constituted for the purpose by the Head of the Department. The committee shall consist of three teachers from the department with the senior-most acting as the Chairman. **Marks distribution for CIE of the course:** Seminar Report:50 marks Presentation skill:25 marks Question and Answer: 25 marks. ■ **No SEE component for Technical Seminar**

21PE583 Physical Education (PE) (Sports and Athletics) **21YO83** Yoga **21NS83** National Service Scheme (NSS)	All students have to register for any one of the courses namely National Service Scheme(NSS), Physical Education (PE)(Sports and Athletics), and Yoga with the concerned coordinator of the course during the first week of III semesters. The activities shall be carried outbetween III semesters to VIII semester (for 5 semesters). SEE in the above courses shall be conducted during VIII semester examinations and the accumulated CIE marks shall be added to the SEE marks. Successful completion of the registered course is mandatory for the award of the degree. The events shall be appropriately scheduled by the colleges and the same shall be reflected in the calendar prepared for the NSS, PE, and Yoga activities. **National Service Scheme/Physical Education (Sport and Athletics)/ Yoga:** **(1)** Securing 40 % or more in CIE,35 % or more marks in SEE and 40 % or more in the sum total of CIE + SEE leads to successful completion of the registered course. **(2)** In case, students fail to secure 35 % marks in SEE, they have to appear for SEE during the subsequent examinations conducted by the University. **(3)**In case, any student fails to register for NSS, PE or Yoga/fails to secure the minimum 40 % of the prescribed CIE marks, he/she shall be deemed to have not completed the requirements of the course. In such a case, the student has to fulfill the course requirements during subsequent semester/s to earn the qualifying CIE marks. **(4)** Successful completion of the course shall be indicated as satisfactory in the grade card. Non-completion of the course shall be indicated as Unsatisfactory. **(5)**These courses shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the courses shall be mandatory for the award of degree. National Service Scheme (NSS)/ Physical Education/Yoga shall be considered for 80 points under the AICTE activity point program. Other 20 points students have to complete as per the guideline given by AICTE.
Ability Enhancement Course-V (21xx68x) previous scheme	Is shifted to V semester with code **Ability Enhancement Course-V (21xx58x)**
Ability Enhancement Course in VII semester	It is converted as **Professional Core Course** with 02 credits
SEE and CIE passing standard	Irrespective of the types of the course/s (Theory/ Practical/ Seminar/Project /Internship etc) The weightage for CIE is 50% and SEE is 50% The student has to obtain a minimum of 40% of the maximum marks of CIE and35 % of maximum marks of SEE to pass. The passing percentage shall not be less than the 40% in aggregate for a course (i.e. CIE and SEE put together). Based on the marks scored in CIE+SEE grads will be awarded for this course. The courses are slated only for CIEcomponent; the student has to secure a minimum of 40% of the maximum marks of CIE to qualify this in the course. This is applicable to B.E./B.Tech./B.Plan programs only

21MAT41	The code of 4th-semester mathematics 21MAT41 has been changed to**21XX41**, where **XX**- mean EE for Electrical & Electronics Engg, EC for electronics and Communication Engg and ME for Mechanical Engineering etc. The syllabus will be framed by the Maths department in consultation with the concerned Board of Studies.

ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ
"ವಿಟಿಯು ಅಧಿನಿಯಮ ೧೯೯೪"ರ ಅಡಿಯಲ್ಲಿ ಕರ್ನಾಟಕ ಸರ್ಕಾರದಿಂದ ಸ್ಥಾಪಿತವಾದ ರಾಜ್ಯ ವಿಶ್ವವಿದ್ಯಾಲಯ
"ಜ್ಞಾನ ಸಂಗಮ", ಬೆಳಗಾವಿ-೫೯೦೦೧೮, ಕರ್ನಾಟಕ, ಭಾರತ

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Phone: (0831) 2498100
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Ref: VTU/BGM/BOS/A9/2021-22 / 3991

Date: 03 DEC 2021

CIRCULAR

Subject: 1st and 2nd -semester scheme(2021) of Teaching and Examinations regarding...

