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

Estd. 1974

Program /Curriculum/Syllabus of the Courses Highlighting Project Work, Field Work, Internship

INDEX

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

148-172

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Summary on Document showing project work, Internship /Field visit prescribed by affiliating university curriculum

To integrate project work, Internship /Field visit, The Oxford College of Engineering, Bangalore has incorporated various types of courses into the curriculum, some of which aim to enhance professional competencies while others aim to instil general competencies such as social ethical values, human values, environmental sensitivity, and so on, resulting in the holistic development of students.

Project Work

Project-based learning has proven to be one of the most effective ways to engage students and provide a practical application for what they're learning. Project-based learning not only provides opportunities for students to collaborate or drive their own learning, but it also teaches them skills such as problem solving, and helps to develop additional skills integral to their future, such as critical thinking and time management. And maybe more importantly, it provides students with an opportunity to create authentic projects which are meaningful to society. Students have the chance to pursue their own interests and as a result, opportunities for learning for students and teachers are tremendous. Benefits of project-based learning: Collaboration, Problem Solving, Creativity, In-Depth Understanding, Self-Confidence, Critical Thinking, Perseverance, Project Management, Curiosity, Empowerment.

Internship

An internship is a professional learning experience that offers meaningful, practical work related to a student's field of study or career interest. An internship gives a student the opportunity for career exploration and development, and to learn new skills.

Field visit

A field trip or excursion is a journey by the college students to a place away from the normal college environment. Field trips can be educationally and socially engaging additions to students. The objective of all field trips in the college is to expose students to various parts of their community, facilitate connections between students and others, and help students understand themselves as members of their local community. The lessons that follow are general ideas; research specific destinations and activities in or near your community. Social field trips are also beneficial to building camaraderie amongst participants and for having fun!

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CSE
2016-17

UG

SCHEME OF TEACHING AND EXAMINATION
B.E. COMPUTER SCIENCE AND ENGINEERING
(Common to CSE & ISE)

III SEMESTER

S. No.	Subject Code	Subject	Teaching Dept.	Theory	Practical	Duration (Hrs)	IA	Exam	Total
1	10MAT31	Engineering Mathematics - III	Mathematics	04	-	03	25	100	125
2	10CS32	Electronic Circuits	CSE/ISE	04	-	03	25	100	125
3	10CS33	Logic Design	CSE/ISE	04	-	03	25	100	125
4	10CS34	Discrete Mathematical Structures	CSE/ISE	04	-	03	25	100	125
5	10CS35	Data Structures with C	CSE/ISE	04	-	03	25	100	125
6	10CS36	Object Oriented Programming with C++	CSE/ISE	04	-	03	25	100	125
7	10CSL37	Data Structures with C/C++ Laboratory	CSE/ISE	-	03	03	25	50	75
8	10CSL38	Electronic Circuits & Logic Design Laboratory	CSE/ISE	-	03	03	25	50	75
		Total		24	06	-	200	700	900

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SCHEME OF TEACHING AND EXAMINATION
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(Common to CSE & ISE)

IV SEMESTER

S. No.	Subject Code	Subject	Teaching Dept.	Theory	Practical	Duration (Hrs)	IA	Exam	Total
1	10MAT41	Engineering Mathematics - IV	Maths	04	-	03	25	100	125
2	10CS42	Graph Theory and Combinatorics	CSE/ISE	04	-	03	25	100	125
3	10CS43	Design and Analysis of Algorithms	CSE/ISE	04	-	03	25	100	125
4	10CS44	Unix and Shell Programming	CSE/ISE	04	-	03	25	100	125
5	10CS45	Microprocessors	CSE/ISE	04	-	03	25	100	125
6	10CS46	Computer Organization	CSE/ISE	04	-	03	25	100	125
7	10CSL47	Design and Analysis of Algorithms Laboratory	CSE/ISE	-	03	03	25	50	75
8	10CSL48	Microprocessors Laboratory	CSE/ISE	-	03	03	25	50	75
		Total		24	06	-	200	700	900

SCHEME OF TEACHING AND EXAMINATION
B.E. COMPUTER SCIENCE AND ENGINEERING

V SEMESTER

S. No.	Subject Code	Subject	Teaching Dept.	Theory	Practical	Duration (Hrs)	IA	Exam	Total
1	10IS51	Software Engineering	CSE/ISE	04	-	03	25	100	125
2	10CS52	Systems Software	CSE/ISE	04	-	03	25	100	125
3	10CS53	Operating Systems	CSE/ISE	04	-	03	25	100	125
4	10CS54	Database Management Systems	CSE/ISE	04	-	03	25	100	125
5	10CS55	Computer Networks - I	CSE/ISE	04	-	03	25	100	125
6	10CS56	Formal Languages and Automata Theory	CSE/ISE	04	-	03	25	100	125
7	10CSL57	Database Applications Laboratory	CSE/ISE	-	03	03	25	50	75
8	10CSL58	Systems Software & Operating Systems Laboratory	CSE/ISE	-	03	03	25	50	75
		Total		24	06	-	200	700	900

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SCHEME OF TEACHING AND EXAMINATION
B.E. COMPUTER SCIENCE AND ENGINEERING

VI SEMESTER

S. No.	Subject Code	Subject	Teaching Dept.	Teaching Hrs / Week Theory	Practical	Examination Duration (Hrs)	IA	Exam	Total
1	10AL61	Management and Entrepreneurship	CSE/ISE/MBA	04	-	03	25	100	125
2	10CS62	Unix System Programming	CSE/ISE	04	-	03	25	100	125
3	10CS63/ 10IS662	Compiler Design	CSE/ISE	04	-	03	25	100	125
4	10CS64	Computer Networks - II	CSE/ISE	04	-	03	25	100	125
5	10CS65 / 10IS665	Computer Graphics and Visualization	CSE/ISE	04	-	03	25	100	125
6	10CS66x	Elective I (Group-A)	CSE/ISE	04	-	03	25	100	125
7	10CSL67	Computer Graphics and Visualization Laboratory	CSE/ISE	-	03	03	25	50	75
8	10CSL68	Unix System Programming and Compiler Design Laboratory	CSE/ISE	-	03	03	25	50	75
		Total		24	06	-	200	700	900

SCHEME OF TEACHING AND EXAMINATION
B.E. COMPUTER SCIENCE AND ENGINEERING

VII SEMESTER

S. No.	Subject Code	Subject	Teaching Dept.	Teaching Hrs / Week Theory	Practical	Examination Duration (Hrs)	IA	Exam	Total
1	10CS71	Object-Oriented Modeling and Design	CSE/ISE	04	-	03	25	100	125
2	10CS72/ 10IS752	Embedded Computing Systems	CSE/ISE	04	-	03	25	100	125
3	10CS73	Programming the Web	CSE/ISE	04	-	03	25	100	125
4	10CS74	Advanced Computer Architectures	CSE/ISE	04	-	03	25	100	125
5	10CS75x	Elective II (Group-B)	CSE/ISE	04	-	03	25	100	125
6	10CS76x	Elective III(Group-C)	CSE/ISE	04	-	03	25	100	125
7	10CSL77	Networks Laboratory	CSE/ISE	-	03	03	25	50	75
8	10CSL78	Web Programming Laboratory	CSE/ISE	-	03	03	25	50	75
		Total		24	06	-	200	700	900

Elective II – Group B

10CS751/10IS751	Advanced DBMS
10CS752	Digital Signal Processing
10CS753/10IS753	Java and J2EE
10CS754/10IS754	Multimedia Computing
10CS755/10IS74	Data Warehousing and Data Mining
10CS756/10IS756	Neural Networks

Elective III – Group C

10CS761/10IS761	C# Programming and .Net
10CS762/10IS762	Digital Image Processing
10CS763/10IS763	Game Theory
10CS764/10IS764	Artificial Intelligence
10CS765/10IS765	Storage Area Networks
10CS766/10IS766	Fuzzy Logic

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SCHEME OF TEACHING AND EXAMINATION
B.E. COMPUTER SCIENCE AND ENGINEERING

VIII SEMESTER

S. No.	Subject Code	Subject	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Practical	Duration	Marks		
							IA	Exam	Total
1	10IS81	Software Architectures	CSE/ISE	04	-	03	25	100	125
2	10CS82	System Modeling and Simulation	CSE/ISE	04	-	03	25	100	125
3	10CS83x	Elective IV(Group-D)	CSE/ISE	04	-	03	25	100	125
4	10CS84x	Elective V(Group-E)	CSE/ISE	04	-	03	25	100	125
5	10CS85	Project Work	CSE		06	03	100	100	200
6	10CS86	Seminar	CSE	-	-	-	50	-	50
	Total			16	06		250	500	750

Elective IV – Group D

10CS831/10IS831	Wireless Networks and Mobile Computing
10CS832/10IS832	Web 2.0 and Rich Internet Applications
10CS833	VLSI Design and Algorithms
10CS834/10IS834	Network Management Systems
10CS835/10IS835	Information and Network Security
10CS836/10IS836	Microcontroller-Based Systems

Elective V– Group E

10CS841/10IS841	Ad-hoc Networks
10CS842	Software Testing
10CS843	ARM Based System Design
10CS844/10IS844	Services Oriented Architecture
10CS845/10IS845	Clouds, Grids and Clusters
10CS846	Multi-core Architecture and Programming

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2017-18

SCHEME OF TEACHING AND EXAMINATION
B.E. COMPUTER SCIENCE AND ENGINEERING
(Common to CSE & ISE)

III SEMESTER

S. No.	Subject Code	Subject	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Practical	Duration (Hrs)	Marks		
							IA	Exam	Total
1	10MAT31	Engineering Mathematics - III	Mathematics	04	-	03	25	100	125
2	10CS32	Electronic Circuits	CSE/ISE	04	-	03	25	100	125
3	10CS33	Logic Design	CSE/ISE	04	-	03	25	100	125
4	10CS34	Discrete Mathematical Structures	CSE/ISE	04	-	03	25	100	125
5	10CS35	Data Structures with C	CSE/ISE	04	-	03	25	100	125
6	10CS36	Object Oriented Programming with C++	CSE/ISE	04	-	03	25	100	125
7	10CSL37	Data Structures with C/C++ Laboratory	CSE/ISE	-	03	03	25	50	75
8	10CSL38	Electronic Circuits & Logic Design Laboratory	CSE/ISE	-	03	03	25	50	75
		Total		24	06	-	200	700	900

SCHEME OF TEACHING AND EXAMINATION
B.E. COMPUTER SCIENCE AND ENGINEERING
(Common to CSE & ISE)

IV SEMESTER

S. No.	Subject Code	Subject	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Practical	Duration (Hrs)	Marks		
							IA	Exam	Total
1	10MAT41	Engineering Mathematics - IV	Maths	04	-	03	25	100	125
2	10CS42	Graph Theory and Combinatorics	CSE/ISE	04	-	03	25	100	125
3	10CS43	Design and Analysis of Algorithms	CSE/ISE	04	-	03	25	100	125
4	10CS44	Unix and Shell Programming	CSE/ISE	04	-	03	25	100	125
5	10CS45	Microprocessors	CSE/ISE	04	-	03	25	100	125
6	10CS46	Computer Organization	CSE/ISE	04	-	03	25	100	125
7	10CSL47	Design and Analysis of Algorithms Laboratory	CSE/ISE	-	03	03	25	50	75
8	10CSL48	Microprocessors Laboratory	CSE/ISE	-	03	03	25	50	75
		Total		24	06	-	200	700	900

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3	10CS53	Operating Systems	CSE/ISE	04	-	03	25	100	125
4	10CS54	Database Management Systems	CSE/ISE	04	-	03	25	100	125
5	10CS55	Computer Networks - I	CSE/ISE	04	-	03	25	100	125
6	10CS56	Formal Languages and Automata Theory	CSE/ISE	04	-	03	25	100	125
7	10CSL57	Database Applications Laboratory	CSE/ISE	-	03	03	25	50	75
8	10CSL58	Systems Software & Operating Systems Laboratory	CSE/ISE	-	03	03	25	50	75
		Total		24	06	-	200	700	900

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VI SEMESTER

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				Theory	Practical	Duration (Hrs)	Marks		
							IA	Exam	Total
1	10AL61	Management and Entrepreneurship	CSE/ISE/MBA	04	-	03	25	100	125
2	10CS62	Unix System Programming	CSE/ISE	04	-	03	25	100	125
3	10CS63/10IS662	Compiler Design	CSE/ISE	04	-	03	25	100	125
4	10CS64	Computer Networks - II	CSE/ISE	04	-	03	25	100	125
5	10CS65 / 10IS665	Computer Graphics and Visualization	CSE/ISE	04	-	03	25	100	125
6	10CS66x	Elective I (Group-A)	CSE/ISE	04	-	03	25	100	125
7	10CSL67	Computer Graphics and Visualization Laboratory	CSE/ISE	-	03	03	25	50	75
8	10CSL68	Unix System Programming and Compiler Design Laboratory	CSE/ISE	-	03	03	25	50	75
		Total		24	06	-	200	700	900

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S. No.	Subject Code	Subject	Teaching Dept.	Teaching Hrs / Week Theory	Practical	Examination Duration (Hrs)	IA	Exam	Total
1	10CS71	Object-Oriented Modeling and Design	CSE/ISE	04	-	03	25	100	125
2	10CS72/ 10IS752	Embedded Computing Systems	CSE/ISE	04	-	03	25	100	125
3	10CS73	Programming the Web	CSE/ISE	04	-	03	25	100	125
4	10CS74	Advanced Computer Architectures	CSE/ISE	04	-	03	25	100	125
5	10CS75x	Elective II (Group-B)	CSE/ISE	04	-	03	25	100	125
6	10CS76x	Elective III(Group-C)	CSE/ISE	04	-	03	25	100	125
7	10CSL77	Networks Laboratory	CSE/ISE	-	03	03	25	50	75
8	10CSL78	Web Programming Laboratory	CSE/ISE	-	03	03	25	50	75
		Total		24	06	-	200	700	900

Elective II – Group B

10CS751/10IS751	Advanced DBMS
10CS752	Digital Signal Processing
10CS753/10IS753	Java and J2EE
10CS754/10IS754	Multimedia Computing
10CS755/10IS74	Data Warehousing and Data Mining
10CS756/10IS756	Neural Networks

Elective III – Group C

10CS761/10IS761	C# Programming and .Net
10CS762/10IS762	Digital Image Processing
10CS763/10IS763	Game Theory
10CS764/10IS764	Artificial Intelligence
10CS765/10IS765	Storage Area Networks
10CS766/10IS766	Fuzzy Logic

SCHEME OF TEACHING AND EXAMINATION
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VIII SEMESTER

S. No.	Subject Code	Subject	Teaching Dept.	Teaching Hrs / Week Theory	Practical	Examination Duration	IA	Exam	Total
1	10IS81	Software Architectures	CSE/ISE	04	-	03	25	100	125
2	10CS82	System Modeling and Simulation	CSE/ISE	04	-	03	25	100	125
3	10CS83x	Elective IV(Group-D)	CSE/ISE	04	-	03	25	100	125
4	10CS84x	Elective V(Group-E)	CSE/ISE	04	-	03	25	100	125
5	10CS85	Project Work	CSE		06	03	100	100	200
6	10CS86	Seminar	CSE	-	-	-	50	-	50
		Total		16	06		250	500	750

Elective IV – Group D

10CS831/10IS831	Wireless Networks and Mobile Computing
10CS832/10IS832	Web 2.0 and Rich Internet Applications
10CS833	VLSI Design and Algorithms
10CS834/10IS834	Network Management Systems
10CS835/10IS835	Information and Network Security
10CS836/10IS836	Microcontroller-Based Systems

Elective V– Group E

10CS841/10IS841	Ad-hoc Networks
10CS842	Software Testing
10CS843	ARM Based System Design
10CS844/10IS844	Services Oriented Architecture
10CS845/10IS845	Clouds, Grids and Clusters
10CS846	Multi-core Architecture and Programming

2018-19

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E. Computer Science & Engineering/ B.E. Information Science & Engineering

III SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15MAT31	Engineering Mathematics - III	04	--	03	80	20	100	4
2	15CS32	Analog and Digital Electronics	04	--	03	80	20	100	4
3	15CS33	Data Structures and Applications	04	--	03	80	20	100	4
4	15CS34	Computer Organization	04	--	03	80	20	100	4
5	15CS35	Unix and Shell Programming	04	--	03	80	20	100	4
6	15CS36	Discrete Mathematical Structures	04	--	03	80	20	100	4
7	15CSL37	Analog and Digital Electronics Laboratory	--	1I+2P	03	80	20	100	2
8	15CSL38	Data Structures Laboratory	--	1I+2P	03	80	20	100	2
		TOTAL	24	6	24	640	160	800	28

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E. Computer Science & Engineering/ B.E. Information Science & Engineering

IV SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15MAT41	Engineering Mathematics - IV	04	--	03	80	20	100	4
2	15CS 42	Software Engineering	04	--	03	80	20	100	4
3	15CS43	Design and Analysis of Algorithms	04	--	03	80	20	100	4
4	15CS 44	Microprocessors and Microcontrollers	04	--	03	80	20	100	4
5	15CS45	Object Oriented Concepts	04	--	03	80	20	100	4
6	15CS46	Data Communication	04	--	03	80	20	100	4
7	15CSL47	Design and Analysis of Algorithm Laboratory	--	1I+2P	03	80	20	100	2
8	15CSL48	Microprocessors Laboratory	--	1I+2P	03	80	20	100	2
		TOTAL	24	06	24	640	160	800	28

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CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E. Computer Science & Engineering

V SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15CS51	Management and Entrepreneurship for IT Industry	04	--	03	80	20	100	4
2	15CS52	Computer Networks	04	--	03	80	20	100	4
3	15CS53	Database Management System	04	--	03	80	20	100	4
4	15CS54	Automata theory and Computability	04	--	03	80	20	100	4
5	15CS55x	Professional Elective 1	03	--	03	80	20	100	3
6	15CS56x	Open Elective 1	03	--	03	80	20	100	3
7	15CSL57	Computer Network Laboratory	--	1I+2P	03	80	20	100	2
8	15CSL58	DBMS Laboratory with mini project	--	1I+2P	03	80	20	100	2
		TOTAL	**22**	**6**	**24**	**640**	**160**	**800**	**26**

Professional Elective 1	
15CS551	Object Oriented Modeling and Design
15CS552	Introduction to Software Testing
15CS553	Advanced JAVA and J2EE
15CS554	Advanced Algorithms

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E. Computer Science & Engineering

VI SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15CS61	Cryptography, Network Security and Cyber Law	04	--	03	80	20	100	4
2	15CS62	Computer Graphics and Visualization	04	--	03	80	20	100	4
3	15CS63	System Software and Compiler Design	04	--	03	80	20	100	4
4	15CS64	Operating Systems	04	--	03	80	20	100	4
5	15CS65x	Professional Elective 2	03	--	03	80	20	100	3
6	15CS66x	Open Elective 2	03	--	03	80	20	100	3
7	15CSL67	System Software and Operating System Laboratory	--	1I+2P	03	80	20	100	2
8	15CSL68	Computer Graphics Laboratory with mini project	--	1I+2P	03	80	20	100	2
		TOTAL	**22**	**6**	**24**	**640**	**160**	**800**	**26**

Professional Elective 2	
15CS651	Data Mining and Data Warehousing
15CS652	Software Architecture and Design Patterns
15CS653	Operations research
15CS654	Distributed Computing system

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THE OXFORD COLLEGE OF ENGINEERING

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E. Computer Science & Engineering

VII SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15CS71	Web Technology and its applications	04	--	03	20	80	100	4
2	15CS72	Advanced Computer Architectures	04	--	03	20	80	100	4
3	15CS73	Machine Learning	04	--	03	20	80	100	4
4	15CS74x	Professional Elective 3	03	--	03	20	80	100	3
5	15CS75x	Professional Elective 4	03	--	03	20	80	100	3
6	15CSL76	Machine Learning Laboratory	--	1I+2P	03	20	80	100	2
7	15CSL77	Web Technology Laboratory with mini project	--	1I+2P	03	20	80	100	2
8	15CSP78	Project Phase 1 + Seminar	--	--	--	100	--	100	2
		TOTAL	18	6	21	240	560	800	24

Professional Elective 3		Professional Elective 4	
15CS741	Natural Language Processing	15CS751	Soft and Evolutionary Computing
15CS742	Cloud Computing and its Applications	15CS752	Computer Vision and Robotics
15CS743	Information and Network Security	15CS753	Digital Image Processing
15CS744	Unix System Programming	15CS754	Storage Area Networks

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E. Computer Science & Engineering

VIII SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15CS81	Internet of Things and Applications	4	--	3	20	80	100	4
2	15CS82	Big Data Analytics	4	--	3	20	80	100	4
3	15CS83x	Professional Elective 5	3	--	3	20	80	100	3
4	15CS84	Internship / Professional Practice	Industry Oriented		3	50	50	100	2
5	15CSP85	Project work phase II	--	6	3	100	100	200	5
6	15CSS86	Seminar	--	4	--	100	--	100	2
		TOTAL	11	10	15	310	390	700	20

Professional Elective 5	
15CS831	High Performance Computing
15CS832	User Interface Design
15CS833	Network management
15CS834	System Modeling and Simulation