Reference: Hon'ble Vice-Chancellor's approval dated: 03.12.2021

The courses, 21IDT19- Innovation and Design Thinking (offered in 1st semester both for chemistry and physics groups) and 21SFH29- Scientific Foundations of Health (offered in 2nd semester both for chemistry and physics group) are compulsory courses for the students admitting to 1st year B.E./B.Tech. programs.

A slight modification is made in the scheme of teaching and examinations to offer both the courses in 1st as well as 2ndsemester for 50:50 strength of intake. The scheme is attached with this circular for reference and needful. Also, 3-8 semesters scheme template has been attached for stakeholder's information.

All the principals of Engineering Colleges are hereby informed to bring the content of this circular to the notice of the concerned. Please note: corrected scheme of programs is made available @ **https://vtu.ac.in/en/b-e-scheme-syllabus/#menu05**

Sd/-

Registrar

Encl: As mentioned above.

To,

- All the Principals of the Engineering Colleges under the ambit of VTU Belagavi.

Copy to:

1. The Hon'ble Vice-Chancellor through the secretary to VC for information
2. The Registrar(Evaluation) for information and needful
3. The Registrar's Office, VTU, Belagavi, for information.
4. The Special Officer, Academic Section, VTU Belagavi, for information.
5. The Director ITI SMU CNC for information and to upload the circular on the VTU web portal

REGISTRAR

Visvesvaraya Technological University, Belagavi

Scheme of Teaching and Examinations 2021

Outcome-Based Education(OBE) and Choice Based Credit System (CBCS)

(Effective from the academic year 2021 – 22)

I Semester (Physics Group) **[Common to all B.E./B.Tech. Programs]**

Sl. No	Course and Course Code		Course Title	Teaching Department (TD)and Paper Setting Board(PSB)	Teaching Hours /Week				Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Self-Study	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	S					
1	BSC	21MAT11	Calculus and Linear Algebra	TD and PSB: Mathematics	2	2	--		03	50	50	100	3
2	BSC	21PHY12	Engineering Physics	TD and PSB: Physics	2	2	--		03	50	50	100	3
3	ESC	21ELE13	Basic Electrical Engineering	TD and PSB: E and E Engineering	2	2	--		03	50	50	100	3
4	ESC	21CIV14	Elements of Civil Engineering and Mechanics	TD and PSB: Civil Engineering	3	--	--		03	50	50	100	3
5	ESC	21EVNL15	Engineering Visualization	TD: ME, Auto, IP, IEM, Mfg. Engineering PSB: Mechanical Engg	2	--	2		03	50	50	100	3
6	BSC	21PHYL16	Engineering Physics Laboratory	TD and PSB: Physics	--	--	2		03	50	50	100	1
7	ESC	21ELEL17	Basic Electrical Engineering Laboratory	TD and PSB: E and E Engineering	--	--	2		03	50	50	100	1
8	HSMC	21EGH18	Communicative English	TD and PSB: Humanities	1	1	1		02	50	50	100	2
9	AEC	21IDT19/29	Innovation and Design Thinking	Any Engineering Department	1	--	--		01	50	50	100	1
		OR											
		21SFH19/29	Scientific Foundations of Health										
			TOTAL		**13**	**07**	**07**		**24**	**450**	**450**	**900**	**20**

Note: BSC: Basic Science Course, **ESC**: Engineering Science Course, **HSMC**: Humanity and Social Science & Management Courses, **AEC** –Ability Enhancement Courses.

L –Lecture, **T** – Tutorial, **P**- Practical/ Drawing, **S** – Self Study Component, **CIE**: Continuous Internal Evaluation, **SEE**: Semester End Examination	
Credit definition: 1hour Lecture **(L)** per week = **1 Credit** 2 hours Tutorial **(T)** per week = **1 Credit** 2 hours Practical /Drawing (P) per week = **1 Credit**	(a) **Four-credit** courses are to be designed for **50** hours of Teaching-Learning process. (b) **Three credit** courses are to be designed for **40** hours of Teaching-Learning process. (c) **Two credit** courses are to be designed for **25** hours of Teaching-Learning process. (d) **One-credit** courses are to be designed for **15** hours of Teaching-Learning process.