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CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E. Computer Science & Engineering/ B.E. Information Science & Engineering

III SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15MAT31	Engineering Mathematics - III	04	--	03	80	20	100	4
2	15CS32	Analog and Digital Electronics	04	--	03	80	20	100	4
3	15CS33	Data Structures and Applications	04	--	03	80	20	100	4
4	15CS34	Computer Organization	04	--	03	80	20	100	4
5	15CS35	Unix and Shell Programming	04	--	03	80	20	100	4
6	15CS36	Discrete Mathematical Structures	04	--	03	80	20	100	4
7	15CSL37	Analog and Digital Electronics Laboratory	--	1I+2P	03	80	20	100	2
8	15CSL38	Data Structures Laboratory	--	1I+2P	03	80	20	100	2
		TOTAL	**24**	**6**	**24**	**640**	**160**	**800**	**28**

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E. Computer Science & Engineering/ B.E. Information Science & Engineering

IV SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15MAT41	Engineering Mathematics - IV	04	--	03	80	20	100	4
2	15CS 42	Software Engineering	04	--	03	80	20	100	4
3	15CS43	Design and Analysis of Algorithms	04	--	03	80	20	100	4
4	15CS 44	Microprocessors and Microcontrollers	04	--	03	80	20	100	4
5	15CS45	Object Oriented Concepts	04	--	03	80	20	100	4
6	15CS46	Data Communication	04	--	03	80	20	100	4
7	15CSL47	Design and Analysis of Algorithm Laboratory	--	1I+2P	03	80	20	100	2
8	15CSL48	Microprocessors Laboratory	--	1I+2P	03	80	20	100	2
		TOTAL	**24**	**06**	**24**	**640**	**160**	**800**	**28**

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E. Computer Science & Engineering

V SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week Theory	Teaching Hours /Week Practical/ Drawing	Examination Duration	Examination Theory/ Practical Marks	Examination I.A. Marks	Examination Total Marks	Credits
1	15CS51	Management and Entrepreneurship for IT Industry	04	--	03	80	20	100	4
2	15CS52	Computer Networks	04	--	03	80	20	100	4
3	15CS53	Database Management System	04	--	03	80	20	100	4
4	15CS54	Automata theory and Computability	04	--	03	80	20	100	4
5	15CS55x	Professional Elective 1	03	--	03	80	20	100	3
6	15CS56x	Open Elective 1	03	--	03	80	20	100	3
7	15CSL57	Computer Network Laboratory	--	1I+2P	03	80	20	100	2
8	15CSL58	DBMS Laboratory with mini project	--	1I+2P	03	80	20	100	2
		TOTAL	**22**	**6**	**24**	**640**	**160**	**800**	**26**

Professional Elective 1	
15CS551	Object Oriented Modeling and Design
15CS552	Introduction to Software Testing
15CS553	Advanced JAVA and J2EE
15CS554	Advanced Algorithms

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E. Computer Science & Engineering

VI SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week Theory	Teaching Hours /Week Practical/ Drawing	Examination Duration	Examination Theory/ Practical Marks	Examination I.A. Marks	Examination Total Marks	Credits
1	15CS61	Cryptography, Network Security and Cyber Law	04	--	03	80	20	100	4
2	15CS62	Computer Graphics and Visualization	04	--	03	80	20	100	4
3	15CS63	System Software and Compiler Design	04	--	03	80	20	100	4
4	15CS64	Operating Systems	04	--	03	80	20	100	4
5	15CS65x	Professional Elective 2	03	--	03	80	20	100	3
6	15CS66x	Open Elective 2	03	--	03	80	20	100	3
7	15CSL67	System Software and Operating System Laboratory	--	1I+2P	03	80	20	100	2
8	15CSL68	Computer Graphics Laboratory with mini project	--	1I+2P	03	80	20	100	2
		TOTAL	**22**	**6**	**24**	**640**	**160**	**800**	**26**

Professional Elective 2	
15CS651	Data Mining and Data Warehousing
15CS652	Software Architecture and Design Patterns
15CS653	Operations research
15CS654	Distributed Computing system

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SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E. Computer Science & Engineering

VII SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15CS71	Web Technology and its applications	04	--	03	20	80	100	4
2	15CS72	Advanced Computer Architectures	04	--	03	20	80	100	4
3	15CS73	Machine Learning	04	--	03	20	80	100	4
4	15CS74x	Professional Elective 3	03	--	03	20	80	100	3
5	15CS75x	Professional Elective 4	03	--	03	20	80	100	3
6	15CSL76	Machine Learning Laboratory	--	1I+2P	03	20	80	100	2
7	15CSL77	Web Technology Laboratory with mini project	--	1I+2P	03	20	80	100	2
8	15CSP78	Project Phase 1 + Seminar	--	--	--	100	--	100	2
		TOTAL	18	6	21	240	560	800	24

Professional Elective 3		Professional Elective 4	
15CS741	Natural Language Processing	15CS751	Soft and Evolutionary Computing
15CS742	Cloud Computing and its Applications	15CS752	Computer Vision and Robotics
15CS743	Information and Network Security	15CS753	Digital Image Processing
15CS744	Unix System Programming	15CS754	Storage Area Networks

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E. Computer Science & Engineering

VIII SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15CS81	Internet of Things and Applications	4	--	3	20	80	100	4
2	15CS82	Big Data Analytics	4	--	3	20	80	100	4
3	15CS83x	Professional Elective 5	3	--	3	20	80	100	3
4	15CS84	Internship / Professional Practice	Industry Oriented		3	50	50	100	2
5	15CSP85	Project work phase II	--	6	3	100	100	200	5
6	15CSS86	Seminar	--	4	--	100	--	100	2
		TOTAL	11	10	15	310	390	700	20

Professional Elective 5	
15CS831	High Performance Computing
15CS832	User Interface Design
15CS833	Network management
15CS834	System Modeling and Simulation

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

B.E: Computer Science and Engineering

III SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17MAT31	Engineering Mathematics - III	Maths	04		03	60	40	100	4
2	17CS32	Analog and Digital Electronics	CS/IS	04		03	60	40	100	4
3	17CS33	Data Structures and Applications	CS/IS	04		03	60	40	100	4
4	17CS34	Computer Organization	CS/IS	04		03	60	40	100	4
5	17CS35	Unix and Shell Programming	CS/IS	03		03	60	40	100	3
6	17CS36	Discrete Mathematical Structures	CS/IS	04		03	60	40	100	4
7	17CSL37	Analog and Digital Electronics Laboratory	CS/IS	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17CSL38	Data Structures Laboratory	CS/IS	01-Hour Instruction 02-Hour Practical		03	60	40	100	2

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

B.E: Computer Science and Engineering

IV SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17MAT41	Engineering Mathematics - IV	Maths	04		03	60	40	100	4
2	17CS42	Object Oriented Concepts	CS/IS	03		03	60	40	100	3
3	17CS43	Design and Analysis of Algorithms	CS/IS	04		03	60	40	100	4
4	17CS44	Microprocessors and Microcontrollers	CS/IS	04		03	60	40	100	4
5	17CS45	Software Engineering	CS/IS	04		03	60	40	100	4
6	17CS46	Data Communication	CS/IS	04		03	60	40	100	4
7	17CSL47	Design and Analysis of Algorithm Laboratory	CS/IS	01-Hour Instruction 02-Hour Practical		03	60	40	100	2

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B.E: Computer Science and Engineering

V SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17CS51	Management and Entrepreneurship for IT Industry	CS/IS	04		03	60	40	100	4
2	17CS52	Computer Networks	CS/IS	04		03	60	40	100	4
3	17CS53	Database Management System	CS/IS	04		03	60	40	100	4
4	17CS54	Automata theory and Computability	CS/IS	04		03	60	40	100	4
5	17CS55x	Professional Elective-1	CS/IS	03		03	60	40	100	3
6	17CS56x	Open Elective-1	CS/IS	03		03	60	40	100	3
7	17CSL57	Computer Network Laboratory	CS/IS	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17CSL58	DBMS Laboratory with mini project	CS/IS	01-Hour Instruction 02-Hour Practical		03	60	40	100	2

Professional Elective-1	
17CS551	Object Oriented Modeling and Design
17CS552	Introduction to Software Testing
17CS553	Advanced JAVA and J2EE
17CS554	Advanced Algorithms

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

B.E: Computer Science and Engineering

VI SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17CS61	Cryptography, Network Security and Cyber Law	CS/IS	04		03	60	40	100	4
2	17CS62	Computer Graphics and Visualization	CS/IS	04		03	60	40	100	4
3	17CS63	System Software and Compiler Design	CS/IS	04		03	60	40	100	4
4	17CS64	Operating Systems	CS/IS	04		03	60	40	100	4
5	17CS65x	Professional Elective-2	CS/IS	03		03	60	40	100	3
6	17CS66x	Open Elective-2	CS/IS	03		03	60	40	100	3
7	17CSL67	System Software and Operating System Laboratory	CS/IS	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17CSL68	Computer Graphics Laboratory with mini project	CS/IS	01-Hour Instruction 02-Hour Practical		03	60	40	100	2

Professional Elective-2		Open Elective – 2*** (List offered by CSE Board only)	
17CS651	Data Mining and Data Warehousing	17CS661	Mobile Application Development
17CS652	Software Architecture and Design Patterns	17CS662	Big Data Analytics *(Not for CSE/ISE students)*
17CS653	Operations research	17CS663	Wireless Networks and Mobile computing
17CS654	Distributed Computing system	17CS664	Python Application Programming
		17CS665	Service Oriented Architecture
		17CS666	Multicore Architecture and Programming

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

B.E: Computer Science and Engineering

VII SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17CS71	Web Technology and its applications	CS/IS	04		03	60	40	100	4
2	17CS72	Advanced Computer Architectures	CS/IS	04		03	60	40	100	4
3	17CS73	Machine Learning	CS/IS	04		03	60	40	100	4
4	17CS74x	Professional Elective 3	CS/IS	03		03	60	40	100	3
5	17CS75x	Professional Elective 4	CS/IS	03		03	60	40	100	3
6	17CSL76	Machine Learning Laboratory	CS/IS	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
7	17CSL77	Web Technology Laboratory with mini project	CS/IS	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17CSP78	Project Work Phase–I + Project work Seminar	CS/IS		03	--	--	100	100	2

Professional Elective-3		Professional Elective-4	
17CS741	Natural Language Processing	17CS751	Soft and Evolutionary Computing
17CS742	Cloud Computing and its Applications	17CS752	Computer Vision and Robotics
17CS743	Information and Network Security	17CS753	Digital Image Processing
17CS744	Unix System Programming	17CS754	Storage Area Networks

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

B.E: Computer Science and Engineering

VIII SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17CS81	Internet of Things and Applications	CS/IS	4	-	3	60	40	100	4
2	17CS82	Big Data Analytics	CS/IS	4	-	3	60	40	100	4
3	17CS83X	Professional Elective-5	CS/IS	3	-	3	60	40	100	3
4	17CS84	Internship/ Professional Practice	CS/IS	Industry Oriented		3	50	50	100	2
5	17CSP85	Project Work-II	CS/IS	-	6	3	100	100	200	6

Professional Elective -5	
17CS831	High Performance Computing
17CS832	User Interface Design
17CS833	Network management
17CS834	System Modeling and Simulation

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ISE Department

2016-17
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SCHEME OF TEACHING AND EXAMINATION
B.E. COMPUTER SCIENCE AND ENGINEERING
(Common to CSE & ISE)

III SEMESTER

S. No.	Subject Code	Subject	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Practical	Duration (Hrs)	Marks		
							IA	Exam	Total
1	10MAT31	Engineering Mathematics - III	Mathematics	04	-	03	25	100	125
2	10CS32	Electronic Circuits	CSE/ISE	04	-	03	25	100	125
3	10CS33	Logic Design	CSE/ISE	04	-	03	25	100	125
4	10CS34	Discrete Mathematical Structures	CSE/ISE	04	-	03	25	100	125
5	10CS35	Data Structures with C	CSE/ISE	04	-	03	25	100	125
6	10CS36	Object Oriented Programming with C++	CSE/ISE	04	-	03	25	100	125
7	10CSL37	Data Structures with C/C++ Laboratory	CSE/ISE	-	03	03	25	50	75
8	10CSL38	Electronic Circuits & Logic Design Laboratory	CSE/ISE	-	03	03	25	50	75
		Total		24	06	-	200	700	900

SCHEME OF TEACHING AND EXAMINATION
B.E. COMPUTER SCIENCE AND ENGINEERING
(Common to CSE & ISE)

IV SEMESTER

S. No.	Subject Code	Subject	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Practical	Duration (Hrs)	Marks		
							IA	Exam	Total
1	10MAT41	Engineering Mathematics - IV	Maths	04	-	03	25	100	125
2	10CS42	Graph Theory and Combinatorics	CSE/ISE	04	-	03	25	100	125
3	10CS43	Design and Analysis of Algorithms	CSE/ISE	04	-	03	25	100	125
4	10CS44	Unix and Shell Programming	CSE/ISE	04	-	03	25	100	125
5	10CS45	Microprocessors	CSE/ISE	04	-	03	25	100	125
6	10CS46	Computer Organization	CSE/ISE	04	-	03	25	100	125
7	10CSL47	Design and Analysis of Algorithms Laboratory	CSE/ISE	-	03	03	25	50	75
8	10CSL48	Microprocessors Laboratory	CSE/ISE	-	03	03	25	50	75
		Total		24	06	-	200	700	900

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V SEMESTER

S. No.	Subject Code	Subject	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Practical	Duration (Hrs)	Marks		
							IA	Exam	Total
1	10IS51	Software Engineering	CSE/ISE	04	-	03	25	100	125
2	10CS52	Systems Software	CSE/ISE	04	-	03	25	100	125
3	10CS53	Operating Systems	CSE/ISE	04	-	03	25	100	125
4	10CS54	Database Management Systems	CSE/ISE	04	-	03	25	100	125
5	10CS55	Computer Networks - I	CSE/ISE	04	-	03	25	100	125
6	10CS56	Formal Languages and Automata Theory	CSE/ISE	04	-	03	25	100	125
7	10CSL57	Database Applications Laboratory	CSE/ISE	-	03	03	25	50	75
8	10CSL58	Systems Software & Operating Systems Laboratory	CSE/ISE	-	03	03	25	50	75
		Total		24	06	-	200	700	900

VI SEMESTER

S. No.	Subject Code	Subject	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Practical	Duration (Hrs)	Marks		
							IA	Exam	Total
1	10AL61	Management and Entrepreneurship	CSE/ISE/ MBA	04	-	03	25	100	125
2	10CS62	Unix System Programming	CSE/ISE	04	-	03	25	100	125
3	10CS63/ 10IS662	Compiler Design	CSE/ISE	04	-	03	25	100	125
4	10CS64	Computer Networks - II	CSE/ISE	04	-	03	25	100	125
5	10CS65 / 10IS665	Computer Graphics and Visualization	CSE/ISE	04	-	03	25	100	125
6	10CS66x	Elective I (Group-A)	CSE/ISE	04	-	03	25	100	125
7	10CSL67	Computer Graphics and Visualization Laboratory	CSE/ISE	-	03	03	25	50	75
8	10CSL68	Unix System Programming and Compiler Design Laboratory	CSE/ISE	-	03	03	25	50	75
		Total		24	06	-	200	700	900

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VII SEMESTER

S. No.	Subject Code	Subject	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Practical	Duration (Hrs)	Marks		
							IA	Exam	Total
1	10CS71	Object-Oriented Modeling and Design	CSE/ISE	04	-	03	25	100	125
2	10CS72/ 10IS752	Embedded Computing Systems	CSE/ISE	04	-	03	25	100	125
3	10CS73	Programming the Web	CSE/ISE	04	-	03	25	100	125
4	10CS74	Advanced Computer Architectures	CSE/ISE	04	-	03	25	100	125
5	10CS75x	Elective II (Group-B)	CSE/ISE	04	-	03	25	100	125
6	10CS76x	Elective III(Group-C)	CSE/ISE	04	-	03	25	100	125
7	10CSL77	Networks Laboratory	CSE/ISE	-	03	03	25	50	75
8	10CSL78	Web Programming Laboratory	CSE/ISE	-	03	03	25	50	75
		Total		24	06	-	200	700	900

Elective II – Group B

10CS751/10IS751	Advanced DBMS
10CS752	Digital Signal Processing
10CS753/10IS753	Java and J2EE
10CS754/10IS754	Multimedia Computing
10CS755/10IS74	Data Warehousing and Data Mining
10CS756/10IS756	Neural Networks

Elective III – Group C

10CS761/10IS761	C# Programming and .Net
10CS762/10IS762	Digital Image Processing
10CS763/10IS763	Game Theory
10CS764/10IS764	Artificial Intelligence
10CS765/10IS765	Storage Area Networks
10CS766/10IS766	Fuzzy Logic

VIII SEMESTER

S. No.	Subject Code	Subject	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Practical	Duration	Marks		
							IA	Exam	Total
1	10IS81	Software Architectures	CSE/ISE	04	-	03	25	100	125
2	10CS82	System Modeling and Simulation	CSE/ISE	04	-	03	25	100	125
3	10CS83x	Elective IV(Group-D)	CSE/ISE	04	-	03	25	100	125
4	10CS84x	Elective V(Group-E)	CSE/ISE	04	-	03	25	100	125
5	10CS85	Project Work	CSE		06	03	100	100	200
6	10CS86	Seminar	CSE	-	-	-	50	-	50
		Total		16	06		250	500	750

Elective IV – Group D

10CS831/10IS831	Wireless Networks and Mobile Computing
10CS832/10IS832	Web 2.0 and Rich Internet Applications
10CS833	VLSI Design and Algorithms
10CS834/10IS834	Network Management Systems
10CS835/10IS835	Information and Network Security
10CS836/10IS836	Microcontroller-Based Systems

Elective V– Group E

10CS841/10IS841	Ad-hoc Networks
10CS842	Software Testing
10CS843	ARM Based System Design
10CS844/10IS844	Services Oriented Architecture
10CS845/10IS845	Clouds, Grids and Clusters
10CS846	Multi-core Architecture and Programming

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2017-18

SCHEME OF TEACHING AND EXAMINATION
B.E. COMPUTER SCIENCE AND ENGINEERING
(Common to CSE & ISE)

III SEMESTER

S. No.	Subject Code	Subject	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Practical	Duration (Hrs)	Marks		
							IA	Exam	Total
1	10MAT31	Engineering Mathematics - III	Mathematics	04	-	03	25	100	125
2	10CS32	Electronic Circuits	CSE/ISE	04	-	03	25	100	125
3	10CS33	Logic Design	CSE/ISE	04	-	03	25	100	125
4	10CS34	Discrete Mathematical Structures	CSE/ISE	04	-	03	25	100	125
5	10CS35	Data Structures with C	CSE/ISE	04	-	03	25	100	125
6	10CS36	Object Oriented Programming with C++	CSE/ISE	04	-	03	25	100	125
7	10CSL37	Data Structures with C/C++ Laboratory	CSE/ISE	-	03	03	25	50	75
8	10CSL38	Electronic Circuits & Logic Design Laboratory	CSE/ISE	-	03	03	25	50	75
		Total		24	06	-	200	700	900

SCHEME OF TEACHING AND EXAMINATION
B.E. COMPUTER SCIENCE AND ENGINEERING
(Common to CSE & ISE)

IV SEMESTER

S. No.	Subject Code	Subject	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Practical	Duration (Hrs)	Marks		
							IA	Exam	Total
1	10MAT41	Engineering Mathematics - IV	Maths	04	-	03	25	100	125
2	10CS42	Graph Theory and Combinatorics	CSE/ISE	04	-	03	25	100	125
3	10CS43	Design and Analysis of Algorithms	CSE/ISE	04	-	03	25	100	125
4	10CS44	Unix and Shell Programming	CSE/ISE	04	-	03	25	100	125
5	10CS45	Microprocessors	CSE/ISE	04	-	03	25	100	125
6	10CS46	Computer Organization	CSE/ISE	04	-	03	25	100	125
7	10CSL47	Design and Analysis of Algorithms Laboratory	CSE/ISE	-	03	03	25	50	75
8	10CSL48	Microprocessors Laboratory	CSE/ISE	-	03	03	25	50	75
		Total		24	06	-	200	700	900

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V SEMESTER

S. No.	Subject Code	Subject	Teaching Dept.	Theory	Practical	Duration (Hrs)	IA	Exam	Total
1	10IS51	Software Engineering	CSE/ISE	04	-	03	25	100	125
2	10CS52	Systems Software	CSE/ISE	04	-	03	25	100	125
3	10CS53	Operating Systems	CSE/ISE	04	-	03	25	100	125
4	10CS54	Database Management Systems	CSE/ISE	04	-	03	25	100	125
5	10CS55	Computer Networks - I	CSE/ISE	04	-	03	25	100	125
6	10CS56	Formal Languages and Automata Theory	CSE/ISE	04	-	03	25	100	125
7	10CSL57	Database Applications Laboratory	CSE/ISE	-	03	03	25	50	75
8	10CSL58	Systems Software & Operating Systems Laboratory	CSE/ISE	-	03	03	25	50	75
		Total		24	06	-	200	700	900