AICTE Activity Points to be earned by students admitted to BE/B.Tech., /B.Plan day college programme (For more details refer to Chapter 6,AICTE Activity Point Programme, Model Internship Guidelines):

Over and above the academic grades, every Day College regular student admitted to the 4 years Degree programme and every student entering 4 years Degree programme through lateral entry, shall earn 100 and 75 Activity Points respectively for the award of degree through AICTE ActivityPoint Programme. Students transferred from other Universities to the fifth semester are required to earn 50 Activity Points from the year of entry toVTU. The Activity Points earned shall be reflected on the student's eighth semester Grade Card.

The activities can be spread over the years, anytime during the semester weekends and holidays, as per the liking and convenience of the student from the year of entry to the programme. However, the minimum hours' requirement should be fulfilled. Activity Points (non-credit) do not affect SGPA/CGPA and shall not be considered for vertical progression.

In case students fail to earn the prescribed activity Points, an Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of the degree only after the release of the Eighth semester Grade Card.

Summer Internship - I (21INT36): All the students admitted to engineering programmes shall have to undergo a mandatory summer internship of **03 weeks** during the intervening vacation of II and III semesters. Summer Internship shall include Inter / Intra Institutional activities. A University Viva-voce examination (Presentation followed by question-answer session) shall be conducted during III semester and the prescribed credit shall be included in III semester. The internship shall be consideredas a head of passing and shall be considered for the award of degree. Those, who do not take up / complete the internship shall be declared fail and shall have to complete during subsequent University examination after satisfying the internship requirements. (The faculty coordinator or mentor has to monitor the students' internship progress and interact to guide them for the successful completion of the internship.)

Visvesvaraya Technological University, Belagavi

Scheme of Teaching and Examinations 2021

Outcome-Based Education(OBE) and Choice Based Credit System (CBCS)

(Effective from the academic year 2021 – 22)

II Semester (For students who attended I semester under Physics Group) **[Common to all B.E./B.Tech Programs]**

Sl. No	Course and Course Code		Course Title	Teaching Department(TD) and Paper Setting Board (PSB)	Teaching Hours /Week				Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Self-Study	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	S					
1	BSC	21MAT21	Advanced Calculus and Numerical Methods	TD and PSB: Mathematics	2	2	--		03	50	50	100	3
2	BSC	21CHE22	Engineering Chemistry	TD and PSB: Chemistry	2	2	--		03	50	50	100	3
3	ESC	21PSP23	Problem-Solving through Programming	TD and PSB: Computer Science and Engineering	2	2	--		03	50	50	100	3
4	ESC	21ELN24	Basic Electronics & Communication Engineering	TD: ECE/E and I/ TCPSB: ECE	2	2	--		03	50	50	100	3
5	ESC	21EME25	Elements of Mechanical Engineering	TD: ME, Auto, IP,IEM, Mfg . Engineering PSB: Mechanical Engg	2	--	2		03	50	50	100	3
6	BSC	21CHEL26	Engineering Chemistry Laboratory	TD and PSB: Chemistry	--	--	2		03	50	50	100	1
7	ESC	21CPL27	Computer Programming Laboratory	TD and PSB: Computer Science and Engineering	--	--	2		03	50	50	100	1
8	HSMC	21EGH28	Professional Writing Skills in English	TD and PSB: Humanities	1	1	1		02	50	50	100	2
9	AEC	21SFH19/29	Scientific Foundations of Health	Any Department	1	--	--		01	50	50	100	1
		OR											
		21IDT19/29	Innovation and Design Thinking										
				TOTAL	13	09	07		24	450	450	900	20

Note: BSC: Basic Science Course, **ESC**: Engineering Science Course, **HSMC**: Humanity and Social Science & Management Courses, **AEC** –Ability Enhancement Courses.

L –Lecture, **T** – Tutorial, **P**- Practical/ Drawing, **S** – Self Study Component, **CIE**: Continuous Internal Evaluation, **SEE**: Semester End Examination

Credit definition: 1hour Lecture **(L)** per week = **1 Credit** 2 hours Tutorial **(T)** per week = **1 Credit** 2 hours Practical /Drawing (P) per week = **1 Credit**	(a) **Four credit** courses are to be designed for **50** hours of Teaching – Learningprocess. (b) **Three credit** courses are to be designed for **40** hours of Teaching – Learningprocess. (c) **Two credit** courses are to be designed for **25** hours of Teaching – Learning process. (d) **One credit** courses are to be designed for **15** hours of Teaching – Learning process.