VI SEMESTER

S. No.	Subject Code	Subject	Teaching Dept.	Theory	Practical	Duration (Hrs)	IA	Exam	Total
1	10AL61	Management and Entrepreneurship	CSE/ISE/ MBA	04	-	03	25	100	125
2	10CS62	Unix System Programming	CSE/ISE	04	-	03	25	100	125
3	10CS63/ 10IS662	Compiler Design	CSE/ISE	04	-	03	25	100	125
4	10CS64	Computer Networks - II	CSE/ISE	04	-	03	25	100	125
5	10CS65 / 10IS665	Computer Graphics and Visualization	CSE/ISE	04	-	03	25	100	125
6	10CS66x	Elective I (Group-A)	CSE/ISE	04	-	03	25	100	125
7	10CSL67	Computer Graphics and Visualization Laboratory	CSE/ISE	-	03	03	25	50	75
8	10CSL68	Unix System Programming and Compiler Design Laboratory	CSE/ISE	-	03	03	25	50	75
		Total		24	06	-	200	700	900

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VII SEMESTER

S. No.	Subject Code	Subject	Teaching Dept.	Teaching Hrs / Week Theory	Practical	Duration (Hrs)	IA	Exam	Total
1	10CS71	Object-Oriented Modeling and Design	CSE/ISE	04	-	03	25	100	125
2	10CS72/ 10IS752	Embedded Computing Systems	CSE/ISE	04	-	03	25	100	125
3	10CS73	Programming the Web	CSE/ISE	04	-	03	25	100	125
4	10CS74	Advanced Computer Architectures	CSE/ISE	04	-	03	25	100	125
5	10CS75x	Elective II (Group-B)	CSE/ISE	04	-	03	25	100	125
6	10CS76x	Elective III(Group-C)	CSE/ISE	04	-	03	25	100	125
7	10CSL77	Networks Laboratory	CSE/ISE	-	03	03	25	50	75
8	10CSL78	Web Programming Laboratory	CSE/ISE	-	03	03	25	50	75
		Total		24	06	-	200	700	900

Elective II – Group B

10CS751/10IS751	Advanced DBMS
10CS752	Digital Signal Processing
10CS753/10IS753	Java and J2EE
10CS754/10IS754	Multimedia Computing
10CS755/10IS74	Data Warehousing and Data Mining
10CS756/10IS756	Neural Networks

Elective III – Group C

10CS761/10IS761	C# Programming and .Net
10CS762/10IS762	Digital Image Processing
10CS763/10IS763	Game Theory
10CS764/10IS764	Artificial Intelligence
10CS765/10IS765	Storage Area Networks
10CS766/10IS766	Fuzzy Logic

VIII SEMESTER

S. No.	Subject Code	Subject	Teaching Dept.	Teaching Hrs / Week Theory	Practical	Duration	IA	Exam	Total
1	10IS81	Software Architectures	CSE/ISE	04	-	03	25	100	125
2	10CS82	System Modeling and Simulation	CSE/ISE	04	-	03	25	100	125
3	10CS83x	Elective IV(Group-D)	CSE/ISE	04	-	03	25	100	125
4	10CS84x	Elective V(Group-E)	CSE/ISE	04	-	03	25	100	125
5	10CS85	Project Work	CSE		06	03	100	100	200
6	10CS86	Seminar	CSE	-	-	-	50	-	50
		Total		16	06		250	500	750

Elective IV – Group D

10CS831/10IS831	Wireless Networks and Mobile Computing
10CS832/10IS832	Web 2.0 and Rich Internet Applications
10CS833	VLSI Design and Algorithms
10CS834/10IS834	Network Management Systems
10CS835/10IS835	Information and Network Security
10CS836/10IS836	Microcontroller-Based Systems

Elective V– Group E

10CS841/10IS841	Ad-hoc Networks
10CS842	Software Testing
10CS843	ARM Based System Design
10CS844/10IS844	Services Oriented Architecture
10CS845/10IS845	Clouds, Grids and Clusters
10CS846	Multi-core Architecture and Programming

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CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E. Computer Science & Engineering/ B.E. Information Science & Engineering

III SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15MAT31	Engineering Mathematics - III	04	--	03	80	20	100	4
2	15CS32	Analog and Digital Electronics	04	--	03	80	20	100	4
3	15CS33	Data Structures and Applications	04	--	03	80	20	100	4
4	15CS34	Computer Organization	04	--	03	80	20	100	4
5	15CS35	Unix and Shell Programming	04	--	03	80	20	100	4
6	15CS36	Discrete Mathematical Structures	04	--	03	80	20	100	4
7	15CSL37	Analog and Digital Electronics Laboratory	--	1I+2P	03	80	20	100	2
8	15CSL38	Data Structures Laboratory	--	1I+2P	03	80	20	100	2
		TOTAL	24	6	24	640	160	800	28

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CHOICE BASED CREDIT SYSTEM (CBCS)
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IV SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15MAT41	Engineering Mathematics - IV	04	--	03	80	20	100	4
2	15CS 42	Software Engineering	04	--	03	80	20	100	4
3	15CS43	Design and Analysis of Algorithms	04	--	03	80	20	100	4
4	15CS 44	Microprocessors and Microcontrollers	04	--	03	80	20	100	4
5	15CS45	Object Oriented Concepts	04	--	03	80	20	100	4
6	15CS46	Data Communication	04	--	03	80	20	100	4
7	15CSL47	Design and Analysis of Algorithm Laboratory	--	1I+2P	03	80	20	100	2
8	15CSL48	Microprocessors Laboratory	--	1I+2P	03	80	20	100	2
		TOTAL	24	06	24	640	160	800	28

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Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15CS51	Management and Entrepreneurship for IT Industry	04	--	03	80	20	100	4
2	15CS52	Computer Networks	04	--	03	80	20	100	4
3	15CS53	Database Management System	04	--	03	80	20	100	4
4	15CS54	Automata theory and Computability	04	--	03	80	20	100	4
5	15CS55x	Professional Elective 1	03	--	03	80	20	100	3
6	15CS56x	Open Elective 1	03	--	03	80	20	100	3
7	15CSL57	Computer Network Laboratory	--	1I+2P	03	80	20	100	2
8	15CSL58	DBMS Laboratory with mini project	--	1I+2P	03	80	20	100	2
		TOTAL	22	6	24	640	160	800	26

Professional Elective 1	
15CS551	Object Oriented Modeling and Design
15CS552	Introduction to Software Testing
15CS553	Advanced JAVA and J2EE
15CS554	Advanced Algorithms

VI SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15CS61	Cryptography, Network Security and Cyber Law	04	--	03	80	20	100	4
2	15CS62	Computer Graphics and Visualization	04	--	03	80	20	100	4
3	15CS63	System Software and Compiler Design	04	--	03	80	20	100	4
4	15CS64	Operating Systems	04	--	03	80	20	100	4
5	15CS65x	Professional Elective 2	03	--	03	80	20	100	3
6	15CS66x	Open Elective 2	03	--	03	80	20	100	3
7	15CSL67	System Software and Operating System Laboratory	--	1I+2P	03	80	20	100	2
8	15CSL68	Computer Graphics Laboratory with mini project	--	1I+2P	03	80	20	100	2
		TOTAL	22	6	24	640	160	800	26

Professional Elective 2	
15CS651	Data Mining and Data Warehousing
15CS652	Software Architecture and Design Patterns
15CS653	Operations research
15CS654	Distributed Computing system

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VII SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15CS71	Web Technology and its applications	04	--	03	20	80	100	4
2	15CS72	Advanced Computer Architectures	04	--	03	20	80	100	4
3	15CS73	Machine Learning	04	--	03	20	80	100	4
4	15CS74x	Professional Elective 3	03	--	03	20	80	100	3
5	15CS75x	Professional Elective 4	03	--	03	20	80	100	3
6	15CSL76	Machine Learning Laboratory	--	1I+2P	03	20	80	100	2
7	15CSL77	Web Technology Laboratory with mini project	--	1I+2P	03	20	80	100	2
8	15CSP78	Project Phase 1 + Seminar	--	--	--	100	--	100	2
		TOTAL	18	6	21	240	560	800	24

Professional Elective 3		Professional Elective 4	
15CS741	Natural Language Processing	15CS751	Soft and Evolutionary Computing
15CS742	Cloud Computing and its Applications	15CS752	Computer Vision and Robotics
15CS743	Information and Network Security	15CS753	Digital Image Processing
15CS744	Unix System Programming	15CS754	Storage Area Networks

VIII SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15CS81	Internet of Things and Applications	4	--	3	20	80	100	4
2	15CS82	Big Data Analytics	4	--	3	20	80	100	4
3	15CS83x	Professional Elective 5	3	--	3	20	80	100	3
4	15CS84	Internship / Professional Practice	Industry Oriented		3	50	50	100	2
5	15CSP85	Project work phase II	--	6	3	100	100	200	5
6	15CSS86	Seminar	--	4	--	100	--	100	2
		TOTAL	11	10	15	310	390	700	20

Professional Elective 5	
15CS831	High Performance Computing
15CS832	User Interface Design
15CS833	Network management
15CS834	System Modeling and Simulation

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SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E. Computer Science & Engineering/ B.E. Information Science & Engineering

III SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15MAT31	Engineering Mathematics - III	04	--	03	80	20	100	4
2	15CS32	Analog and Digital Electronics	04	--	03	80	20	100	4
3	15CS33	Data Structures and Applications	04	--	03	80	20	100	4
4	15CS34	Computer Organization	04	--	03	80	20	100	4
5	15CS35	Unix and Shell Programming	04	--	03	80	20	100	4
6	15CS36	Discrete Mathematical Structures	04	--	03	80	20	100	4
7	15CSL37	Analog and Digital Electronics Laboratory	--	1I+2P	03	80	20	100	2
8	15CSL38	Data Structures Laboratory	--	1I+2P	03	80	20	100	2
		TOTAL	**24**	**6**	**24**	**640**	**160**	**800**	**28**

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E. Computer Science & Engineering/ B.E. Information Science & Engineering

IV SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15MAT41	Engineering Mathematics - IV	04	--	03	80	20	100	4
2	15CS 42	Software Engineering	04	--	03	80	20	100	4
3	15CS43	Design and Analysis of Algorithms	04	--	03	80	20	100	4
4	15CS 44	Microprocessors and Microcontrollers	04	--	03	80	20	100	4
5	15CS45	Object Oriented Concepts	04	--	03	80	20	100	4
6	15CS46	Data Communication	04	--	03	80	20	100	4
7	15CSL47	Design and Analysis of Algorithm Laboratory	--	1I+2P	03	80	20	100	2
8	15CSL48	Microprocessors Laboratory	--	1I+2P	03	80	20	100	2
		TOTAL	**24**	**06**	**24**	**640**	**160**	**800**	**28**

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V SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15CS51	Management and Entrepreneurship for IT Industry	04	--	03	80	20	100	4
2	15CS52	Computer Networks	04	--	03	80	20	100	4
3	15CS53	Database Management System	04	--	03	80	20	100	4
4	15CS54	Automata theory and Computability	04	--	03	80	20	100	4
5	15CS55x	Professional Elective 1	03	--	03	80	20	100	3
6	15CS56x	Open Elective 1	03	--	03	80	20	100	3
7	15CSL57	Computer Network Laboratory	--	1I+2P	03	80	20	100	2
8	15CSL58	DBMS Laboratory with mini project	--	1I+2P	03	80	20	100	2
		TOTAL	**22**	**6**	**24**	**640**	**160**	**800**	**26**

Professional Elective 1	
15CS551	Object Oriented Modeling and Design
15CS552	Introduction to Software Testing
15CS553	Advanced JAVA and J2EE
15CS554	Advanced Algorithms

VI SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15CS61	Cryptography, Network Security and Cyber Law	04	--	03	80	20	100	4
2	15CS62	Computer Graphics and Visualization	04	--	03	80	20	100	4
3	15CS63	System Software and Compiler Design	04	--	03	80	20	100	4
4	15CS64	Operating Systems	04	--	03	80	20	100	4
5	15CS65x	Professional Elective 2	03	--	03	80	20	100	3
6	15CS66x	Open Elective 2	03	--	03	80	20	100	3
7	15CSL67	System Software and Operating System Laboratory	--	1I+2P	03	80	20	100	2
8	15CSL68	Computer Graphics Laboratory with mini project	--	1I+2P	03	80	20	100	2
		TOTAL	**22**	**6**	**24**	**640**	**160**	**800**	**26**

Professional Elective 2	
15CS651	Data Mining and Data Warehousing
15CS652	Software Architecture and Design Patterns
15CS653	Operations research
15CS654	Distributed Computing system

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Estd. 1974

VII SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15CS71	Web Technology and its applications	04	--	03	20	80	100	4
2	15CS72	Advanced Computer Architectures	04	--	03	20	80	100	4
3	15CS73	Machine Learning	04	--	03	20	80	100	4
4	15CS74x	Professional Elective 3	03	--	03	20	80	100	3
5	15CS75x	Professional Elective 4	03	--	03	20	80	100	3
6	15CSL76	Machine Learning Laboratory	--	1I+2P	03	20	80	100	2
7	15CSL77	Web Technology Laboratory with mini project	--	1I+2P	03	20	80	100	2
8	15CSP78	Project Phase 1 + Seminar	--	--	--	100	--	100	2
		TOTAL	18	6	21	240	560	800	24

Professional Elective 3		Professional Elective 4	
15CS741	Natural Language Processing	15CS751	Soft and Evolutionary Computing
15CS742	Cloud Computing and its Applications	15CS752	Computer Vision and Robotics
15CS743	Information and Network Security	15CS753	Digital Image Processing
15CS744	Unix System Programming	15CS754	Storage Area Networks

VIII SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15CS81	Internet of Things and Applications	4	--	3	20	80	100	4
2	15CS82	Big Data Analytics	4	--	3	20	80	100	4
3	15CS83x	Professional Elective 5	3	--	3	20	80	100	3
4	15CS84	Internship / Professional Practice	Industry Oriented		3	50	50	100	2
5	15CSP85	Project work phase II	--	6	3	100	100	200	5
6	15CSS86	Seminar	--	4	--	100	--	100	2
		TOTAL	11	10	15	310	390	700	20

Professional Elective 5	
15CS831	High Performance Computing
15CS832	User Interface Design
15CS833	Network management
15CS834	System Modeling and Simulation

2020-21

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

III SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week Theory	Teaching Hours /Week Practical/ Drawing	Examination Duration in hours	Examination SEE Marks	Examination CIE Marks	Examination Total Marks	Credits
1	17MAT31	Engineering Mathematics - III	Maths	04		03	60	40	100	4
2	17CS32	Analog and Digital Electronics	CS/IS	04		03	60	40	100	4
3	17CS33	Data Structures and Applications	CS/IS	04		03	60	40	100	4
4	17CS34	Computer Organization	CS/IS	04		03	60	40	100	4
5	17CS35	Unix and Shell Programming	CS/IS	03		03	60	40	100	3
6	17CS36	Discrete Mathematical Structures	CS/IS	04		03	60	40	100	4
7	17CSL37	Analog and Digital Electronics Laboratory	CS/IS	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17CSL38	Data Structures Laboratory	CS/IS	01-Hour Instruction 02-Hour Practical		03	60	40	100	2

IV SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week Theory	Teaching Hours /Week Practical/ Drawing	Examination Duration in hours	Examination SEE Marks	Examination CIE Marks	Examination Total Marks	Credits
1	17MAT41	Engineering Mathematics - IV	Maths	04		03	60	40	100	4
2	17CS42	Object Oriented Concepts	CS/IS	03		03	60	40	100	3
3	17CS43	Design and Analysis of Algorithms	CS/IS	04		03	60	40	100	4
4	17CS44	Microprocessors and Microcontrollers	CS/IS	04		03	60	40	100	4
5	17CS45	Software Engineering	CS/IS	04		03	60	40	100	4
6	17CS46	Data Communication	CS/IS	04		03	60	40	100	4
7	17CSL47	Design and Analysis of Algorithm Laboratory	CS/IS	01-Hour Instruction 02-Hour Practical		03	60	40	100	2

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V SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17CS51	Management and Entrepreneurship for IT Industry	CS/IS	04		03	60	40	100	4
2	17CS52	Computer Networks	CS/IS	04		03	60	40	100	4
3	17CS53	Database Management System	CS/IS	04		03	60	40	100	4
4	17CS54	Automata theory and Computability	CS/IS	04		03	60	40	100	4
5	17CS55x	Professional Elective-1	CS/IS	03		03	60	40	100	3
6	17CS56x	Open Elective-1	CS/IS	03		03	60	40	100	3
7	17CSL57	Computer Network Laboratory	CS/IS	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17CSL58	DBMS Laboratory with mini project	CS/IS	01-Hour Instruction 02-Hour Practical		03	60	40	100	2

Professional Elective-1	
17CS551	Object Oriented Modeling and Design
17CS552	Introduction to Software Testing
17CS553	Advanced JAVA and J2EE
17CS554	Advanced Algorithms

VI SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17CS61	Cryptography, Network Security and Cyber Law	CS/IS	04		03	60	40	100	4
2	17CS62	Computer Graphics and Visualization	CS/IS	04		03	60	40	100	4
3	17CS63	System Software and Compiler Design	CS/IS	04		03	60	40	100	4
4	17CS64	Operating Systems	CS/IS	04		03	60	40	100	4
5	17CS65x	Professional Elective-2	CS/IS	03		03	60	40	100	3
6	17CS66x	Open Elective-2	CS/IS	03		03	60	40	100	3
7	17CSL67	System Software and Operating System Laboratory	CS/IS	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17CSL68	Computer Graphics Laboratory with mini project	CS/IS	01-Hour Instruction 02-Hour Practical		03	60	40	100	2

Professional Elective-2		Open Elective – 2*** (List offered by CSE Board only)	
17CS651	Data Mining and Data Warehousing	17CS661	Mobile Application Development
17CS652	Software Architecture and Design Patterns	17CS662	Big Data Analytics *(Not for CSE/ISE students)*
17CS653	Operations research	17CS663	Wireless Networks and Mobile computing
17CS654	Distributed Computing system	17CS664	Python Application Programming
		17CS665	Service Oriented Architecture
		17CS666	Multicore Architecture and Programming

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VII SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17CS71	Web Technology and its applications	CS/IS	04		03	60	40	100	4
2	17CS72	Advanced Computer Architectures	CS/IS	04		03	60	40	100	4
3	17CS73	Machine Learning	CS/IS	04		03	60	40	100	4
4	17CS74x	Professional Elective 3	CS/IS	03		03	60	40	100	3
5	17CS75x	Professional Elective 4	CS/IS	03		03	60	40	100	3
6	17CSL76	Machine Learning Laboratory	CS/IS	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
7	17CSL77	Web Technology Laboratory with mini project	CS/IS	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17CSP78	Project Work Phase–I + Project work Seminar	CS/IS		03	--	--	100	100	2

Professional Elective-3		Professional Elective-4	
17CS741	Natural Language Processing	17CS751	Soft and Evolutionary Computing
17CS742	Cloud Computing and its Applications	17CS752	Computer Vision and Robotics
17CS743	Information and Network Security	17CS753	Digital Image Processing
17CS744	Unix System Programming	17CS754	Storage Area Networks

VIII SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17CS81	Internet of Things and Applications	CS/IS	4	-	3	60	40	100	4
2	17CS82	Big Data Analytics	CS/IS	4	-	3	60	40	100	4
3	17CS83X	Professional Elective-5	CS/IS	3	-	3	60	40	100	3
4	17CS84	Internship/ Professional Practice	CS/IS	Industry Oriented		3	50	50	100	2
5	17CSP85	Project Work-II	CS/IS	-	6	3	100	100	200	6

Professional Elective -5	
17CS831	High Performance Computing
17CS832	User Interface Design
17CS833	Network management
17CS834	System Modeling and Simulation

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SCHEMEOFTEACHINGANDEXAMINATION
B.EElectronics&CommunicationEngineering/TelecommunicationEngineering(CommontoElectronics&CommunicationandTelecommunicationEngineering
2018-19

IIISEMESTER

SlNo	SubjectCode	Title	TeachingHours/Week		Examination				Credits
			Theory	Practical /Drawing	Duration	Theory /Practical Marks	I.A.Marks	TotalMarks	
1	15MAT31	EngineeringMathematics–III*	04		03	80	20	100	4
2	15EC32	AnalogElectronics	04		03	80	20	100	4
3	15EC33	Digital Electronics	04		03	80	20	100	4
4	15EC34	Network Analysis	04		03	80	20	100	4
5	15EC35	ElectronicInstrumentation	04		03	80	20	100	4
6	15EC36	Engineering Electromagnetics	04		03	80	20	100	4
7	15ECL37	AnalogElectronicsLab		1I+2P	03	80	20	100	2
8	15ECL38	Digital ElectronicsLab		1I+2P	03	80	20	100	2
		TOTAL	24	6	24	640	160	800	28

*AdditionalcourseforLateralentrystudentsonly:

1	15MATDIP31	AdditionalMathematics-I	03		03	80	--	80	--

IVSEMESTER

SlNo	SubjectCode	Title	TeachingHours /Week		Examination				Credits
			Theory	Practical / Drawing	Duration	Theory /Practical Marks	I.A. Marks	TotalMarks	
1	15MAT41	EngineeringMathematics–IV*	04		03	80	20	100	4
2	15EC42	Microprocessor	04		03	80	20	100	4
3	15EC43	ControlSystems	04		03	80	20	100	4
4	15EC44	SignalsandSystems	04		03	80	20	100	4
5	15EC45	PrinciplesofCommunicationSystems	04		03	80	20	100	4
6	15EC46	LinearIntegrated Circuits	04		03	80	20	100	4
7	15ECL47	MicroprocessorLab		1I+2P	03	80	20	100	2
8	15ECL48	Linear ICs and CommunicationLab		1I+2P	03	80	20	100	2
		TOTAL	24	06	24	640	160	800	28

*Additionalcoursefor Lateralentrystudentsonly:

1	15MATDIP41	AdditionalMathematics-II	03		03	80	--	80	--

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B.E Electronics & Communication Engineering / V SEMESTER

Sl. No	Subject Code	Title	Teaching Hours/Week		Examination				Credits
			Theory	Practical /Drawing	Duration	Theory/Practical Marks	IA Marks	Total Marks	
1	15ES51	Management and Entrepreneurship Development	04		03	80	20	100	4
2	15EC52	Digital Signal Processing	04					100	4
3	15EC53	Verilog HDL	04		03	80	20	100	4
4	15EC54	Information Theory and Coding	04		03	80	20	100	4
5	15XX55X	Professional Elective-1	03		03	80	20	100	3
6	15XX56X	Open Elective-1	03		03	80	20	100	3
7	15ECL57	DSP Lab		1I+2P	03	80	20	100	2
8	15ECL58	HDL Lab		1I+2P	03	80	20	100	2
		TOTAL	22	06	24	640	160	800	26

Professional Elective -1		Open Elective –1*(List offered by EC/TC Board only)	
15EC551	Nanoelectronics	15EC561	Automotive Electronics
15EC552	Switching & Finite Automata Theory	15EC562	Object Oriented Programming Using C++
15EC553	Operating System	15EC563	8051 Microcontroller
15EC554	Electrical Engineering Materials		
15TE555	Transmission Lines and Waveguides		

1. Professional Elective: Elective relevant to chosen specialization/branch.
2. *Open Elective List: For other Open Electives offered by other Boards, refer the Scheme of other Boards or Consolidated list in VTU Website.