AICTE Activity Points to be earned by students admitted to BE/B.Tech.,/B.Plan day college programme (For more details refer to Chapter 6,AICTE Activity Point Programme, Model Internship Guidelines):

Over and above the academic grades, every Day College regular student admitted to the 4 years Degree programme and every student entering 4 years Degree programme through lateral entry, shall earn 100 and 75 Activity Points respectively for the award of degree through AICTE ActivityPoint Programme. Students transferred from other Universities to the fifth semester are required to earn 50 Activity Points from the year of entry toVTU. The Activity Points earned shall be reflected on the student's eighth semester Grade Card.

The activities can be can be spread over the years, anytime during the semester weekends and holidays, as per the liking and convenience of the student from the year of entry to the programme. However, the minimum hours' requirement should be fulfilled. Activity Points (non-credit) do not affect SGPA/CGPA and shall not be considered for vertical progression.

In case students fail to earn the prescribed activity Points, an Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of the degree only after the release of the Eighth semester Grade Card.

Summer Internship - I (21INT36): All the students admitted to engineering programmes shall have to undergo a mandatory summer internship of 03 weeks during the intervening vacation of II and III semesters. Summer Internship shall include Inter / Intra Institutional activities. A University Viva-voce examination (Presentation followed by question-answer session) shall be conducted during III semester and the prescribed credit shall be included in III semester. The internship shall be consideredas a head of passing and shall be considered for the award of degree. Those, who do not take up / complete the internship shall be declared fail and shall have to complete during subsequent University examination after satisfying the internship requirements. (The faculty coordinator or mentor has to monitor the students' internship progress and interact to guide them for the successful completion of the internship.)

Visvesvaraya Technological University, Belagavi
Scheme of Teaching and Examinations 2021
Outcome-Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2021 – 22)

I Semester (Chemistry Group) **[Common to all B.E./B.Tech. Programmes]**

Sl. No	Course and Course Code		Course Title	Teaching Department (TD)and Paper Setting Board(PSB)	Teaching Hours /Week				Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Self-Study	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	S					
1	BSC	21MAT11	Calculus and Linear Algebra	TD and PSB: Mathematics	2	2	--		03	50	50	100	3
2	BSC	21CHE12	Engineering Chemistry	TD and PSB: Chemistry	2	2	--		03	50	50	100	3
3	ESC	21PSP13	Problem-Solving through Programming	TD and PSB: Computer Science and Engineering	2	2	--		03	50	50	100	3
4	ESC	21ELN14	Basic Electronics & Communication Engineering	TD: ECE/E and I/ TCPSB: ECE	2	2	--		03	50	50	100	3
5	ESC	21EME15	Elements of Mechanical Engineering	TD: ME, Auto, IP,IEM, Mfg .Engineering PSB: Mechanical Engg	2	--	2		03	50	50	100	3
6	BSC	21CHEL16	Engineering Chemistry Laboratory	TD and PSB: Chemistry	--	--	2		03	50	50	100	1
7	ESC	21CPL17	Computer Programming Laboratory	TD and PSB: Computer Science and Engineering	--	--	2		03	50	50	100	1
8	HSMC	21EGH18	Communicative English	TD and PSB: Humanities	1	1	1		02	50	50	100	2
9	AEC	21IDT19/29	Innovation and Design Thinking	Any Engineering Department	1	--	--		01	50	50	100	1
		OR											
		21SFH19/29	Scientific Foundations of Health										
			TOTAL		**13**	**09**	**07**		**24**	**450**	**450**	**900**	**20**

Note: BSC: Basic Science Course, **ESC**: Engineering Science Course, **HSMC**: Humanity and Social Science & Management Courses, **AEC** –Ability Enhancement Courses.

L –Lecture, T – Tutorial, P- Practical/ Drawing, S – Self Study Component, CIE: Continuous Internal Evaluation, SEE: Semester End Examination	
Credit definition: 1hour Lecture **(L)** per week = **1 Credit** 2 hours Tutorial **(T)** per week = **1 Credit** 2 hours Practical /Drawing (P) per week = **1 Credit**	(a) **Four-credit** courses are to be designed for **50** hours of Teaching-Learning process. (b) **Three credit** courses are to be designed for **40** hours of Teaching-Learning process. (c) **Two credit** courses are to be designed for **25** hours of Teaching-Learning process. (d) **One-credit** courses are to be designed for **15** hours of Teaching-Learning process.