SCHEME OF TEACHING AND EXAMINATION

VI SEMESTER

Sl. No	Subject Code	Title	Teaching Hours/Week		Examination				Credits
			Theory	Practical /Drawing	Duration	Theory/Practical Marks	IA Marks	Total Marks	
1	15EC61	Digital Communication	04		03	80	20	100	4
2	15EC62	ARM Microcontroller & Embedded Systems	04		03	80	20	100	4
3	15TE63	Microwave Theory and Antennas	04		03	80	20	100	4
4	15EC64	Computer Communication Networks	04		03	80	20	100	4
5	15XX65X	Professional Elective-2	03		03	80	20	100	3
6	15XX66X	Open Elective-2	03		03	80	20	100	3
7	15ECL67	Embedded Controller Lab		1I+2P	03	80	20	100	2
8	15TEL68	Microwave and Antennas Lab		1I+2P	03	80	20	100	2
		TOTAL	22	6	24	640	160	800	26

Professional Elective -2		Open Elective –2*(List offered by EC/TC Board only)	
15EC651	Cellular Mobile Communication	15EC661	Data Structures Using C++
15EC652	Adaptive Signal Processing	EC662	Power Electronics
15EC653	Artificial Neural Networks	EC663	Digital System Design using Verilog
15EC654	Digital Switching Systems		
15TE655	Image Processing		

1. Professional Elective: Elective relevant to chosen specialization/branch.
2. *Open Elective List: For other Open Electives offered by other Boards, refer the Scheme of other Boards or Consolidated list in VTU Website.

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B.E Telecommunication Engineering
2019-20

VIII SEMESTER

Sl.No	Subject Code	Title	Teaching Hours /Week		Examination				Credit
			Theory	Practical /Drawing	Duration	I.A. Marks	Theory /Practical Marks	Total Marks	
1	15EC81	Wireless Cellular and LTE 4G Broadband	4	-	3	20	80	100	4
2	15EC82	Fiber Optics and Networks	4	-	3	20	80	100	4
3	15XX83X	Professional Elective-5	3	-	3	20	80	100	3
4	15EC84	Internship/Professional Practice	Industry Oriented		3	50	50	100	2
5	15ECP85	Project Work	-	6	3	100	100	200	6
6	15ECS86	Seminar	-	4	-	100	-	100	1
		TOTAL	11	10	15	310	390	700	20

Professional Elective -5	
15EC831	MicroElectroMechanicalSystems
15EC832	Speech Processing
15EC833	Radar Engineering
15EC834	Machine Learning
15TE835	ADHOC Wireless Networks

1. Internship / Professional Practice: To be carried between the (6th and 7th Semester) or (7th and 8th Semester) Vacation period.

B.E Electronics & Communication Engineering / Telecommunication Engineering (Common to Electronics & Communication and Telecommunication Engineering)
2020-21

III SEMESTER

Sl.No	Course Code	Title	Teaching Department	Teaching Hours/Week		Examination				Credits
				Theory	Practical/Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17MAT31	Engineering Mathematics–III*	Maths	04		03	60	40	100	4
2	17EC32	Electronic Instrumentation	EC	03		03	60	40	100	3
3	17EC33	Analog Electronics	EC	04		03	60	40	100	4
4	17EC34	Digital Electronics	EC	04		03	60	40	100	4
5	17EC35	Network Analysis	EC	04		03	60	40	100	4
6	17EC36	Engineering Electromagnetics	EC	04		03	60	40	100	4
7	17ECL37	Analog Electronics Lab	EC	01- Hour Instruction 02- Hour Practical		03	60	40	100	2
8	17ECL38	Digital Electronics Lab	EC	01-Hour Instruction 02- Hour Practical		03	60	40	100	2
9	17KL/CPH39/49	Kannada/Constitution of India, Professional Ethics and Human Rights	Humanities	01		01	30	20	50	01
		TOTAL		Theory: 24 hours Practical: 06 hours		25	510	340	850	28

1. **Kannada/Constitution of India, Professional Ethics and Human Rights:** 50% of the programs of the Institution have to teach Kannada/Constitution of India, Professional Ethics and Human Rights in cycle based concept during III and IV semester.
2. **Audit Course:**

(i)* All lateral entry students (except B.Sc candidates) have to register for Additional Mathematics–I, which is 03 contact hours per week.

| 1 | 17MATDIP31 | Additional Mathematics –I | Maths | 03 | | 03 | 60 | -- | 60 | -- |

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IV SEMESTER

Sl.No	CourseCode	Title	TeachingDepartment	TeachingHours/Week		Examination				Credits
				Theory	Practical/Drawing	Duration inhours	SEE Marks	CIE Marks	TotalMarks	
1	17MAT41	EngineeringMathematics–IV*	Maths	04		03	60	40	100	4
2	17EC42	SignalsandSystems	EC	04		03	60	40	100	4
3	17EC43	ControlSystems	EC	04		03	60	40	100	4
4	17EC44	PrinciplesofCommunication Systems	EC	04		03	60	40	100	4
5	17EC45	LinearIntegratedCircuits	EC	04		03	60	40	100	4
6	17EC46	Microprocessor	EC	03		03	60	40	100	3
7	17ECL47	MicroprocessorLab	EC		01-Hour Instruction02-HourPractical	03	60	40	100	2
8	17ECL48	LinearICsandCommunicationLab	EC		01-Hour Instruction02-HourPractical	03	60	40	100	2
9	17KL/CPH39/49	Kannada/ConstitutionofIndia, ProfessionalEthicsandHumanRights	Humanities	01		01	30	20	50	01
		TOTAL		Theory: 24hoursPractical:06hours		25	510	340	850	28

1. **Kannada/ConstitutionofIndia,ProfessionalEthicsandHumanRights:**50%ofthe programs oftheInstitutionhavetoteachKannada/ConstitutionofIndia,ProfessionalEthicsandHuman Rightsincycle basedconceptduringIII and IV semest

2.**AuditCourse:**
(i)*AlllateralentrystudentsS(exceptB.Sccandidates)havetoregisterforAdditionalMathematics– II,whichis03 contacthoursperweek.

| 1 | 17MATDIP41 | AdditionalMathematics–II | Maths | 03 | | 03 | 60 | -- | 60 | -- |

V SEMESTER

B.E.:Electronics&CommunicationEngineering

Sl.No	CourseCode	Title	TeachingDepartment	TeachingHours/Week		Examination				Credits
				Theory	Practical/Drawing	Duration inhours	SEEMarks	CIE Marks	TotalMarks	
1	17ES51	ManagementandEntrepreneurshipDevelopment	EC	04		03	60	40	100	4
2	17EC52	DigitalSignalProcessing	EC	04		03	60	40	100	4
3	17EC53	VerilogHDL	EC	04		03	60	40	100	4
4	17EC54	InformationTheory&Coding	EC	04		03	60	40	100	4
5	17EC55X	ProfessionalElective-1	EC	03		03	60	40	100	3
6	17EC56X	OpenElective-1	EC	03		03	60	40	100	3
7	17ECL57	DSPLab	EC		01-Hour Instruction02-HourPractical	03	60	40	100	2
8	17ECL58	HDLLab	EC		01-Hour Instruction02-HourPractical	03	60	40	100	2
		TOTAL		Theory: 22hoursPractical:06hours		24	480	320	800	26

ProfessionalElective-1		OpenElective – 1***(ListofferedbyEC/TCBoardonly)	
17EC551	Nanoelectronics	17EC561	AutomotiveElectronics
17EC552	Switching&Finite Automata Theory	17EC562	ObjectOrientedProgrammingUsingC++
17EC553	OperatingSystem	17EC563	8051Microcontroller
17EC554	ElectricalEngineeringMaterials		
17EC555	MSP430Microcontroller		

***Students can select any one of the open electives offered by any Department (Please refer to consolidated list of VTU for open electives).Selectionofanopenelective isnotallowed, if:
· Thecandidatehasnopre –requisiteknowledge.
· Thecandidatehasstudiedsimilarcontentcourseduringprevioussemesters.
· The syllabus content of the selected open elective is similar to that of Departmental core course(s) or to be studied Professional elective(s).Registrationto openelectivesshall bedocumentedunde theguidanceofProgrammeCoordinator and Adviser.

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VI SEMESTER

B.E.:Electronics&CommunicationEngineering

Sl.No	CourseCode	Title	TeachingDepartment	TeachingHours /Week		Examination				Credits
				Theory	Practical/Drawing	Durationinhours	SEE Marks	CIE Marks	TotalMarks	
1	17EC61	DigitalCommunication	EC	04		03	60	40	100	4
2	17EC62	ARMMicrocontroller&EmbeddedSystems	EC	04		03	60	40	100	4
3	17EC63	VLSIDesign	EC	04		03	60	40	100	4
4	17EC64	ComputerCommunicationNetworks	EC	04		03	60	40	100	4
5	17EC65X	ProfessionalElective-2	EC	03		03	60	40	100	3
6	17EC66X	OpenElective-2	EC	03		03	60	40	100	3
7	17ECL67	EmbeddedControllerLab	EC	01-Hour Instruction02-HourPractical		03	60	40	100	2
8	17ECL68	ComputerNetworksLab	EC	01-Hour Instruction02-HourPractical		03	60	40	100	2
		TOTAL		Theory: 22hoursPractical:0 6hours		24	480	320	800	26

ProfessionalElective-2		OpenElective –2***(ListofferedbyEC/TCBoardonly)	
17EC651	CellularMobileCommunication	17EC661	DataStructuresUsingC++
17EC652	AdaptiveSignalProcessing	17EC662	PowerElectronics(notforE&Cstudent;)
17EC653	ArtificialNeuralNetworks	17EC663	Digital SystemDesignusingVerilog
17EC654	DigitalSwitchingSystems		

17EC655	Microelectronics

***Students can select any one of the open electives offered by any Department (Please refer to consolidated list of VTU for open electives).Selectionofanopenelective isnotallowed, if:
- Thecandidatehasnopre–requisiteknowledge.
- Thecandidatehasstudiedsimilarcontentcourseduringprevioussemesters.
- The syllabus content of the selected open elective is similar to that of Departmental core course(s) or to be studied Professional elective(s).Registrationto openelectivesshall bedocumentedund theguidance ofProgrammeCoordinatorandAdviser.

VII SEMESTER

B.E.:Electronics&CommunicationEngineering

Sl.No	CourseCode	Title	TeachingDepartment	TeachingHours /Week		Examination				Credits
				Theory	Practical/Drawing	Durationinhours	SEE Marks	CIE Marks	TotalMarks	
1	17EC71	MicrowaveandAntennas	EC	04		03	60	40	100	4
2	17EC72	DigitalImageProcessing	EC	04		03	60	40	100	4
3	17EC73	PowerElectronics	EC	04		03	60	40	100	4
4	17EC74X	ProfessionalElective-3	EC	03		03	60	40	100	3
5	17EC75X	ProfessionalElective-4	EC	03		03	60	40	100	3
6	17ECL76	AdvancedCommunicationLab	EC	01-Hour Instruction02-HourPractical		03	60	40	100	2
7	17ECL77	VLSILab	EC	01-Hour Instruction02-HourPractical		03	60	40	100	2
8	17ECP78	ProjectWorkPhase–I+Project workSeminar	EC		03		-	100	100	2
		TOTAL		Theory:18 hoursPracticaland Project:09hours		21	420	380	800	24

ProfessionalElective-3		ProfessionalElective-4	
17EC741	MultimediaCommunication	17EC751	DSPAlgorithmsandArchitecture
17EC742	BiomedicalSignalProcessing	17EC752	IOT andWirelessSensorNetworks

17EC743	RealTime Systems	17EC753	PatternRecognition
17EC744	Cryptography	17EC754	AdvancedComputerArchitecture
17EC745	CADforVLSI	17EC755	SatelliteCommunication

1. Project Phase – I and Project Seminar: Comprises of Literature Survey, Problem identification, Objectives and Methodology. CIE marks shall be based on th reportcoveringLiteratureSurvey,Problemidentification,Objectivesand MethodologyandSeminar presentationskill.

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VIII SEMESTER

Sl.No	CourseCode	Title	TeachingDepartment	TeachingHours /Week		Examination				Credits
				Theory	Practical/Drawing	Durationinhours	SEE Marks	CIE Marks	TotalMarks	
1	17EC81	WirelessCellularandLTE4GBroadband	EC	4	-	3	60	40	100	4
2	17EC82	FiberOptics&Networks	EC	4	-	3	60	40	100	4
3	17EC83X	ProfessionalElective-5	EC	3	-	3	60	40	100	3
4	17EC84	Internship/ProfessionalPractice	EC	IndustryOriented		3	50	50	100	2
5	17ECP85	ProjectWork	EC	-	6	3	100	100	200	6
6	17ECS86	Seminar	EC	-	4	-	-	100	100	1
		TOTAL		Theory: 11 hoursProjectand Seminar:10hours		15	330	370	700	20

ProfessionalElective-5	
17EC831	MicroElectroMechanicalSystems
17EC832	SpeechProcessing
17EC833	RadarEngineering
17EC834	Machinelearning
17EC835	NetworkandCyberSecurity

1.Internship/ProfessionalPractice:4Weeksinternshiptobecompletedbetweenthe(VIandVIIsemestervacation)and/or(VIIandVIIIsemestervacation)period.

SCHEMEOFTEACHINGANDEXAMINATION

B.EElectronics&CommunicationEngineering/TelecommunicationEngineering(CommontoElectronics&CommunicationandTelecommunicationEngineering
2018-19

IIISEMESTER

Sl.No.	SubjectCode	Title	TeachingHours/Week		Examination				Credits
			Theory	Practical /Drawing	Duration	Theory /Practical Marks	I.A.Marks	TotalMarks	
1	15MAT31	EngineeringMathematics–III*	04		03	80	20	100	4
2	15EC32	AnalogElectronics	04		03	80	20	100	4
3	15EC33	Digital Electronics	04		03	80	20	100	4
4	15EC34	Network Analysis	04		03	80	20	100	4
5	15EC35	ElectronicInstrumentation	04		03	80	20	100	4
6	15EC36	Engineering Electromagnetics	04		03	80	20	100	4
7	15ECL37	AnalogElectronicsLab		1I+2P	03	80	20	100	2
8	15ECL38	Digital ElectronicsLab		1I+2P	03	80	20	100	2
		TOTAL	24	6	24	640	160	800	28

*AdditionalcourseforLateralentrystudentsonly:

1	15MATDIP31	AdditionalMathematics-I	03		03	80	--	80	--

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IVSEMESTER

Sl.No	SubjectCode	Title	TeachingHours/Week		Examination				Credits
			Theory	Practical / Drawing	Duration	Theory /Practical Marks	I.A. Marks	TotalMarks	
1	15MAT41	EngineeringMathematics–IV*	04		03	80	20	100	4
2	15EC42	Microprocessor	04		03	80	20	100	4
3	15EC43	ControlSystems	04		03	80	20	100	4
4	15EC44	SignalsandSystems	04		03	80	20	100	4
5	15EC45	PrinciplesofCommunicationSystems	04		03	80	20	100	4
6	15EC46	LinearIntegrated Circuits	04		03	80	20	100	4
7	15ECL47	MicroprocessorLab		1I+2P	03	80	20	100	2
8	15ECL48	Linear ICs and CommunicationLab		1I+2P	03	80	20	100	2
		TOTAL	24	06	24	640	160	800	28

*Additionalcoursefor Lateralentrystudentsonly:

1	15MATDIP41	AdditionalMathematics-II	03		03	80	--	80	--

B.E Electronics & Communication Engineering / VSEMESTER

Sl. No	SubjectCode	Title	TeachingHours/Week		Examination				Credits
			Theory	Practical /Drawing	Duration	Theory/Practical Marks	I.A. Marks	TotalMarks	
1	15ES51	Managementand Entrepreneurship Development	04		03	80	20	100	4
2	15EC52	Digital SignalProcessing	04		03	80	20	100	4
3	15EC53	VerilogHDL	04		03	80	20	100	4
4	15EC54	InformationTheory andCoding	04		03	80	20	100	4
5	15XX55X	ProfessionalElective-1	03		03	80	20	100	3
6	15XX56X	OpenElective-1	03		03	80	20	100	3
7	15ECL57	DSPLab		1I+2P	03	80	20	100	2
8	15ECL58	HDLLab		1I+2P	03	80	20	100	2
		TOTAL	22	06	24	640	160	800	26

ProfessionalElective -1		Open Elective –1*(ListofferedbyEC/TCBoard only)	
15EC551	Nanoelectronics	15EC561	Automotive Electronics
15EC552	Switching&FiniteAutomataTheory	15EC562	ObjectOrientedProgrammingUsingC++
15EC553	OperatingSystem	15EC563	8 51 Microcontroller
15EC554	Electrical Engineering Materials		
15TE555	TransmissionLinesandWaveguides		

1. Professional Elective: Electiverelevanttochosenspecialization/branch.
2. *OpenElective List:ForotherOpenElectivesofferedbyother Boards, referthe SchemeofotherBoards orConsolidated listinVTUWebsite.

SCHEMEOFTEACHINGANDEXAMINATION

THE OXFORD COLLEGE OF ENGINEERING

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VI SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination					Credits
			Theory	Practical /Drawing	Duration	Theory/Practical Marks	I.A. Marks	Total Marks		
1	15EC61	Digital Communication	04			8	2	100	4	
2	15EC62	ARM Microcontroller & Embedded Systems	04		03	80	20	100	4	
3	15TE63	Microwave Theory and Antennas	04			8	2	100	4	
4	15EC64	Computer Communication Networks	04		03	80	20	100	4	
5	15XX65X	Professional Elective-2	03		03	80	20	100	3	
6	15XX66X	Open Elective-2	03		03	80	20	100	3	
7	15ECL67	Embedded Controller Lab		1I+2P	03	80	20	100	2	
8	15TEL68	Microwave and Antennas Lab		1I+2P	03	80	20	100	2	
		TOTAL	22	6	24	640	160	800	26	

Professional Elective -2		Open Elective –2*(List offered by EC./TC Board only)	
15EC651	Cellular Mobile Communication	15EC661	Data Structures Using C++
15EC652	Adaptive Signal Processing	EC662	Power Electronics
15EC653	Artificial Neural Networks	EC663	Digital System Design using Verilog
15EC654	Digital Switching Systems		
15TE655	Image Processing		

1. Professional Elective: Elective relevant to chosen specialization/branch.
2. *Open Elective List: For other Open Electives offered by other Boards, refer the Scheme of other Boards or Consolidated list in VTU Website.