AICTE Activity Points to be earned by students admitted to BE/B.Tech., /B.Plan day college programme (For more details refer to Chapter 6,AICTE Activity Point Programme, Model Internship Guidelines):

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The activities can be spread over the years, anytime during the semester weekends and holidays, as per the liking and convenience of the student from the year of entry to the programme. However, the minimum hours' requirement should be fulfilled. Activity Points (non-credit) do not affect SGPA/CGPA and shall not be considered for vertical progression.

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Visvesvaraya Technological University, Belagavi

Scheme of Teaching and Examinations 2021

Outcome-Based Education(OBE) and Choice Based Credit System (CBCS)

(Effective from the academic year 2021 – 22)

II Semester (For students who attended 1st semester under Chemistry Group) **[Common to all B.E./B.Tech Programs]**

Sl. No	Course and Course Code		Course Title	Teaching Department(TD) and Paper Setting Board (PSB)	Teaching Hours /Week				Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Self-Study	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	S					
1	BSC	21MAT21	Advanced Calculus and Numerical Methods	TD and PSB: Mathematics	2	2	--		03	50	50	100	3
2	BSC	21PHY22	Engineering Physics	TD and PSB: Physics	2	2	--		03	50	50	100	3
3	ESC	21ELE23	Basic Electrical Engineering	TD and PSB: E and E Engineering	2	2	--	--	03	50	50	100	3
4	ESC	21CIV24	Elements of Civil Engineering and Mechanics	TD and PSB: Civil Engineering	3	--	--		03	50	50	100	3
5	ESC	21EVNL25	Engineering Visualization	TD: ME, Auto, IP,IEM, Mfg. Engineering PSB: Mechanical Engg	2	--	2		03	50	50	100	3
6	BSC	21PHYL26	Engineering Physics Laboratory	TD and PSB: Physics	--	--	2		03	50	50	100	1
7	ESC	21ELEL27	Basic Electrical Engineering Laboratory	TD and PSB: E and E Engineering	--	--	2		03	50	50	100	1
8	HSMC	21EGH28	Professional Writing Skills in English	TD and PSB: Humanities	1	1	1		02	50	50	100	2
9	AEC	21SFH29/19	Scientific Foundations of Health	Any Department	1	--	--		01	50	50	100	1
		OR											
		21IDT29/19	Innovation and Design Thinking										
				TOTAL	13	07	07		24	450	450	900	20

Note: BSC: Basic Science Course, **ESC**: Engineering Science Course, **HSMC**: Humanity and Social Science & Management Courses, **AEC** –Ability Enhancement Courses.

L –Lecture, **T** – Tutorial, **P**- Practical/ Drawing, **S** – Self Study Component, **CIE**: Continuous Internal Evaluation, **SEE**: Semester End Examination

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I Semester

INNOVATION and DESIGN THINKING			
Course Code	**21IDT19/29**	CIE Marks	50
Teaching Hours/Week (L: T:P: S)	1:0:0	SEE Marks	50
Total Hours of Pedagogy	25	Total Marks	100
Credits	01	Exam Hours	02

Course Category: Foundation

Preamble: This course provides an introduction to the basic concepts and techniques of engineering and reverses engineering, the process of design, analytical thinking and ideas, basics and development of engineering drawing, application of engineering drawing with computer aide.

Course objectives:

- To explain the concept of design thinking for product and service development
- To explain the fundamental concept of innovation and design thinking
- To discuss the methods of implementing design thinking in the real world.

Teaching-Learning Process (General Instructions)

These are sample Strategies; which teachers can use to accelerate the attainment of the various course outcomes.

1. Lecturer method (L) does not mean only the traditional lecture method, but a different type of teaching method may be adopted to develop the outcomes.
2. Show Video/animation films to explain concepts
3. Encourage collaborative (Group Learning) Learning in the class
4. Ask at least three HOTS (Higher-order Thinking) questions in the class, which promotes critical thinking
5. Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develops thinking skills such as the ability to evaluate, generalize, and analyze information rather than simply recall it.
6. Topics will be introduced in multiple representations.
7. Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.
8. Discuss how every concept can be applied to the real world - and when that's possible, it helps improve the students' understanding.

Module-1

PROCESS OF DESIGN

Understanding Design thinking

Shared model in team-based design – Theory and practice in Design thinking – Explore presentation signers across globe – MVP or Prototyping

Teaching-Learning Process	Introduction about the design thinking: Chalk and Talk method Theory and practice through presentation MVP and Prototyping through live examples and videos

Module-2

Tools for Design Thinking

Real-Time design interaction capture and analysis – Enabling efficient collaboration in digital space – Empathy for design – Collaboration in distributed Design

Teaching-Learning	Case studies on design thinking for real-time interaction and analysis

Process	Simulation exercises for collaborated enabled design thinking Live examples on the success of collaborated design thinking

Module-3

Design Thinking in IT

Design Thinking to Business Process modelling – Agile in Virtual collaboration environment – Scenario based Prototyping

Teaching-Learning Process	Case studies on design thinking and business acceptance of the design Simulation on the role of virtual eco-system for collaborated prototyping

Module-4

DT For strategic innovations

Growth – Story telling representation – Strategic Foresight - Change – Sense Making - Maintenance Relevance – Value redefinition - Extreme Competition – experience design - Standardization – Humanization - Creative Culture – Rapid prototyping, Strategy and Organization – Business Model design.

Teaching-Learning Process	Business model examples of successful designs Presentation by the students on the success of design Live project on design thinking in a group of 4 students

Module-5

Design thinking workshop

Design Thinking Work shop Empathize, Design, Ideate, Prototype and Test

Teaching-Learning Process	8 hours design thinking workshop from the expect and then presentation by the students on the learning from the workshop

Course Outcomes:

Upon the successful completion of the course, students will be able to:

CO Nos.	Course Outcomes	Knowledge Level (Based on revised Bloom's Taxonomy)
CO1	Appreciate various design process procedure	K2
CO2	Generate and develop design ideas through different technique	K2
CO3	Identify the significance of reverse Engineering toUnderstand products	K2
CO4	Draw technical drawing for design ideas	K3

Assessment Details (both CIE and SEE)

methods of CIE need to be defined topic wise i.e.- Tests, MCQ, Quizzes, Seminar or micro project/Course Project, Term Paper)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The student has to obtain a minimum of 35% of maximum marks in SEE and a minimum of 40% of maximum marks in CIE. Semester End Exam (SEE) is conducted for 100 marks (3 hours' duration) and scaled down to 50 marks. Based on this grading will be awarded.

The student has to score a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation:

Three Unit Tests each of **20 Marks (duration 01 hour**)

1. First test at the end of 5th week of the semester
2. Second test at the end of the 10th week of the semester
3. Third test at the end of the 15th week of the semester

(All tests are similar to the SEE pattern i.e question paper pattern is MCQ)

Two assignments each of **10 Marks**

4. First assignment at the end of 4th week of the semester
5. Second assignment at the end of 9th week of the semester

Report writing /Group discussion/Seminar any one of three suitably planned to attain the COs and POs for **20 Marks** (**duration 01 hours**)

6. At the end of the 13th week of the semester

The sum of three tests, two assignments, and quiz/seminar/group discussion will be out of 100 marks and will be **scaled down to 50 marks**

CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

Semester End Examination:

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for subject

SEE paper will be set for 50 questions of each of 01 marks. The pattern of the question paper is MCQ. The time allotted for SEE is **01 hours**

Suggested Learning Resources:

Text Books :

1. John.R.Karsnitz, Stephen O'Brien and John P. Hutchinson, "Engineering Design",Cengage learning (International edition) Second Edition, 2013.
2. Roger Martin, "The Design of Business: Why Design Thinking is the Next Competitive Advantage", Harvard Business Press , 2009.
3. Hasso Plattner, Christoph Meinel and Larry Leifer (eds), "Design Thinking: Understand – Improve – Apply", Springer, 2011
4. Idris Mootee, "Design Thinking for Strategic Innovation: What They Can't Teach You at Business or Design School", John Wiley & Sons 2013.