B.E Telecommunication Engineering
2019-20

VIII SEMESTER

Sl No	Subject Code	Title	Teaching Hours /Week		Examination					Credit
			Theory	Practical /Drawing	Duration	I.A. Marks	Theory /Practical Marks	Total Marks		
1	15EC81	Wireless Cellular and LTE 4G Broadband	4	-	3	20	80	100	4	
2	15EC82	Fiber Optics and Networks	4	-	3	20	80	100	4	
3	15XX83X	Professional Elective-5	3	-	3	20	80	100	3	
4	15EC84	Internship/Professional Practice	Industry Oriented		3	50	50	100	2	
5	15ECP85	Project Work	-	6	3	100	100	200	6	
6	15ECS86	Seminar	-	4	-	100	-	100	1	
		TOTAL	11	10	15	310	390	700	20	

Professional Elective -5	
15EC831	Micro Electro Mechanical Systems
15EC832	Speech Processing
15EC833	Radar Engineering
15EC834	Machine Learning
15TE835	ADHOC Wireless Networks

1. Internship / Professional Practice: To be carried between the (6th and 7th Semester) or (7th and 8th Semester) Vacation period.

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B.E Electronics & Communication Engineering / Telecommunication Engineering(CommontoElectronics&CommunicationandTelecommunicationEngineering) 2020-21

III SEMESTER

Sl.No	CourseCode	Title	TeachingDepartment	Teaching Hours/Week Theory	Teaching Hours/Week Practical/Drawing	Duration inhours	SEE Marks	CIE Marks	TotalMarks	Credits
1	17MAT31	EngineeringMathematics–III*	Maths	04		03	60	40	100	4
2	17EC32	ElectronicInstrumentation	EC	03		03	60	40	100	3
3	17EC33	AnalogElectronics	EC	04		03	60	40	100	4
4	17EC34	DigitalElectronics	EC	04		03	60	40	100	4
5	17EC35	NetworkAnalysis	EC	04		03	60	40	100	4
6	17EC36	EngineeringElectromagnetics	EC	04		03	60	40	100	4
7	17ECL37	AnalogElectronics Lab	EC	01- HourInstruction 02- HourPractical		03	60	40	100	2
8	17ECL38	DigitalElectronics Lab	EC	01-Hour Instruction 02-HourPractical		03	60	40	100	2
9	17KL/CPH39/49	Kannada/Constitution of India,ProfessionalEthicsandHumanRights	Humanities	01		01	30	20	50	01
		TOTAL		Theory: 24hoursPractical:06hours		25	510	340	850	28

1. **Kannada/ConstitutionofIndia,ProfessionalEthicsandHumanRights:**50%oftheprogramsoftheInstitutionhavetoteachKannada/ConstitutionofIndia,ProfessionalEthicsand HumanRightsincycle basedconceptduringIII andIV semeste

2. **AuditCourse:**

(i)*Alllateralentrystudents(exceptB.Sccandidates)havetoregisterforAdditionalMathematics–I,whichis03contacthoursperweek.

1	17MATDIP31	AdditionalMathematics –I	Maths	03		03	60	--	60	--

IV SEMESTER

Sl.No	CourseCode	Title	TeachingDepartment	Teaching Hours/Week Theory	Teaching Hours/Week Practical/Drawing	Duration inhours	SEE Marks	CIE Marks	TotalMarks	Credits
1	17MAT41	EngineeringMathematics–IV*	Maths	04		03	60	40	100	4
2	17EC42	SignalsandSystems	EC	04		03	60	40	100	4
3	17EC43	ControlSystems	EC	04		03	60	40	100	4
4	17EC44	PrinciplesofCommunication Systems	EC	04		03	60	40	100	4
5	17EC45	LinearIntegratedCircuits	EC	04		03	60	40	100	4
6	17EC46	Microprocessor	EC	03		03	60	40	100	3
7	17ECL47	MicroprocessorLab	EC	01-Hour Instruction 02-HourPractical		03	60	40	100	2
8	17ECL48	LinearICsandCommunicationLab	EC	01-Hour Instruction 02-HourPractical		03	60	40	100	2
9	17KL/CPH39/49	Kannada/ConstitutionofIndia, ProfessionalEthicsandHumanRights	Humanities	01		01	30	20	50	01
		TOTAL		Theory: 24hoursPractical:06hours		25	510	340	850	28

1. **Kannada/ConstitutionofIndia,ProfessionalEthicsandHumanRights:**50%ofthe programs oftheInstitutionhavetoteachKannada/ConstitutionofIndia,ProfessionalEthicsandHuman Rightsincycle basedconceptduringIII and IV semest

2.**AuditCourse:**
(i)*Alllateralentrystudents(exceptB.Sccandidates)havetoregisterforAdditionalMathematics– II,whichis03 contacthoursperweek.

1	17MATDIP41	AdditionalMathematics–II	Maths	03		03	60	--	60	--

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Estd. 1974

V SEMESTER

B.E.:Electronics&CommunicationEngineering

SlNo	CourseCode	Title	TeachingDepartment	TeachingHours/Week		Examination				Credits
				Theory	Practical/Drawing	Duration inhours	SEEMarks	CIE Marks	TotalMarks	
1	17ES51	ManagementandEntrepreneurshipDevelopment	EC	04		03	60	40	100	4
2	17EC52	DigitalSignalProcessing	EC	04		03	60	40	100	4
3	17EC53	VerilogHDL	EC	04		03	60	40	100	4
4	17EC54	InformationTheory&Coding	EC	04		03	60	40	100	4
5	17EC55X	ProfessionalElective-1	EC	03		03	60	40	100	3
6	17EC56X	OpenElective-1	EC	03		03	60	40	100	3
7	17ECL57	DSPLab	EC	01-Hour Instruction02-HourPractical		03	60	40	100	2
8	17ECL58	HDLLab	EC	01-Hour Instruction02-HourPractical		03	60	40	100	2
		TOTAL		Theory:22hoursPractical:0 6hours		24	480	320	800	26

ProfessionalElective-1		OpenElective – 1***(ListofferedbyEC/TCBoardonly)	
17EC551	Nanoelectronics	17EC561	AutomotiveElectronics
17EC552	Switching&Finite Automata Theory	17EC562	ObjectOrientedProgrammingUsingC++
17EC553	OperatingSystem	17EC563	8051Microcontroller
17EC554	ElectricalEngineeringMaterials		
17EC555	MSP430Microcontroller		

***Students can select any one of the open electives offered by any Department (Please refer to consolidated list of VTU for open electives).Selectionofanopenelective isnotallowed, if:
· Thecandidatehasnopre –requisiteknowledge.
· Thecandidatehasstudiedsimilarcontentcourseduringprevioussemesters.
· The syllabus content of the selected open elective is similar to that of Departmental core course(s) or to be studied Professional elective(s).Registrationto openelectivesshall bedocumentedunder theguidanceofProgrammeCoordinator and Adviser.

VI SEMESTER

B.E.:Electronics&CommunicationEngineering

SlNo	CourseCode	Title	TeachingDepartment	TeachingHours/Week		Examination				Credits
				Theory	Practical/Drawing	Durationinhours	SEE Marks	CIE Marks	TotalMarks	
1	17EC61	DigitalCommunication	EC	04		03	60	40	100	4
2	17EC62	ARMMicrocontroller&EmbeddedSystems	EC	04		03	60	40	100	4
3	17EC63	VLSIDesign	EC	04		03	60	40	100	4
4	17EC64	ComputerCommunicationNetworks	EC	04		03	60	40	100	4
5	17EC65X	ProfessionalElective-2	EC	03		03	60	40	100	3
6	17EC66X	OpenElective-2	EC	03		03	60	40	100	3
7	17ECL67	EmbeddedControllerLab	EC	01-Hour Instruction02-HourPractical		03	60	40	100	2
8	17ECL68	ComputerNetworksLab	EC	01-Hour Instruction02-HourPractical		03	60	40	100	2
		TOTAL		Theory:22hoursPractical:0 6hours		24	480	320	800	26

ProfessionalElective-2		OpenElective –2***(ListofferedbyEC/TCBoardonly)	
17EC651	CellularMobileCommunication	17EC661	DataStructuresUsingC++
17EC652	AdaptiveSignalProcessing	17EC662	PowerElectronics(notforE&Cstudents)
17EC653	ArtificialNeuralNetworks	17EC663	Digital SystemDesignusingVerilog
17EC654	DigitalSwitchingSystems		
17EC655	Microelectronics		

***Students can select any one of the open electives offered by any Department (Please refer to consolidated list of VTU for open electives).Selectionofanopenelective isnotallowed, if:
· Thecandidatehasnopre –requisiteknowledge.
· Thecandidatehasstudiedsimilarcontentcourseduringprevioussemesters.
· The syllabus content of the selected open elective is similar to that of Departmental core course(s) or to be studied Professional elective(s).Registrationto openelectivesshall bedocumentedund theguidance ofProgrammeCoordinatorandAdviser.

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Estd. 1974

VII SEMESTER

B.E. :Electronics&CommunicationEngineering

Sl.No	CourseCode	Title	TeachingDepartment	TeachingHours/Week		Examination				Credits
				Theory	Practical/Drawing	Durationinhours	SEE Marks	CIE Marks	TotalMarks	
1	17EC71	MicrowaveandAntennas	EC	04		03	60	40	100	4
2	17EC72	DigitalImageProcessing	EC	04		03	60	40	100	4
3	17EC73	PowerElectronics	EC	04		03	60	40	100	4
4	17EC74X	ProfessionalElective-3	EC	03		03	60	40	100	3
5	17EC75X	ProfessionalElective-4	EC	03		03	60	40	100	3
6	17ECL76	AdvancedCommunicationLab	EC	01-Hour Instruction02-HourPractical		03	60	40	100	2
7	17ECL77	VLSILab	EC	01-Hour Instruction02-HourPractical		03	60	40	100	2
8	17ECP78	ProjectWorkPhase–I+Project workSeminar	EC		03		-	100	100	2
		TOTAL		Theory:18 hoursPracticaland Project:09hours		21	420	380	800	24

ProfessionalElective-3		ProfessionalElective-4	
17EC741	MultimediaCommunication	17EC751	DSPAlgorithmsandArchitecture
17EC742	BiomedicalSignalProcessing	17EC752	IOT andWirelessSensorNetworks

17EC743	RealTime Systems	17EC753	PatternRecognition
17EC744	Cryptography	17EC754	AdvancedComputerArchitecture
17EC745	CADforVLSI	17EC755	SatelliteCommunication

1. Project Phase – I and Project Seminar: Comprises of Literature Survey, Problem identification, Objectives and Methodology. CIE marks shall be based on the reportcoveringLiteratureSurvey,Problemidentification,Objectivesand MethodologyandSeminar presentationskill.

VIII SEMESTER

Sl.No	CourseCode	Title	TeachingDepartment	TeachingHours/Week		Examination				Credits
				Theory	Practical/Drawing	Durationinhours	SEE Marks	CIE Marks	TotalMarks	
1	17EC81	WirelessCellularandLTE4GBroadband	EC	4	-	3	60	40	100	4
2	17EC82	FiberOptics&Networks	EC	4	-	3	60	40	100	4
3	17EC83X	ProfessionalElective-5	EC	3	-	3	60	40	100	3
4	17EC84	Internship/ProfessionalPractice	EC	IndustryOriented		3	50	50	100	2
5	17ECP85	ProjectWork	EC	-	6	3	100	100	200	6
6	17ECS86	Seminar	EC	-	4	-	-	100	100	1
		TOTAL		Theory: 11 hoursProjectand Seminar:10hours		15	330	370	700	20

ProfessionalElective-5	
17EC831	MicroElectroMechanicalSystems
17EC832	SpeechProcessing
17EC833	RadarEngineering
17EC834	Machinelearning
17EC835	NetworkandCyberSecurity

1.Internship/ProfessionalPractice:4Weeksinternshiptobecompletedbetweenthe(VIandVIIsemestervacation)and/or(VIIandVIIIsemestervacation)period.

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SCHEMEOFTEACHINGANDEXAMINATION

B.EElectronics&CommunicationEngineering/TelecommunicationEngineering(CommontoElectronics&CommunicationandTelecommunicationEngineering
2018-19

IIISEMESTER

SlNo.	SubjectCode	Title	TeachingHours/Week		Examination				Credits
			Theory	Prac t ical /Drawi ng	Duration	Theory /Pract icalMarks	I.A.Marks	TotalMarks	
1	15MAT31	EngineeringMathematics–III*	04		03	80	20	100	4
2	15EC32	AnalogElectronics	04		03	80	20	100	4
3	15EC33	Digital Electronics	04		03	80	20	100	4
4	15EC34	Network Analysis	04		03	80	20	100	4
5	15EC35	ElectronicInstrumentation	04		03	80	20	100	4
6	15EC36	Engineering Electromagnetics	04		03	80	20	100	4
7	15ECL37	AnalogElectronicsLab		1I+2P	03	80	20	100	2
8	15ECL38	Digital ElectronicsLab		1I+2P	03	80	20	100	2
		TOTAL	24	6	24	640	160	800	28

*AdditionalcourseforLateralentrystudentsonly:

1	15MATDIP31	AdditionalMathematics-I	03		03	80	--	80	--

IVSEMESTER

SlNo	SubjectCode	Title	TeachingHours /Week		Examination				Credits
			Theory	Practical / Drawing	Duration	Theory /Pract icalMarks	I.A. Marks	TotalMarks	
1	15MAT41	EngineeringMathematics–IV*	04		03	80	20	100	4
2	15EC42	Microprocessor	04		03	80	20	100	4
3	15EC43	ControlSystems	04		03	80	20	100	4
4	15EC44	SignalsandSystems	04		03	80	20	100	4
5	15EC45	PrinciplesofCommu nicationSystems	04		03	80	20	100	4
6	15EC46	LinearIntegrated Circuits	04		03	80	20	100	4
7	15ECL47	MicroprocessorLab		1I+2P	03	80	20	100	2
8	15ECL48	Linear ICs and CommunicationLab		1I+2P	03	80	20	100	2
		TOTAL	24	06	24	640	160	800	28

*Additionalcoursefor Lateralentrystudentsonly:

1	15MATDIP41	AdditionalMathematics-II	03		03	80	--	80	--

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B.E Electronics & Communication Engineering / V SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical /Drawing	Duration	Theory/Practical Marks	IA Marks	Total Marks	
1	15ES51	Management and Entrepreneurship Development	04		03	80	20	100	4
2	15EC52	Digital Signal Processing	04				0	100	4
3	15EC53	Verilog HDL	04		03	80	20	100	4
4	15EC54	Information Theory and Coding	04		03	80	20	100	4
5	15XX55X	Professional Elective-1	03		03	80	20	100	3
6	15XX56X	Open Elective-1	03		03	80	20	100	3
7	15ECL57	DSP Lab		1I+2P	03	80	20	100	2
8	15ECL58	HDL Lab		1I+2P	03	80	20	100	2
		TOTAL	22	06	24	640	160	800	26

Professional Elective -1		Open Elective –1*(List offered by EC/TC Board only)	
15EC551	Nanoelectronics	15EC561	Automotive Electronics
15EC552	Switching & Finite Automata Theory	15EC562	Object Oriented Programming Using C++
15EC553	Operating System	15EC563	8051 Microcontroller
15EC554	Electrical Engineering Materials		
15TE555	Transmission Lines and Waveguides		

1. Professional Elective: Elective relevant to chosen specialization/branch.
2. *Open Elective List:For other Open Electives offered by other Boards, refer the Scheme of other Boards or Consolidated list in VTU Website.

SCHEME OF TEACHING AND EXAMINATION

VI SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical /Drawing	Duration	Theory/Practical Marks	IA Marks	Total Marks	
1	15EC61	Digital Communication	04		03	80	20	100	4
2	15EC62	ARM Microcontroller & Embedded Systems	04		03	80	20	100	4
3	15TE63	Microwave Theory and Antennas	04		03	80	20	100	4
4	15EC64	Computer Communication Networks	04		03	80	20	100	4
5	15XX65X	Professional Elective-2	03		03	80	20	100	3
6	15XX66X	Open Elective-2	03		03	80	20	100	3
7	15ECL67	Embedded Controller Lab		1I+2P	03	80	20	100	2
8	15TEL68	Microwave and Antennas Lab		1I+2P	03	80	20	100	2
		TOTAL	22	6	24	640	160	800	26

Professional Elective -2		Open Elective –2*(List offered by EC/TC Board only)	
15EC651	Cellular Mobile Communication	15EC661	Data Structures Using C++
15EC652	Adaptive Signal Processing	EC662	Power Electronics
15EC653	Artificial Neural Networks	EC663	Digital System Design using Verilog
15EC654	Digital Switching Systems		
15TE655	Image Processing		

1. Professional Elective: Elective relevant to chosen specialization/branch.
2. *Open Elective List:For other Open Electives offered by other Boards, refer the Scheme of other Boards or Consolidated list in VTU Website.

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B.E Telecommunication Engineering
2019-20

VIII SEMESTER

Sl.No	Subject Code	Title	Teaching Hours /Week		Examination					Credit
			Theory	Practical /Drawing	Duration	I.A. Marks	Theory /Practical Marks	Total Marks	
1	15EC81	Wireless Cellular and LTE4G Broadband	4	-	3	20	80	100	4
2	15EC82	Fiber Optics and Networks	4	-	3	20	80	100	4
3	15XX83X	Professional Elective-5	3	-	3	20	80	100	3
4	15EC84	Internship/Professional Practice	Industry Oriented		3	50	50	100	2
5	15ECP85	Project Work	-	6	3	100	100	200	6
6	15ECS86	Seminar	-	4	-	100	-	100	1
		TOTAL	11	10	15	310	390	700	20

Professional Elective -5	
15EC831	MicroElectroMechanical Systems
15EC832	Speech Processing
15EC833	Radar Engineering
15EC834	Machine Learning
15TE835	ADHOC Wireless Networks

1. Internship / Professional Practice: To be carried between the (6th and 7th Semester) or (7th and 8th Semester) Vacation period.

B.E Electronics & Communication Engineering / Telecommunication Engineering (Common to Electronics & Communication and Telecommunication Engineering)
2020-21

III SEMESTER

Sl.No	Course Code	Title	Teaching Department	Teaching Hours/Week		Examination			Credits
				Theory	Practical/Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17MAT31	Engineering Mathematics–III*	Maths	04		03	60	40	100	4
2	17EC32	Electronic Instrumentation	EC	03		03	60	40	100	3
3	17EC33	Analog Electronics	EC	04		03	60	40	100	4
4	17EC34	Digital Electronics	EC	04		03	60	40	100	4
5	17EC35	Network Analysis	EC	04		03	60	40	100	4
6	17EC36	Engineering Electromagnetics	EC	04		03	60	40	100	4
7	17ECL37	Analog Electronics Lab	EC	01- Hour Instruction 02- Hour Practical		03	60	40	100	2
8	17ECL38	Digital Electronics Lab	EC	01-Hour Instruction 02- Hour Practical		03	60	40	100	2
9	17KL/CPH39/49	Kannada/Constitution of India, Professional Ethics and Human Rights	Humanities	01		01	30	20	50	01
		TOTAL		Theory: 24 hours Practical:06 hours		25	510	340	850	28

1. **Kannada/Constitution of India, Professional Ethics and Human Rights:** 50% of the programs of the Institution have to teach Kannada/Constitution of India, Professional Ethics and Human Rights in cycle based concept during III and IV semeste
2. **Audit Course:**

(i)* All lateral entry students (except B.Sc candidates) have to register for Additional Mathematics – I, which is 03 contact hours per week.

| 1 | 17MATDIP31 | Additional Mathematics – I | Maths | 03 | | 03 | 60 | -- | 60 | -- |

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IV SEMESTER

Sl.No	CourseCode	Title	TeachingDepartment	Teaching Hours/Week		Examination				Credits
				Theory	Practical/Drawing	Duration in hours	SEE Marks	CIE Marks	TotalMarks	
1	17MAT41	EngineeringMathematics–IV*	Maths	04		03	60	40	100	4
2	17EC42	SignalsandSystems	EC	04		03	60	40	100	4
3	17EC43	ControlSystems	EC	04		03	60	40	100	4
4	17EC44	PrinciplesofCommunication Systems	EC	04		03	60	40	100	4
5	17EC45	LinearIntegratedCircuits	EC	04		03	60	40	100	4
6	17EC46	Microprocessor	EC	03		03	60	40	100	3
7	17ECL47	MicroprocessorLab	EC		01-Hour Instruction02-HourPractical	03	60	40	100	2
8	17ECL48	LinearICsandCommunicationLab	EC		01-Hour Instruction02-HourPractical	03	60	40	100	2
9	17KL/CPH39/49	Kannada/ConstitutionofIndia, ProfessionalEthicsandHumanRights	Humanities	01		01	30	20	50	01
		TOTAL		Theory: 24hoursPractical:06hours		25	510	340	850	28

1. **Kannada/ConstitutionofIndia,ProfessionalEthicsandHumanRights:**50%ofthe programs oftheInstitutionhavetoteachKannada/ConstitutionofIndia,ProfessionalEthicsandHuman Rightsincycle basedconceptduringIII and IV semest

2.**AuditCourse:**
(i)*Alllateralentrystudents(exceptB.Sccandidates)havetoregisterforAdditionalMathematics– II,whichis03 contacthoursperweek.