References:

5. Yousef Haik and Tamer M.Shahin, "Engineering Design Process", CengageLearning, Second Edition, 2011.
6. Book - Solving Problems with Design Thinking - Ten Stories of What Works (Columbia Business School Publishing) Hardcover – 20 Sep 2013 by Jeanne Liedtka (Author), Andrew King (Author), Kevin Bennett (Author).

Web links and Video Lectures (e-Resources):

1. www.tutor2u.net/business/presentations/. /**productlifecycle**/default.html
2. https://docs.oracle.com/cd/E11108_02/otn/pdf/. /E11087_01.pdf
3. www.bizfilings.com › Home › Marketing › Product Developmen
4. https://www.mindtools.com/brainstm.html
5. https://www.quicksprout.com/. /how-to-**reverse-engineer**-your-competit
6. www.vertabelo.com/blog/documentation/**reverse-engineering**
   https://support.microsoft.com/en-us/kb/273814
7. https://support.google.com/docs/answer/179740?hl=en
8. https://www.youtube.com/watch?v=2mjSDIBaUlM
   thevirtualinstructor.com/foreshortening.html
   https://dschool.stanford.edu/.../designresources/.../ModeGuideBOOTCAMP2010L.pdf
   https://dschool.stanford.edu/use-our-methods/ 6. https://www.interaction-design.org/literature/article/5-stages-in-the-design-thinking-process 7. http://www.creativityatwork.com/design-thinking-strategy-for-innovation/ 49 8. https://www.nngroup.com/articles/design-thinking/ 9. https://designthinkingforeducators.com/design-thinking/ 10. www.designthinkingformobility.org/wp-content/.../10/NapkinPitch_Worksheet.pdf

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- http://dschool.stanford.edu/dgift/

https://onlinecourses.nptel.ac.in/noc19_mg60/preview

II Semester – AEC Course

Scientific Foundations of Health

Course Code	**21SFH19/29**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1:0:0	SEE Marks	50
Total Hours of Pedagogy	02 Hours/Week	Total Marks	100
Credits	01	Exam Hours	60 Minutes / 01 Hour

Course objectives:

The course 21**SFH29** will enable the students:

- To know about Health and wellness (and its Beliefs)
- To acquire Good Health & It's balance for positive mind-set
- To Build the healthy lifestyles for good health for their better future
- To Create of Healthy and caring relationships to meet the requirements of MNC and LPG world
- To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future
- To Prevent and fight against harmful diseases for good health through positive mindset

Teaching-Learning Process (General Instructions)

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

✓ Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools and software's to meet the present requirements of the Global employment market.

(i) Direct instructional method (Low /Old Technology),
(ii) Flipped classrooms (High/advanced Technological tools),
(iii) Blended learning (combination of both),
(iv) Enquiry and evaluation based learning,
(v) Personalized learning,
(vi) Problems based learning through discussion,
(vii) Following the method of expeditionary learning Tools and techniques,

✓ Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills in teaching of the concepts of Health and Wellness in general.

Module-1

Good Health and It's balance for positive mindset:

What is Health, Why Health is very important Now? – What influences your Health?, Health and Behaviour, Health beliefs and advertisements, Advantages of good health (Short term and long term benefits), Health and Society, Health and family, Health and Personality - Profession. Health and behaviour, Disparities of health in different vulnerable groups. Health and psychology, Methods to improve good psychological health. Psychological disorders (Stress and Health - Stress management), how to maintain good health, Mindfulness for Spiritual and Intellectual health, Changing health habits for good health. Health and personality.

Teaching -Learning Process	Chalk and talk method, Power Point presentation and YouTube videos, Animation videos methods. creating real time stations in classroom discussions. Giving activities &assignments.

Module-2

Building of healthy lifestyles for better future:

Developing a healthy diet for good health, Food and health, Nutritional guidelines for good health and well beingness, Obesity and overweight disorders and its management, Eating disorders - proper exercises for its maintenance (Physical activities for health), Fitness components for health, Wellness and physical function,

Teaching-Learning Process	Chalk and talk method, PowerPoint presentation and YouTube videos, Animation videos methods. creating real time stations in classroom discussions. Giving activities & assignments.

Module-3

Creation of Healthy and caring relationships :

Building communication skills (Listening and speaking), Friends and friendship - education, the value of relationships and communication, Relationships for Better or worsening of life, understanding of basic instincts of life (more than a biology), Changing health behaviours through social engineering,

Teaching-Learning Process	Chalk and talk method, PowerPoint presentation and Animation videos methods. creating real time stations in classroom discussions. Giving activities and assignments.

Module-4

Avoiding risks and harmful habits :

Characteristics of health compromising behaviors, Recognizing and avoiding of addictions, How addiction develops and addictive behaviors, Types of addictions, influencing factors for addictions, Differences between addictive people and non addictive people and their behavior with society, Effects and health hazards from addictions Such as..., how to recovery from addictions.

Teaching-Learning Process	Chalk and talk method, PowerPoint presentation and Animation videos methods. creating real time stations in classroom discussions. Giving activities and assignments.

Module-5

Preventing and fighting against diseases for good health :

Process of infections and reasons for it, How to protect from different types of transmitted infections such as....,

Current trends of socio economic impact of reducing your risk of disease, How to reduce risks for good health,

Reducing risks and coping with chronic conditions, Management of chronic illness for Quality of life,

Health and Wellness of youth : a challenge for the upcoming future Measuring of health and wealth status.

Teaching-Learning Process	Chalk and talk method, PowerPoint presentation and YouTube videos, Animation videos methods. creating real time stations in classroom discussions. Giving activities & assignments.

Course outcome (Course Skill Set)

At the end of the course the student will be able :

CO 1: To understand Health and wellness (and its Beliefs)

CO 2: To acquire Good Health & It's balance for positive mindset

CO 3: To inculcate and develop the healthy lifestyle habits for good health.

CO 4: To Create of Healthy and caring relationships to meet the requirements of MNC and LPG world

CO 5: To adopt the innovative & positive methods to avoid risks from harmful habits in their campus & outside the campus.

CO 6: To positively fight against harmful diseases for good health through positive mindset.

Assessment Details (both CIE and SEE)

methods of CIE need to be defined topic wise i.e.- Tests, MCQ, Quizzes, Seminar or micro project/Course Project, Term Paper)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The student has to obtain a minimum of 35% of maximum marks in SEE and a minimum of 40% of maximum marks in CIE. Semester End Exam (SEE) is conducted for 100 marks (3 hours' duration) and scaled down to 50 marks. Based on this grading will be awarded.

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(All tests are similar to the SEE pattern i.e question paper pattern is MCQ)

Two assignments each of **10 Marks**

4. First assignment at the end of 4th week of the semester
5. Second assignment at the end of 9th week of the semester

Report writing /Group discussion/Seminar any one of three suitably planned to attain the COs and POs for **20 Marks** (**duration 01 hours**)

6. At the end of the 13th week of the semester

The sum of three tests, two assignments, and quiz/seminar/group discussion will be out of 100 marks and will be **scaled down to 50 marks**

CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

Semester End Examination:

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for subject

SEE paper will be set for 50 questions of each of 01 marks. The pattern of the question paper is MCQ. The time allotted for SEE is **01 hours**

Suggested Learning Resources:

1. **Health Psychology** (Second edition) by Charles Abraham, Mark Conner, Fiona Jones and Daryl O'Connor – Published by Routledge 711 Third Avenue, New York, NY 10017.
2. **Health Psychology - A Textbook,** FOURTH EDITION by Jane Ogden McGraw Hill Education (India) Private Limited - Open University Press
3. **HEALTH PSYCHOLOGY (Ninth Edition)** by SHELLEY E. TAYLOR - University of California, Los Angeles, McGraw Hill Education (India) Private Limited - Open University Press
4. **Scientific Foundations of Health (Health & Welness) - General Books** published for university and colleges references by popular authors and published by the reputed publisher.

1) **SWAYAM / NPTL/ MOOCS/ We blinks/ Internet sources/ YouTube videos** and other materials / notes

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- ✓ For active participation of students, instruct the students to prepare Flowcharts and Handouts
- ✓ Organizing Group wise discussions and Health issues based activities
- ✓ Quizzes and Discussions
- ✓ Seminars and assignments