1	17MATDIP41	AdditionalMathematics–II	Maths	03		03	60	--	60	--

V SEMESTER

B.E.:Electronics&CommunicationEngineering

Sl.No	CourseCode	Title	TeachingDepartment	TeachingHours /Week		Examination				Credits
				Theory	Practical/Drawing	Duration in hours	SEEMarks	CIE Marks	TotalMarks	
1	17ES51	ManagementandEntrepreneurshipDevelopment	EC	04		03	60	40	100	4
2	17EC52	DigitalSignalProcessing	EC	04		03	60	40	100	4
3	17EC53	VerilogHDL	EC	04		03	60	40	100	4
4	17EC54	InformationTheory&Coding	EC	04		03	60	40	100	4
5	17EC55X	ProfessionalElective-1	EC	03		03	60	40	100	3
6	17EC56X	OpenElective-1	EC	03		03	60	40	100	3
7	17ECL57	DSPLab	EC		01-Hour Instruction02-HourPractical	03	60	40	100	2
8	17ECL58	HDLLab	EC		01-Hour Instruction02-HourPractical	03	60	40	100	2
		TOTAL		Theory: 22hoursPractical:0 6hours		24	480	320	800	26

ProfessionalElective-1		OpenElective – 1***(ListofferedbyEC/TCBoardonly)	
17EC551	Nanoelectronics	17EC561	AutomotiveElectronics
17EC552	Switching&Finite Automata Theory	17EC562	ObjectOrientedProgrammingUsingC++
17EC553	OperatingSystem	17EC563	8051Microcontroller
17EC554	ElectricalEngineeringMaterials		
17EC555	MSP430Microcontroller		

***Students can select any one of the open electives offered by any Department (Please refer to consolidated list of VTU for open electives).Selectionofanopenelective isnotallowed, if:
· Thecandidatehasnopre –requisiteknowledge.
· Thecandidatehasstudiedsimilarcontentcourseduringprevioussemesters.
· The syllabus content of the selected open elective is similar to that of Departmental core course(s) or to be studied Professional elective(s).Registrationto openelectivesshall bedocumentedunde theguidanceofProgrammeCoordinator and Adviser.

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VI SEMESTER

B.E.:Electronics&CommunicationEngineering

Sl.No	CourseCode	Title	TeachingDepartment	TeachingHours/Week		Examination				Credits
				Theory	Practical/Drawing	Durationinhours	SEE Marks	CIE Marks	TotalMarks	
1	17EC61	DigitalCommunication	EC	04		03	60	40	100	4
2	17EC62	ARMMicrocontroller&EmbeddedSystems	EC	04		03	60	40	100	4
3	17EC63	VLSIDesign	EC	04		03	60	40	100	4
4	17EC64	ComputerCommunicationNetworks	EC	04		03	60	40	100	4
5	17EC65X	ProfessionalElective-2	EC	03		03	60	40	100	3
6	17EC66X	OpenElective-2	EC	03		03	60	40	100	3
7	17ECL67	EmbeddedControllerLab	EC	01-Hour Instruction02-HourPractical		03	60	40	100	2
8	17ECL68	ComputerNetworksLab	EC	01-Hour Instruction02-HourPractical		03	60	40	100	2
TOTAL				Theory: 22hoursPractical:0 6hours		24	480	320	800	26

ProfessionalElective-2		OpenElective –2***(ListofferedbyEC/TCBoardonly)	
17EC651	CellularMobileCommunication	17EC661	DataStructuresUsingC++
17EC652	AdaptiveSignalProcessing	17EC662	PowerElectronics(notforE&Cstudents)
17EC653	ArtificialNeuralNetworks	17EC663	Digital SystemDesignusingVerilog
17EC654	DigitalSwitchingSystems		

17EC655	Microelectronics

***Students can select any one of the open electives offered by any Department (Please refer to consolidated list of VTU for open electives).Selectionofanopenelective isnotallowed, if:
- Thecandidatehasnopre–requisiteknowledge.
- Thecandidatehasstudiedsimilarcontentcourseduringprevioussemesters.
- The syllabus content of the selected open elective is similar to that of Departmental core course(s) or to be studied Professional elective(s).Registrationto openelectivesshall bedocumentedund theguidance ofProgrammeCoordinatorandAdviser.

VII SEMESTER

B.E.:Electronics&CommunicationEngineering

Sl.No	CourseCode	Title	TeachingDepartment	TeachingHours/Week		Examination				Credits
				Theory	Practical/Drawing	Durationinhours	SEE Marks	CIE Marks	TotalMarks	
1	17EC71	MicrowaveandAntennas	EC	04		03	60	40	100	4
2	17EC72	DigitalImageProcessing	EC	04		03	60	40	100	4
3	17EC73	PowerElectronics	EC	04		03	60	40	100	4
4	17EC74X	ProfessionalElective-3	EC	03		03	60	40	100	3
5	17EC75X	ProfessionalElective-4	EC	03		03	60	40	100	3
6	17ECL76	AdvancedCommunicationLab	EC	01-Hour Instruction02-HourPractical		03	60	40	100	2
7	17ECL77	VLSILab	EC	01-Hour Instruction02-HourPractical		03	60	40	100	2
8	17ECP78	ProjectWorkPhase–I+Project workSeminar	EC		03		-	100	100	2
TOTAL				Theory:18 hoursPracticaland Project:09hours		21	420	380	800	24

ProfessionalElective-3		ProfessionalElective-4	
17EC741	MultimediaCommunication	17EC751	DSPAlgorithmsandArchitecture
17EC742	BiomedicalSignalProcessing	17EC752	IOT andWirelessSensorNetworks

17EC743	RealTime Systems	17EC753	PatternRecognition
17EC744	Cryptography	17EC754	AdvancedComputerArchitecture
17EC745	CADforVLSI	17EC755	SatelliteCommunication

1. Project Phase – I and Project Seminar: Comprises of Literature Survey, Problem identification, Objectives and Methodology. CIE marks shall be based on th reportcoveringLiteratureSurvey,Problemidentification,Objectivesand MethodologyandSeminar presentationskill.

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VIII SEMESTER

Sl.No	CourseCode	Title	Teaching Department	Theory	Practical/Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	Credits
1	17EC81	WirelessCellularandLTE4GBroadband	EC	4	-	3	60	40	100	4
2	17EC82	FiberOptics&Networks	EC	4	-	3	60	40	100	4
3	17EC83X	ProfessionalElective-5	EC	3	-	3	60	40	100	3
4	17EC84	Internship/ProfessionalPractice	EC	IndustryOriented		3	50	50	100	2
5	17ECP85	ProjectWork	EC	-	6	3	100	100	200	6
6	17ECS86	Seminar	EC	-	4	-	-	100	100	1
		TOTAL		Theory: 11 hoursProjectand Seminar:10hours		15	330	370	700	20

ProfessionalElective-5	
17EC831	MicroElectroMechanicalSystems
17EC832	SpeechProcessing
17EC833	RadarEngineering
17EC834	Machinelearning
17EC835	NetworkandCyberSecurity

1.Internship/ProfessionalPractice:4Weeksinternshiptobecompletedbetweenthe(VIandVIIsemestervacation)and/or(VIIandVIIIsemestervacation)period.

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EEE Department

2016-17

UG

SCHEME OF TEACHING & EXAMINATION

III SEMESTER

ELECTRICAL AND ELECTRONICS ENGINEERING

Subject Code	Title	Teaching Dept.	Teaching hours/week		Examination			
			Theory	Practical	Duration in hours	Marks		
						I. A	Theory/ Practical	Total Marks
10MAT - 31	Engineering Mathematics - III	Mat	04		03	25	100	125
10ES – 32	Analog Electronic Circuits	@	04		03	25	100	125
10ES – 33	Logic Design	@	04		03	25	100	125
10ES – 34	Network Analysis	@	04		03	25	100	125
10EE– 35	Electrical and Electronic Measurements And Instrumentation	E&EE	04		03	25	100	125
10EE – 36	Electric Power Generation	E&EE	04		03	25	100	125
10ESL – 37	Analog Electronics Lab	@		03	03	25	50	75
10ESL – 38	Logic Design Lab	@		03	03	25	50	75
		Total	24	06	24	200	700	900

Note : @ indicates concerned discipline. ES (for theory) & ESL (for Lab) in the subject code indicates that the subject is common to electrical and electronics stream consisting of EE/EC/IT/TC/ML/BM branches of engineering. EE indicates, subjects specific to E & EE branch only.

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IV SEMESTER
ELECTRICAL AND ELECTRONICS ENGINEERING

Subject Code	Title	Teaching Dept.	Theory	Practical	Duration in hours	I.A	Theory/Practical	Total Marks
10MAT-41	Engineering Mathematics - IV	Mat	04		03	25	100	125
10ES-42	Microcontrollers	@	04		03	25	100	125
10ES-43	Control Systems	@	04		03	25	100	125
10EE-44	Field Theory	E&EE	04		03	25	100	125
10EE-45	Power Electronics	E&EE	04		03	25	100	125
10EE-46	Transformers and Induction Machines	E&EE	04		03	25	100	125
10ESL-47	Microcontrollers Lab	@		03	03	25	50	75
10EEL-48	Power Electronics Lab	E&EE		03	03	25	50	75
		Total	24	06	24	200	700	900

Note : @ indicates concerned discipline. ES (for theory) & ESL (for Lab) in the subject code indicates that the subject is common to electrical and electronics stream consisting of EE/EC/IT/TC/ML/BM branches of engineering. EE indicates, subjects specific to E & EE branch only.

V SEMESTER

ELECTRICAL AND ELECTRONICS ENGINEERING

Sl. No.	Subject Code	Title of the Subject	Teaching Dept.	Theory	Practical	Duration (Hrs)	IA	Theory / Practical	Total
01	10AL51	Management and Entrepreneurship	@	4	-	3	25	100	125
02	10EE52	Signals and Systems	E&EE	4	-	3	25	100	125
03	10EE53	Transmission and Distribution	E&EE	4	-	3	25	100	125
04	10EE54	D.C. Machines and Synchronous Machines	E&EE	4	-	3	25	100	125
05	10EE55	Modern Control theory	E&EE	4	-	3	25	100	125
06	10EE56	Linear IC's and Applications	E&EE	4	-	3	25	100	125
07	10EEL57	Measurements and Circuit Simulation Laboratory	E&EE	-	3	3	25	50	75
08	10EEL58	Transformers and Induction Machines Laboratory	E&EE	-	3	3	25	50	75
		Total		24	06	24	200	700	900

@ Any Engineering department or department of Business study.

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VI SEMESTER

ELECTRICAL AND ELECTRONICS ENGINEERING

Sl. No.	Subject Code	Title of the Subject	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Practical	Duration (Hrs)	Marks		
							IA	Theory / Practical	Total
1	10EE61	Power System Analysis and Stability	E&EE	4	-	3	25	100	125
2	10EE62	Switchgear & Protection	E&EE	4	-	3	25	100	125
3	10EE63	Electrical Machine Design	E&EE	4	-	3	25	100	125
4	10EE64	Digital Signal Processing	E&EE	4	-	3	25	100	125
5	10EE65	Computer Aided Electrical Drawing	E&EE	1	3	3	25	100	125
6	10EE66X	Elective-I (Group A)	E&EE	4	-	3	25	100	125
7	10EEL67	D.C. Machines and Synchronous Machines Laboratory	E&EE	-	3	3	25	50	75
8	10EEL68	Control Systems Laboratory	E&EE	-	3	3	25	50	75
		Total		21	09	24	200	700	900

Elective-I (Group A)
10EE661-Opration Research
10EE662 - Advanced Power Electronics
10EE663 – Fuzzy Logic

10EE664 - Object Oriented Programming using C++
10EE665 - Embedded Systems
10EE666 – Electrical Engineering Materials

VII SEMESTER

ELECTRICAL AND ELECTRONICS ENGINEERING

Sl. No.	Subject Code	Title of the Subject	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Practical	Duration (Hrs)	Marks		
							IA	Theory / Practical	Total
1	10EE71	Computer Techniques in Power System Analysis	E&EE	4	-	3	25	100	125
2	10EE72	Electrical Power Utilization	E&EE	4	-	3	25	100	125
3	10EE73	High Voltage Engineering	E&EE	4	-	3	25	100	125
4	10EE74	Industrial Drives and Applications	E&EE	4	-	3	25	100	125
5	10EE75X	Elective-II (Group B)	E&EE	4	-	3	25	100	125
6	10EE76X	Elective-III (Group C)	E&EE	4	-	3	25	100	125
7	10EEL77	Relay and High Voltage Laboratory	E&EE	-	3	3	25	50	75
8	10EEL78	Power System Simulation Laboratory	E&EE	-	3	3	25	50	75
		Total		24	06	24	200	700	900

Elective-II (Group B)
10EE751 - HVDC Transmission
10EE752 - Programmable Logic Controllers
10EE753 - Artificial Neural Network
10EE754 - Operating System
10EE755 - Digital System with VHDL
10EE756 - Testing and Commissioning of Electrical Equipment

Elective-III (Group C)
10EE761 - Power System Planning
10EE762 - Computer Control of Electrical Drives
10EE763 - Data Structure
10EE764 - VLSI Circuits and Design
10EE765 - Micro & Smart System Technology
10EE766 - Electromagnetic Compatibility

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VIII SEMESTER

ELECTRICAL AND ELECTRONICS ENGINEERING

Sl. No.	Subject Code	Title of the Subject	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Practical	Duration (Hrs)	IA	Theory / Practical	Total
1	10EE81	Electrical Design, Estimation and Costing	E&EE	4	-	3	25	100	125
2	10EE82	Power System Operation and Control	E&EE	4	-	3	25	100	125
3	10EE83X	Elective-IV (Group D)	E&EE	4	-	3	25	100	125
4	10EE84X	Elective-V (Group E)	E&EE	4	-	3	25	100	125
5	10EEP85	Project Work	E&EE	-	6	3	100	100	200
6	10EES86	Seminar (on a latest topic relevant to the branch and independent of the project work)	E&EE	-	3	-	50	-	50
		Total		16	09	15	250	500	750

Elective-IV (Group-D)
10EE831 - Reactive Power Management
10EE832 - Flexible A.C. Transmission Systems (FACTS)
10EE833- Advanced Instrumentation System
10EE834 - AI Applications to Power Systems
10EE835 - Data Base Management Systems (DBMS)
10EE836 - Renewable Energy Sources

Elective-V (Group-E)
10EE841 - Power Systems Dynamics and Stability
10EE842 - Energy Auditing & Demand Side Management
10EE843 - Data communications and Networking
10EE844 - Electrical Distribution Systems
10EE845 - Insulation Engineering
10EE846 - Intellectual Property Rights
10EE847 - Electrical Power Quality

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B.E. ELECTRICAL AND ELECTRONICS ENGINEERING
CHOICE BASED CREDIT SYSTEM (CBCS)

III SEMESTER

Sl. No	Subject Code	Subject (Course)	Title	Teaching Dept.	Teaching Hours /Week		Examination				Credits
					Theory	Practical/ Drawing	Duration in hours	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15MAT31	Core Subject	Engineering Mathematics-III	Mathematics	04	--	03	20	80	100	4
2	15EE32	Core Subject	Electric Circuit Analysis	EEE	04	--	03	20	80	100	4
3	15EE33	Core Subject	Transformers and Generators	EEE	04	--	03	20	80	100	4
4	15EE34	Core Subject	Analog Electronic Circuits	EEE	04	--	03	20	80	100	4
5	15EE35	Core Subject	Digital System Design	EEE	04	--	03	20	80	100	4
6	15EE36	Foundation Course	Electrical and Electronic Measurements	EEE	04	--	03	20	80	100	4
7	15EEL37	Laboratory	Electrical Machines Laboratory -1	EEE	01-Hour Instruction 02-Hour Practical		03	20	80	100	2
8	15EEL38	Laboratory	Electronics Laboratory	EEE	01-Hour Instruction 02-Hour Practical		03	20	80	100	2
				TOTAL	Theory:24 hours Practical: 06 hours		24	160	640	800	28

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. FoundationCourse: The courses based upon the content that leads to Knowledge enhancement.

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IVSEMESTER

Sl. No	Subject Code	Subject (Course)	Title	Teaching Dept.	Teaching Hours /Week		Examination				Credits
					Theory	Practical/ Drawing	Duration in hours	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15MAT41	Core Subject	Engineering Mathematics-IV	Math - matics	04	--	03	20	80	100	4
2	15EE42	Core Subject	Power Generation and Economics	EEE	04	--	03	20	80	100	4
3	15EE 43	Core Subject	Transmission and Distribution	EEE	04	--	03	20	80	100	4
4	15EE 44	Core Subject	Electric Motors	EEE	04	--	03	20	80	100	4
5	15EE 45	Core Subject	Electromagnetic Field Theory	EEE	04	--	03	20	80	100	4
6	15EE 46	Foundation Course	Operational Amplifiers and Linear ICs	EEE	04	--	03	20	80	100	4
7	15EE L47	Laboratory	Electrical Machines Laboratory -2	EEE	01-Hour Instruction 02-Hour Practical		03	20	80	100	2
8	15EEL48	Laboratory	Op- amp and Linear ICs Laboratory	EEE	01-Hour Instruction 02-Hour Practical		03	20	80	100	2
				TOTAL	Theory:24 hours Practical: 06 hours		24	160	640	800	28

Number of credits completed at the end of IV semester: 24 + 24 + 28 +28 = 104

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. Foundation Course: The courses based upon the content that leads to Knowledge enhancement.

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CHOICE BASED CREDIT SYSTEM (CBCS)

V SEMESTER

Sl. No	Subject Code	Subject (Course)	Title	Teaching Department	Theory	Practical/ Drawing	Duration in hours	Theory/ Practical Marks	I.A. Marks	Total Marks	Credits
1	15EE51	Core Subject	Management and Entrepreneurship	EEE	04	--	03	80	20	100	4
2	15EE52	Core Subject	Microcontroller	EEE	04	--	03	80	20	100	4
3	15EE53	Core Subject	Power Electronics	EEE	04	--	03	80	20	100	4
4	15EE54	Core Subject	Signals and Systems	EEE	04	--	03	80	20	100	4
5	15EE55X	Professional Elective	Professional Elective – I	EEE	03	--	03	80	20	100	3
6	15EE56Y	Open Elective	Open Elective - I	EEE	03	--	03	80	20	100	3
7	15EEL57	Laboratory	Microcontroller Laboratory	EEE	01-Hour Instruction 02-Hour Practical		03	80	20	100	2
8	15EEL58	Laboratory	Power Electronics Laboratory	EEE	01-Hour Instruction 02-Hour Practical		03	80	20	100	2
			TOTAL		Theory:22hours Practical: 06 hours		24	160	640	800	26

Elective

Professional Elective			Open Elective *** Offered by the Department of Electrical and Electronics Engineering	
Courses under Code 15EE55X	Title		Courses under Code 15EE55X	Title
15EE551	Introduction to Nuclear Power		15EE561	Electronic Communication systems
15EE552	Electrical Engineering Materials		15EE562	Programmable Logic controllers
15EE553	Estimating and Costing		15EE563	Renewable Energy Systems
15EE554	Special Electrical Machines		15EE564	Business Communication

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CHOICE BASED CREDIT SYSTEM (CBCS)

VI SEMESTER

Sl. No	Subject Code	Subject (Course)	Title	Teaching Department	Teaching Hours /Week Theory	Teaching Hours /Week Practical/ Drawing	Examination Duration in hours	Examination Theory/ Practical Marks	Examination I.A. Marks	Total Marks	Credits
1	15EE61	Core Subject	Control Systems	EEE	04	--	03	80	20	100	4
2	15EE62	Core Subject	Power System Analysis – 1	EEE	04	--	03	80	20	100	4
3	15EE63	Core Subject	Digital Signal Processing	EEE	04	--	03	80	20	100	4
4	15EE64	Core Subject	Electrical Machine Design	EEE	04	--	03	80	20	100	4
5	15EE65X	Professional Elective	Professional Elective – II	EEE	03	--	03	80	20	100	3
6	15EE66Y	Open Elective	Open Elective - II	EEE	03	--	03	80	20	100	3
7	15EEL67	Laboratory	Control System Laboratory	EEE	01-Hour Instruction 02-Hour Practical		03	80	20	100	2
8	15EEL68	Laboratory	Digital Signal Processing Laboratory	EEE	01-Hour Instruction 02-Hour Practical		03	80	20	100	2
				TOTAL	**Theory:22 hours** **Practical: 06 hours**		24	160	640	800	26

Elective

Professional Elective		Open Elective*** Offered by the Department of Electrical and Electronics Engineering	
Courses under Code 15EE65X	Title	Courses under Code 15EE66Y	Title
15EE651	Computer Aided Electrical Drawing	15EE661	Artificial Neural Networks and Fuzzy logic
15EE652	Advanced Power Electronics	15EE662	Sensors and Transducers
15EE653	Energy Audit and Demand side Management	15EE663	Batteries and Fuel Cells for Commercial, Military and Space Applications
15EE654	Solar and Wind Energy	15EE664	Industrial Servo Control Systems

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VII SEMESTER

Sl. No	Course Code	Subject (Course)	Title	Teaching Department	Teaching Hours/Week Theory	Teaching Hours/Week Practical/ Drawing	Duration in hours	I.A. Marks	Theory/ Practical Marks	Total Marks	Credits
1	15EE71	Core Subject	Power System Analysis - 2	EEE	04	–	03	20	80	100	4
2	15EE72	Core Subject	Power System Protection	EEE	04	–	03	20	80	100	4
3	15EE73	Core Subject	High Voltage Engineering	EEE	04	–	03	20	80	100	4
4	15EE74X	Professional Elective	Professional Elective – III	EEE	04	–	03	20	80	100	3
5	15EE75Y	Professional Elective	Professional Elective – IV	EEE	04	–	03	20	80	100	3
6	15EEL76	Laboratory	Power system Simulation Laboratory	EEE	01-Hour Instruction 02-Hour Practical		03	20	80	100	2
7	15EEL77	Laboratory	Rely and High Voltage Laboratory	EEE	01-Hour Instruction 02-Hour Practical		03	20	80	100	2
8	15EEP78		Project Phase – I + Seminar	EEE	--		--	100	--	100	2
			TOTAL		Theory:24 hours Practical: 06 hours		21	240	560	800	24

Elective

Professional Elective – III		Professional Elective – IV	
Courses under Code 15EE74X	Title	Courses under Code 15EE75Y	Title
15EE741	Advanced Control Systems	15EE751	FACTs and HVDC Transmission
15EE742	Utilization of Electrical Power	15EE752	Testing and Commissioning of Power System Apparatus
15EE743	Carbon Capture and Storage	15EE753	Spacecraft Power Technologies
15EE744	Power System Planning	15EE754	Industrial Heating

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VIII SEMESTER

Sl. No	Course Code	Subject (Course)	Title	Teaching Department	Theory	Practical/ Drawing	Duration in hours	I.A. Marks	Theory/ Practical Marks	Total Marks	Credits
1	15EE81	Core Subject	Power System Operation and Control	EEE	04	–	03	20	80	100	4
2	15EE82	Core Subject	Industrial Drives and Applications	EEE	04	–	03	20	80	100	4
3	15EE83X	Professional Elective	Professional Elective – V	EEE	03	–	03	20	80	100	3
4	15EE84	Core Subject	Internship / Professional Practice	EEE	Industry Oriented		03	50	50	100	2
5	15EEP85	Core Subject	Project Work Phase -II	EEE	--	06	03	100	100	200	6
6	15EES86	Core Subject	Seminar	EEE	--	04	--	100	--	100	1
				TOTAL	Theory:11 hours Practical: 10 hours		15	310	390	700	20

Professional Elective – V	
Courses under Code 15EE83X	**Title**
15EE831	Smart Grid
15EE832	Operation and Maintenance of Solar Electric Systems
15EE833	Integration of Distributed Generation
15EE834	Power System in Emergencies

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

B.E: ELECTRICAL AND ELECTRONICS ENGINEERING
CHOICE BASED CREDIT SYSTEM (CBCS)

III SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week Theory	Teaching Hours /Week Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	Credits
1	17MAT31	Engineering Mathematics-III (Core)	Mathematics	04		03	60	40	100	4
2	17EE32	Electric Circuit Analysis (Core)	EEE	04		03	60	40	100	4
3	17EE33	Transformers and Generators (Core)	EEE	04		03	60	40	100	4
4	17EE34	Analog Electronic Circuits (Core)	EEE	04		03	60	40	100	4
5	17EE35	Digital System Design (Core)	EEE	04		03	60	40	100	4
6	17EE36	Electrical and Electronic Measurements (Foundation course)	EEE	03		03	60	40	100	3
7	17EEL37	Electrical Machines Laboratory -1	EEE	01- Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17EEL38	Electronics Laboratory	EEE	01- Hour Instruction 02-Hour Practical		03	60	40	100	2
9	17KL/CPH39/49	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

B.E: ELECTRICAL AND ELECTRONICS ENGINEERING
CHOICE BASED CREDIT SYSTEM (CBCS)

IV SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week Theory	Teaching Hours /Week Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	Credits
1	17MAT41	Engineering Mathematics-IV (Core)	Mathematics	04		03	60	40	100	4
2	17EE42	Power Generation and Economics (Core)	EEE	04		03	60	40	100	4
3	17EE43	Transmission and Distribution (Core)	EEE	04		03	60	40	100	4
4	17EE44	Electric Motors (Core)	EEE	04		03	60	40	100	4
5	17EE45	Electromagnetic Field Theory (Core)	EEE	04		03	60	40	100	4
6	17EE46	Operational Amplifiers and Linear ICs (Foundation course)	EEE	03		03	60	40	100	3
7	17EEL47	Electrical Machines Laboratory -2	EEE	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17EEL48	Op- amp and Linear ICs Laboratory	EEE	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
9	17KL/CPH39/49	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

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V SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17EE51	Management and Entrepreneurship	EEE	04		03	60	40	100	4
2	17EE52	Microcontroller(Core)	EEE	04		03	60	40	100	4
3	17EE53	Power Electronics(Core)	EEE	04		03	60	40	100	4
4	17EE54	Signals and Systems(Core)	EEE	04		03	60	40	100	4
5	17EE55X	Professional Elective – I	EEE	03		03	60	40	100	3
6	17EE56Y	Open Elective - I	EEE	03		03	60	40	100	3
7	17EEL57	Microcontroller Laboratory	EEE	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17EEL58	Power Electronics Laboratory	EEE	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
			TOTAL	Theory: 22hours Practical: 06 hours		24	480	320	800	26

Professional Elective-1			Open Elective – 1*** (List offered by EEE Board only)	
17EE551	Introduction to Nuclear Power		17EE561	Electronic Communication systems
17EE552	Electrical Engineering Materials		17EE562	Programmable Logic controllers
17EE553	Estimating and Costing		17EE563	Renewable Energy Systems
17EE554	Special Electrical Machines		17EE564	Business Communication

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CHOICE BASED CREDIT SYSTEM (CBCS)

VI SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17EE61	Control Systems(Core)	EEE	04		03	60	40	100	4
2	17EE62	Power System Analysis – 1(Core)	EEE	04		03	60	40	100	4
3	17EE63	Digital Signal Processing(Core)	EEE	04		03	60	40	100	4
4	17EE64	Electrical Machine Design(Core)	EEE	04		03	60	40	100	4
5	17EE65X	Professional Elective – II	EEE	03		03	60	40	100	3
6	17EE66Y	Open Elective - II	EEE	03		03	60	40	100	3
7	17EEL67	Control System Laboratory	EEE	01- Hour Instruction 02- Hour Practical		03	60	40	100	2
8	17EEL68	Digital Signal Processing Laboratory	EEE	01- Hour Instruction 02- Hour Practical		03	60	40	100	2
			TOTAL	Theory:22hours Practical: 06 hours		Core Course	480	320	800	26

Professional Elective-2			Open Elective – 2*** (List offered by EEE Board only)	
17EE651	Computer Aided Electrical Drawing		17EE661	Artificial Neural Networks and Fuzzy logic
17EE652	Advanced Power Electronics		17EE662	Sensors and Transducers
17EE653	Energy Audit and Demand side Management		17EE663	Batteries and Fuel Cells for Commercial, Military and Space Applications
17EE654	Solar and Wind Energy		17EE664	Industrial Servo Control Systems

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B.E: ELECTRICAL AND ELECTRONICS ENGINEERING
CHOICE BASED CREDIT SYSTEM (CBCS)

VII SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17EE71	Power System Analysis – 2(Core)	EEE	04		03	60	40	100	4
2	17EE72	Power System Protection(Core)	EEE	04		03	60	40	100	4
3	17EE73	High Voltage Engineering(Core)	EEE	04		03	60	40	100	4
4	17EE74X	Professional Elective – III	EEE	03		03	60	40	100	3
5	17EE75Y	Professional Elective – IV	EEE	03		03	60	40	100	3
6	17EEL76	Power system Simulation Laboratory	EEE	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
7	17EEL77	Rely and High Voltage Laboratory	EEE	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17EEP78	Project Work Phase–I + Project work Seminar	EEE		03	--	--	100	100	2
		TOTAL		Theory:18 hours Practical and Project: 09 hours		21	420	380	800	24

Professional Elective-3		Professional Elective-4	
17EE741	Advanced Control Systems	17EE751	FACTs and HVDC Transmission
17EE742	Utilization of Electrical Power	17EE752	Testing and Commissioning of Power System Apparatus
17EE743	Carbon Capture and Storage	17EE753	Spacecraft Power Technologies
17EE744	Power System Planning	17EE754	Industrial Heating

B.E: ELECTRICAL AND ELECTRONICS ENGINEERING
CHOICE BASED CREDIT SYSTEM (CBCS)

VIII SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17EE81	Power System Operation and Control (Core)	EEE	4	-	3	60	40	100	4
2	17EE82	Industrial Drives and Applications(Core)	EEE	4	-	3	60	40	100	4
3	17EE83X	Professional Elective-5	EEE	3	-	3	60	40	100	3
4	17EE84	Internship/ Professional Practice (Core)	EEE	Industry Oriented		3	50	50	100	2
5	17EEP85	Project Work-II(Core)	EEE	-	6	3	100	100	200	6
6	17EES86	Seminar (Core)	EEE	-	4	-	-	100	100	1
		TOTAL		Theory: 11 hours Project and Seminar: 10 hours		15	330	370	700	20

Professional Elective -5	
17EE831	Smart Grid
17EE832	Operation and Maintenance of Solar Electric Systems
17EE833	Integration of Distributed Generation
17EE834	Power System in Emergencies

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

III SEMESTER

Sl. No	Course and Course Code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	BSC	18MAT31	Transform Calculus, Fourier Series and Numerical Techniques (Common to all Branches)	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18EE32	Electric Circuit Analysis	EEE	3	2	--	03	40	60	100	4
3	PCC	18EE33	Transformers and Generators	EEE	3	0	--	03	40	60	100	3
4	PCC	18 EE 34	Analog Electronic Circuits	EEE	2	2	--	03	40	60	100	3
5	PCC	18 EE 35	Digital System Design	EEE	3	0	--	03	40	60	100	3
6	PCC	18 EE 36	Electrical and Electronic Measurements	EEE	3	0	--	03	40	60	100	3
7	PCC	18 EE L37	Electrical Machines Laboratory -1	EEE	--	2	2	03	40	60	100	2
8	PCC	18 EE L38	Electronics Laboratory	EEE	--	2	2	03	40	60	100	2
9	HSMC	18KVK39/49	Vyavaharika Kannada (Kannada for communication)/	HSMC	--	2	--	--	100	--	100	1
		18KAK39/49	Aadalitha Kannada (Kannada for Administration)									
		OR										
		18CPC39	Constitution of India, Professional Ethics and Cyber Law		1	--	--	02	40	60		
					Examination is by objective type questions							
				TOTAL	16 OR 17	10 OR 12	04	24 OR 26	420 OR 360	480 OR 540	900	24

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IVSEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Theory Lecture (L)	Tutorial (T)	Practical/ Drawing (P)	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	BSC	18MAT41	Complex analysis, probability and statistical methods	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18 EE42	Power Generation and Economics	EEE	3	0	--	03	40	60	100	3
3	PCC	18 EE43	Transmission and Distribution	EEE	3	2	--	03	40	60	100	4
4	PCC	18 EE44	Electric Motors	EEE	3	0	--	03	40	60	100	3
5	PCC	18 EE45	Electromagnetic Field Theory	EEE	2	2	--	03	40	60	100	3
6	PCC	18 EE46	Operational Amplifiers and Linear ICs	EEE	3	0	--	03	40	60	100	3
7	PCC	18 EEL47	Electrical Machines Laboratory -2	EEE	--	2	2	03	40	60	100	2
8	PCC	18 EEL48	Op- amp and Linear ICs Laboratory	EEE	--	2	2	03	40	60	100	2
9	HSMC	18KVK39/49	Vyavaharika Kannada (Kannada for communication)/	HSMC	--	2	--	--	100	--	100	1
		18KAK39/49	Aadalitha Kannada (Kannada for Administration)									
		OR										
		18CPC49	Constitution of India, Professional Ethics and Cyber Law		1	--	--	02	40	60		
					Examination is by objective type questions							
			TOTAL		16 OR 17	10 OR 12	04	24 OR 26	420 OR 360	480 OR 540	900	24

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V SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Theory Lecture (L)	Tutorial (T)	Practical/ Drawing (P)	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	PCC	18 EE51	Management and Entrepreneurship	EEE	3	0	--	03	40	60	100	3
2	PCC	18 EE52	Microcontroller	EEE	3	2	--	03	40	60	100	4
3	PCC	18 EE53	Power Electronics	EEE	3	2	--	03	40	60	100	4
4	PCC	18 EE54	Signals and Systems	EEE	3	--	--	03	40	60	100	3
5	PCC	18 EE55	Electrical Machine Design	EEE	3	--	--	03	40	60	100	3
6	PCC	18 EE56	High Voltage Engineering	EEE	3	--	--	03	40	60	100	3
7	PCC	18 EEL57	Microcontroller Laboratory	EEE	--	2	2	03	40	60	100	2
8	PCC	18 EEL58	Power Electronics Laboratory	EEE	--	2	2	03	40	60	100	2
9	HSMC	18CIV59	Environmental Studies	Civil/ Environmental [Paper setting: Civil Engineering Board]	1	--	--	02	40	60	100	1
			TOTAL		18	10	04	26	360	540	900	25

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VI SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week — Theory Lecture L	Teaching Hours /Week — Tutorial T	Teaching Hours /Week — Practical/ Drawing P	Examination — Duration in hours	Examination — CIE Marks	Examination — SEE Marks	Examination — Total Marks	Credits
1	PCC	18 EE61	Control Systems	EEE	3	2	--	03	40	60	100	4
2	PCC	18 EE62	Power System Analysis – 1	EEE	3	2	--	03	40	60	100	4
3	PCC	18 EE63	Digital Signal Processing	EEE	3	2	--	03	40	60	100	4
4	PEC	18 EE64X	Professional Elective - 1	EEE	3	--	--	03	40	60	100	3
5	OEC	18 EE65X	Open Elective -A	EEE	3	--	--	03	40	60	100	3
6	PCC	18 EEL66	Control System Laboratory	EEE	--	2	2	03	40	60	100	2
7	PCC	18 EEL67	Digital Signal Processing Laboratory	EEE	--	2	2	03	40	60	100	2
8	MP	18 EEMP68	Mini-project		--	--	2	03	40	60	100	2
9	Internship	--	Internship	To be carried out during the vacation/s of VI and VII semesters and /or VII and VIII semesters.								
			TOTAL		15	10	06	24	320	480	800	24

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project.

Professional Elective -1

Course code under18XX64X	Course Title
18 EE641	Introduction to Nuclear Power
18 EE642	Electrical Engineering Materials
18 EE643	Computer Aided Electrical Drawing
18 EE644	Embedded System
18 EE645	Object Oriented Programming using C++

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VII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Theory Lecture (L)	Tutorial (T)	Practical/ Drawing (P)	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	PCC	18 EE71	Power System Analysis – 2	EEE	2	2	--	03	40	60	100	3
2	PCC	18 EE72	Power System Protection	EEE	3	--	--	03	40	60	100	3
3	PEC	18 EE73X	Professional Elective - 2	EEE	3	--	--	03	40	60	100	3
4	PEC	18 EE74X	Professional Elective - 3	EEE	3	--	--	03	40	60	100	3
5	OEC	18 EE75X	Open Elective -B	EEE	3	--	--	03	40	60	100	3
6	PCC	18 EEL76	PSS laboratory	EEE	--	2	2	03	40	60	100	2
7	PCC	18 EEL77	Relay & HV lab	EEE	--	2	2	03	40	60	100	2
8	Project	18 EEP78	Project Work Phase - 1	EEE	--	--	2	--	100	--	100	1
9	Internship	--	Internship	(If not completed during the vacation of VI and VII semesters, it shall be carried out during the vacation of VII and VIII semesters)								
			TOTAL		14	06	06	21	380	420	800	20

Note: PCC: Professional core, PEC: Professional Elective.

Professional Elective - 2	
Course code under 18XX73X	Course Title
18EE731	Solar and Wind Energy
18EE732	Sensors and Transducers
18 EE733	Integrated of Distribution Generation.
18 EE734	Advanced Control Systems
18 EE735	Reactive Power Control in Electric Power Systems

Professional Electives - 3	
Course code under 18 EE74X	Course Title
18 EE741	Industrial Drives and Application
18 EE742	Utilization of Electrical Power
18 EE743	PLC and SCADA
18 EE744	Smart Grid
18 EE745	Artificial Neural Network With Applications to Power Systems

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VIII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18EE81	Power System Operation and Control	EEE	3	--	--	03	40	60	100	3
2	PEC	18EE82X	Professional Elective - 4	EEE	3	--	--	03	40	60	100	3
3	Project	18EEP83	Project Work Phase - 2		--	--	2	03	40	60	100	8
4	Seminar	18EES84	Technical Seminar		--	--	2	03	100	--	100	1
5	Internship	18EEI85	Internship	Completed during the vacation/s of VI and VII semesters and /or VII and VIII semesters.)				03	40	60	100	3
				TOTAL	06	--	04	15	260	240	500	18

Note: PCC: Professional Core, PEC: Professional Elective.

Professional Electives - 4	
Course code under 18XX82X	**Course Title**
18EE821	FACTs and HVDC Transmission
18EE822	Electrical Estimation and Costing
18EE823	Electric Vehicles Technologies
18EE824	Power System Planning
18EE825	Electrical Power Quality

Project Work

CIE procedure for Project Work Phase - 2:

(i) 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 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.

(ii) 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 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.

SEE for Project Work Phase - 2:

(i) Single discipline: Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted at the department.

ii) Interdisciplinary: Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belong to.

Internship: Those, who have not pursued /completed the internship, shall be declared as fail and have to complete during subsequent University examination after satisfying the internship requirements.

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B.E ELECTRICAL AND ELECTRONICS ENGINEERING
Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
SEMESTER - VI
OPEN ELECTIVE - A

Course Code	18EE65X	CIE Marks	40
Teaching Hours/Week (L:T:P)	(3:0:0)	SEE Marks	60
Credits	03	Exam Hours	03

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (For syllabus, please refer to the concerned Programme syllabus book or VTU website vtu.ac.in may be visited.).
Selection of an open elective shall not be allowed if,
  The candidate has studied the same course during the previous semesters of the programme.
  The syllabus content of open elective is similar to that of the Departmental core courses or professional electives.
  A similar course, under any category, is prescribed in the higher semesters of the programme.
Registration to electives shall be documented under the guidance of Programme Coordinator/ Advisor/Mentor.

Sl No	Board and the Department offering the Electives	Sl No	Course code under 18EE65X	Course Title
	Electrical and Electronics Engineering	1	18EE651	Industrial Servo Control Systems
		2	18EE652	PLC and SCADA
		3	18EE653	Renewable Energy Systems
		4	18EE654	Testing and Commissioning of Electrical Equipment

B.E ELECTRICAL AND ELECTRONICS ENGINEERING Outcome
Based Education (OBE) and Choice Based Credit System (CBCS)
SEMESTER - VII
OPEN ELECTIVE - B

Course Code	18EE75X	CIE Marks	40
Teaching Hours/Week (L:T:P)	(3:0:0)	SEE Marks	60
Credits	03	Exam Hours	03

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (For syllabus, please refer to the concerned Programme syllabus book or VTU website vtu.ac.in may be visited.).
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  The candidate has studied the same course during the previous semesters of the programme.
  The syllabus content of open elective is similar to that of the Departmental core courses or professional electives.
  A similar course, under any category, is prescribed in the higher semesters of the programme.
Registration to electives shall be documented under the guidance of Programme Coordinator/ Advisor/Mentor.

B.E ELECTRICAL AND ELECTRONICS ENGINEERING Outcome
Based Education (OBE) and Choice Based Credit System (CBCS)
SEMESTER - VII
OPEN ELECTIVE - B

Course Code	18EE75X	CIE Marks	40
Teaching Hours/Week (L:T:P)	(3:0:0)	SEE Marks	60
Credits	03	Exam Hours	03

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (For syllabus, please refer to the concerned Programme syllabus book or VTU website vtu.ac.in may be visited.).
Selection of an open elective shall not be allowed if,
  The candidate has studied the same course during the previous semesters of the programme.
  The syllabus content of open elective is similar to that of the Departmental core courses or professional electives.
  A similar course, under any category, is prescribed in the higher semesters of the programme.
Registration to electives shall be documented under the guidance of Programme Coordinator/ Advisor/Mentor.

Sl No	Board and the Department offering the Electives	Sl No	Course code under 18EE75X	Course Title
	Electrical and Electronics Engineering	1	18EE751	Industrial Motors and Control
		2	18EE752	Sensors and Transducers
		3	18EE753	Electric Vehicles
		4	18EE754	Energy Conservation and Audit

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1	BSC	18MAT31	Transform Calculus, Fourier Series and Numerical Techniques (Common to all Branches)	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18EE32	Electric Circuit Analysis	EEE	3	2	--	03	40	60	100	4
3	PCC	18EE33	Transformers and Generators	EEE	3	0	--	03	40	60	100	3
4	PCC	18 EE 34	Analog Electronic Circuits	EEE	2	2	--	03	40	60	100	3
5	PCC	18 EE 35	Digital System Design	EEE	3	0	--	03	40	60	100	3
6	PCC	18 EE 36	Electrical and Electronic Measurements	EEE	3	0	--	03	40	60	100	3
7	PCC	18 EE L37	Electrical Machines Laboratory -1	EEE	--	2	2	03	40	60	100	2
8	PCC	18 EE L38	Electronics Laboratory	EEE	--	2	2	03	40	60	100	2
9	HSMC	18KVK39/49	Vyavaharika Kannada (Kannada for communication)/	HSMC	--	2	--	--	100	--	100	1
		18KAK39/49	Aadalitha Kannada (Kannada for Administration)									
		OR										
		18CPC39	Constitution of India, Professional Ethics and Cyber Law		1	--	--	02	40	60		
					Examination is by objective type questions							
				TOTAL	16 OR 17	10 OR 12	04	24 OR 26	420 OR 360	480 OR 540	900	24

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IV SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Theory Lecture (L)	Tutorial (T)	Practical/ Drawing (P)	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	BSC	18MAT41	Complex analysis, probability and statistical methods	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18 EE42	Power Generation and Economics	EEE	3	0	--	03	40	60	100	3
3	PCC	18 EE43	Transmission and Distribution	EEE	3	2	--	03	40	60	100	4
4	PCC	18 EE44	Electric Motors	EEE	3	0	--	03	40	60	100	3
5	PCC	18 EE45	Electromagnetic Field Theory	EEE	2	2	--	03	40	60	100	3
6	PCC	18 EE46	Operational Amplifiers and Linear ICs	EEE	3	0	--	03	40	60	100	3
7	PCC	18 EEL47	Electrical Machines Laboratory -2	EEE	--	2	2	03	40	60	100	2
8	PCC	18 EEL48	Op- amp and Linear ICs Laboratory	EEE	--	2	2	03	40	60	100	2
9	HSMC	18KVK39/49	Vyavaharika Kannada (Kannada for communication)/	HSMC	--	2	--	--	100	--	100	1
		18KAK39/49	Aadalitha Kannada (Kannada for Administration)									
		OR										
		18CPC49	Constitution of India, Professional Ethics and Cyber Law		1	--	--	02	40	60		
					Examination is by objective type questions							
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V SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Theory Lecture (L)	Tutorial (T)	Practical/ Drawing (P)	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	PCC	18 EE51	Management and Entrepreneurship	EEE	3	0	--	03	40	60	100	3
2	PCC	18 EE52	Microcontroller	EEE	3	2	--	03	40	60	100	4
3	PCC	18 EE53	Power Electronics	EEE	3	2	--	03	40	60	100	4
4	PCC	18 EE54	Signals and Systems	EEE	3	--	--	03	40	60	100	3
5	PCC	18 EE55	Electrical Machine Design	EEE	3	--	--	03	40	60	100	3
6	PCC	18 EE56	High Voltage Engineering	EEE	3	--	--	03	40	60	100	3
7	PCC	18 EEL57	Microcontroller Laboratory	EEE	--	2	2	03	40	60	100	2
8	PCC	18 EEL58	Power Electronics Laboratory	EEE	--	2	2	03	40	60	100	2
9	HSMC	18CIV59	Environmental Studies	Civil/ Environmental [Paper setting: Civil Engineering Board]	1	--	--	02	40	60	100	1
			TOTAL		18	10	04	26	360	540	900	25

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Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week Theory Lecture L	Tutorial T	Practical/ Drawing P	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
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2	PCC	18 EE62	Power System Analysis – 1	EEE	3	2	–	03	40	60	100	4
3	PCC	18 EE63	Digital Signal Processing	EEE	3	2	–	03	40	60	100	4
4	PEC	18 EE64X	Professional Elective - 1	EEE	3	–	–	03	40	60	100	3
5	OEC	18 EE65X	Open Elective -A	EEE	3	–	–	03	40	60	100	3
6	PCC	18 EEL66	Control System Laboratory	EEE	–	2	2	03	40	60	100	2
7	PCC	18 EEL67	Digital Signal Processing Laboratory	EEE		2	2	03	40	60	100	2
8	MP	18 EEMP68	Mini-project		–	–	2	03	40	60	100	2
9	Internship	–	Internship	To be carried out during the vacation/s of VI and VII semesters and /or VII and VIII semesters.								
			TOTAL		15	10	06	24	320	480	800	24

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project.

Professional Elective -1	
Course code under18XX64X	Course Title
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18 EE642	Electrical Engineering Materials
18 EE643	Computer Aided Electrical Drawing
18 EE644	Embedded System
18 EE645	Object Oriented Programming using C++

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Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

VII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
					L	T	P					
1	PCC	18 EE71	Power System Analysis – 2	EEE	2	2	--	03	40	60	100	3
2	PCC	18 EE72	Power System Protection	EEE	3	--	--	03	40	60	100	3
3	PEC	18 EE73X	Professional Elective - 2	EEE	3	--	--	03	40	60	100	3
4	PEC	18 EE74X	Professional Elective - 3	EEE	3	--	--	03	40	60	100	3
5	OEC	18 EE75X	Open Elective -B	EEE	3	--	--	03	40	60	100	3
6	PCC	18 EEL76	PSS laboratory	EEE	--	2	2	03	40	60	100	2
7	PCC	18 EEL77	Relay & HV lab	EEE	--	2	2	03	40	60	100	2
8	Project	18 EEP78	Project Work Phase - 1	EEE	--	--	2	--	100	--	100	1
9	Internship	--	Internship	(If not completed during the vacation of VI and VII semesters, it shall be carried out during the vacation of VII and VIII semesters)								
			TOTAL		14	06	06	21	380	420	800	20

Note: PCC: Professional core, PEC: Professional Elective.

Professional Elective - 2	
Course code under 18XX73X	Course Title
18EE731	Solar and Wind Energy
18EE732	Sensors and Transducers
18 EE733	Integrated of Distribution Generation.
18 EE734	Advanced Control Systems
18 EE735	Reactive Power Control in Electric Power Systems
Professional Electives - 3	
Course code under 18 EE74X	Course Title
18 EE741	Industrial Drives and Application
18 EE742	Utilization of Electrical Power
18 EE743	PLC and SCADA
18 EE744	Smart Grid
18 EE745	Artificial Neural Network With Applications to Power Systems

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VIII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Theory Lecture (L)	Tutorial (T)	Practical/ Drawing (P)	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	PCC	18EE81	Power System Operation and Control	EEE	3	--	--	03	40	60	100	3
2	PEC	18EE82X	Professional Elective - 4	EEE	3	--	--	03	40	60	100	3
3	Project	18EEP83	Project Work Phase - 2		--	--	2	03	40	60	100	8
4	Seminar	18EES84	Technical Seminar		--	--	2	03	100	--	100	1
5	Internship	18EEI85	Internship	Completed during the vacation/s of VI and VII semesters and /or VII and VIII semesters.)				03	40	60	100	3
				TOTAL	06	--	04	15	260	240	500	18

Note: PCC: Professional Core, PEC: Professional Elective.

Professional Electives - 4	
Course code under 18XX82X	**Course Title**
18EE821	FACTs and HVDC Transmission
18EE822	Electrical Estimation and Costing
18EE823	Electric Vehicles Technologies
18EE824	Power System Planning
18EE825	Electrical Power Quality

Project Work

CIE procedure for Project Work Phase - 2:

(i) 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 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.

(ii) 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 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.

SEE for Project Work Phase - 2:

(i) Single discipline: Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted at the department.

ii) Interdisciplinary: Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belong to.

Internship: Those, who have not pursued /completed the internship, shall be declared as fail and have to complete during subsequent University examination after satisfying the internship requirements.

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B.E ELECTRICAL AND ELECTRONICS ENGINEERING
Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
SEMESTER - VI
OPEN ELECTIVE - A

Course Code	18EE65X	CIE Marks	40
Teaching Hours/Week (L:T:P)	(3:0:0)	SEE Marks	60
Credits	03	Exam Hours	03

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (For syllabus, please refer to the concerned Programme syllabus book or VTU website vtu.ac.in may be visited.).
Selection of an open elective shall not be allowed if,

The candidate has studied the same course during the previous semesters of the programme.

The syllabus content of open elective is similar to that of the Departmental core courses or professional electives.

A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/ Advisor/Mentor.

Sl No	Board and the Department offering the Electives	Course Sl No	Course code under 18EE65X	Course Title
	Electrical and Electronics Engineering	1	18EE651	Industrial Servo Control Systems
		2	18EE652	PLC and SCADA
		3	18EE653	Renewable Energy Systems
		4	18EE654	Testing and Commissioning of Electrical Equipment

B.E ELECTRICAL AND ELECTRONICS ENGINEERING Outcome
Based Education (OBE) and Choice Based Credit System (CBCS)
SEMESTER - VII
OPEN ELECTIVE - B

Course Code	18EE75X	CIE Marks	40
Teaching Hours/Week (L:T:P)	(3:0:0)	SEE Marks	60
Credits	03	Exam Hours	03

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (For syllabus, please refer to the concerned Programme syllabus book or VTU website vtu.ac.in may be visited.).
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A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/ Advisor/Mentor.

Sl No	Board and the Department offering the Electives	Course Sl No	Course code under 18EE75X	Course Title
	Electrical and Electronics Engineering	1	18EE751	Industrial Motors and Control
		2	18EE752	Sensors and Transducers
		3	18EE753	Electric Vehicles
		4	18EE754	Energy Conservation and Audit

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Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

III SEMESTER

Sl. No	Course and Course Code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	BSC	18MAT31	Transform Calculus, Fourier Series and Numerical Techniques (Common to all Branches)	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18EE32	Electric Circuit Analysis	EEE	3	2	--	03	40	60	100	4
3	PCC	18EE33	Transformers and Generators	EEE	3	0	--	03	40	60	100	3
4	PCC	18 EE 34	Analog Electronic Circuits	EEE	2	2	--	03	40	60	100	3
5	PCC	18 EE 35	Digital System Design	EEE	3	0	--	03	40	60	100	3
6	PCC	18 EE 36	Electrical and Electronic Measurements	EEE	3	0	--	03	40	60	100	3
7	PCC	18 EE L37	Electrical Machines Laboratory -1	EEE	--	2	2	03	40	60	100	2
8	PCC	18 EE L38	Electronics Laboratory	EEE	--	2	2	03	40	60	100	2
9	HSMC	18KVK39/49	Vyavaharika Kannada (Kannada for communication)/	HSMC	--	2	--	--	100	--	100	1
		18KAK39/49	Aadalitha Kannada (Kannada for Administration)									
		OR										
		18CPC39	Constitution of India, Professional Ethics and Cyber Law		1	--	--	02	40	60		
			Examination is by objective type questions									
			TOTAL		16 OR 17	10 OR 12	04	24 OR 26	420 OR 360	480 OR 540	900	24

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IVSEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Theory Lecture (L)	Tutorial (T)	Practical/ Drawing (P)	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	BSC	18MAT41	Complex analysis, probability and statistical methods	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18 EE42	Power Generation and Economics	EEE	3	0	--	03	40	60	100	3
3	PCC	18 EE43	Transmission and Distribution	EEE	3	2	--	03	40	60	100	4
4	PCC	18 EE44	Electric Motors	EEE	3	0	--	03	40	60	100	3
5	PCC	18 EE45	Electromagnetic Field Theory	EEE	2	2	--	03	40	60	100	3
6	PCC	18 EE46	Operational Amplifiers and Linear ICs	EEE	3	0	--	03	40	60	100	3
7	PCC	18 EEL47	Electrical Machines Laboratory -2	EEE	--	2	2	03	40	60	100	2
8	PCC	18 EEL48	Op- amp and Linear ICs Laboratory	EEE	--	2	2	03	40	60	100	2
9	HSMC	18KVK39/49	Vyavaharika Kannada (Kannada for communication)/	HSMC	--	2	--	--	100	--	100	1
		18KAK39/49	Aadalitha Kannada (Kannada for Administration)									
		OR										
		18CPC49	Constitution of India, Professional Ethics and Cyber Law		1	--	--	02	40	60		
					Examination is by objective type questions							
			TOTAL		16 OR 17	10 OR 12	04	24 OR 26	420 OR 360	480 OR 540	900	24

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V SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Theory Lecture (L)	Tutorial (T)	Practical/ Drawing (P)	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	PCC	18 EE51	Management and Entrepreneurship	EEE	3	0	--	03	40	60	100	3
2	PCC	18 EE52	Microcontroller	EEE	3	2	--	03	40	60	100	4
3	PCC	18 EE53	Power Electronics	EEE	3	2	--	03	40	60	100	4
4	PCC	18 EE54	Signals and Systems	EEE	3	--	--	03	40	60	100	3
5	PCC	18 EE55	Electrical Machine Design	EEE	3	--	--	03	40	60	100	3
6	PCC	18 EE56	High Voltage Engineering	EEE	3	--	--	03	40	60	100	3
7	PCC	18 EEL57	Microcontroller Laboratory	EEE	--	2	2	03	40	60	100	2
8	PCC	18 EEL58	Power Electronics Laboratory	EEE	--	2	2	03	40	60	100	2
9	HSMC	18CIV59	Environmental Studies	Civil/ Environmental [Paper setting: Civil Engineering Board]	1	--	--	02	40	60	100	1
			TOTAL		18	10	04	26	360	540	900	25

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VI SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Theory Lecture L	Tutorial T	Practical/ Drawing P	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	PCC	18 EE61	Control Systems	EEE	3	2	--	03	40	60	100	4
2	PCC	18 EE62	Power System Analysis – 1	EEE	3	2	--	03	40	60	100	4
3	PCC	18 EE63	Digital Signal Processing	EEE	3	2	--	03	40	60	100	4
4	PEC	18 EE64X	Professional Elective - 1	EEE	3	--	--	03	40	60	100	3
5	OEC	18 EE65X	Open Elective -A	EEE	3	--	--	03	40	60	100	3
6	PCC	18 EEL66	Control System Laboratory	EEE	--	2	2	03	40	60	100	2
7	PCC	18 EEL67	Digital Signal Processing Laboratory	EEE		2	2	03	40	60	100	2
8	MP	18 EEMP68	Mini-project		--	--	2	03	40	60	100	2
9	Internship	--	Internship	To be carried out during the vacation/s of VI and VII semesters and /or VII and VIII semesters.								
			TOTAL		15	10	06	24	320	480	800	24

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project.

Professional Elective -1	
Course code under18XX64X	**Course Title**
18 EE641	Introduction to Nuclear Power
18 EE642	Electrical Engineering Materials
18 EE643	Computer Aided Electrical Drawing
18 EE644	Embedded System
18 EE645	Object Oriented Programming using C++

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VII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18 EE71	Power System Analysis – 2	EEE	2	2	--	03	40	60	100	3
2	PCC	18 EE72	Power System Protection	EEE	3	--	--	03	40	60	100	3
3	PEC	18 EE73X	Professional Elective - 2	EEE	3	--	--	03	40	60	100	3
4	PEC	18 EE74X	Professional Elective - 3	EEE	3	--	--	03	40	60	100	3
5	OEC	18 EE75X	Open Elective -B	EEE	3	--	--	03	40	60	100	3
6	PCC	18 EEL76	PSS laboratory	EEE	--	2	2	03	40	60	100	2
7	PCC	18 EEL77	Relay & HV lab	EEE	--	2	2	03	40	60	100	2
8	Project	18 EEP78	Project Work Phase - 1	EEE	--	--	2	--	100	--	100	1
9	Internship	--	Internship	(If not completed during the vacation of VI and VII semesters, it shall be carried out during the vacation of VII and VIII semesters)								
				TOTAL	14	06	06	21	380	420	800	20

Note: PCC: Professional core, PEC: Professional Elective.

Professional Elective - 2	
Course code under 18XX73X	**Course Title**
18EE731	Solar and Wind Energy
18EE732	Sensors and Transducers
18 EE733	Integrated of Distribution Generation.
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18 EE735	Reactive Power Control in Electric Power Systems
Professional Electives - 3	
Course code under 18 EE74X	**Course Title**
18 EE741	Industrial Drives and Application
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2	PEC	18EE82X	Professional Elective - 4	EEE	3	--	--	03	40	60	100	3
3	Project	18EEP83	Project Work Phase - 2		--	--	2	03	40	60	100	8
4	Seminar	18EES84	Technical Seminar		--	--	2	03	100	--	100	1
5	Internship	18EEI85	Internship	Completed during the vacation/s of VI and VII semesters and /or VII and VIII semesters.)				03	40	60	100	3
				TOTAL	06	--	04	15	260	240	500	18

Note: PCC: Professional Core, PEC: Professional Elective.

Professional Electives - 4	
Course code under 18XX82X	**Course Title**
18EE821	FACTs and HVDC Transmission
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Project Work

CIE procedure for Project Work Phase - 2:

(i) 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.

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B.E ELECTRICAL AND ELECTRONICS ENGINEERING
Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
SEMESTER - VI

OPEN ELECTIVE - A

Course Code	18EE65X	CIE Marks	40
Teaching Hours/Week (L:T:P)	(3:0:0)	SEE Marks	60
Credits	03	Exam Hours	03

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (For syllabus, please refer to the concerned Programme syllabus book or VTU website vtu.ac.in may be visited.).
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A similar course, under any category, is prescribed in the higher semesters of the programme.
Registration to electives shall be documented under the guidance of Programme Coordinator/ Advisor/Mentor.

Sl No	Board and the Department offering the Electives	Course		Course Title
		Sl No	code under 18EE65X	
	Electrical and Electronics Engineering	1	18EE651	Industrial Servo Control Systems
		2	18EE652	PLC and SCADA
		3	18EE653	Renewable Energy Systems
		4	18EE654	Testing and Commissioning of Electrical Equipment

B.E ELECTRICAL AND ELECTRONICS ENGINEERING Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
SEMESTER - VII

OPEN ELECTIVE - B

Course Code	18EE75X	CIE Marks	40
Teaching Hours/Week (L:T:P)	(3:0:0)	SEE Marks	60
Credits	03	Exam Hours	03

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (For syllabus, please refer to the concerned Programme syllabus book or VTU website vtu.ac.in may be visited.).
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B.E ELECTRICAL AND ELECTRONICS ENGINEERING Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
SEMESTER - VII

OPEN ELECTIVE - B

Course Code	18EE75X	CIE Marks	40
Teaching Hours/Week (L:T:P)	(3:0:0)	SEE Marks	60
Credits	03	Exam Hours	03

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (For syllabus, please refer to the concerned Programme syllabus book or VTU website vtu.ac.in may be visited.).
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A similar course, under any category, is prescribed in the higher semesters of the programme.
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Sl No	Board and the Department offering the Electives	Course		Course Title
		Sl No	code under 18EE75X	
	Electrical and Electronics Engineering	1	18EE751	Industrial Motors and Control
		2	18EE752	Sensors and Transducers
		3	18EE753	Electric Vehicles
		4	18EE754	Energy Conservation and Audit

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E.-BIOTECHNOLOGY

III SEMESTER

Sl No.	Subject Code	Title	Teaching Dept.	Teaching Hours/Week		Examination				Credits
				Theory	Practical/ Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15MAT-31	Mathematics-III	Mathematics	04		03	20	80	100	4
2	15BT-32	Unit Operations	BT/CHE	04		03	20	80	100	4
3	15BT-33	Biochemistry	BT	04		03	20	80	100	4
4	15BT-34	Microbiology	BT	04		03	20	80	100	4
5	15BT-35	Cell Biology and Genetics	BT	04		03	20	80	100	4
6	15BT-36	Basics of Computer Applications	BT/CSE/ISE/ MCA	04		03	20	80	100	4
7	15BTL-37	Unit Operations Lab	BT/CHE/ME		2L+1I	03	20	80	100	2
8	15BTL-38	Microbiology Lab	BT		2L+1I	03	20	80	100	2
		TOTAL		24	06	24	160	640	800	28

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E.-BIOTECHNOLOGY

IV SEMESTER

Sl No.	Subject Code	Title	Teaching Dept.	Teaching Hours/Week		Examination				Credits
				Theory	Practical/ Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15BT-41	Biostatistics and Biomodeling	Mathematics/ BT	04		03	20	80	100	4
2	15BT-42	Biochemical Thermodynamics	BT/CHE/ME	04		03	20	80	100	4
3	15BT-43	Molecular Biology	BT	04		03	20	80	100	4
4	15BT-44	Bioprocess Principles and Calculations	BT/CHE	04		03	20	80	100	4
5	15BT-45	Structural Biology	BT	04		03	20	80	100	4
6	15BT-46	Clinical Biochemistry	BT	04		03	20	80	100	4
7	15BTL-47	Cell and Molecular Biology Lab	BT		2L+1I	03	20	80	100	2
8	15BTL-48	Clinical Biochemistry Lab	BT		2L+1I	03	20	80	100	2
		TOTAL		24	06	24	160	640	800	28

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SCHEME OF TEACHING & EXAMINATION
V SEMESTER B. E. BIO-TECHNOLOGY

Sl. No.	Subject Code	Title	Teaching Dept.	Teaching (Theory/lab (Hrs/Week)	Examination Scheme (Max. Marks)		
					Theory / Practical	I A	Total Marks
1	10AL-51	Management and Entrepreneurship	MBA/Any Dept.	04	100	25	125
2	10BT-52	Biokinetics & Bioreaction Engg.	BT/ChE	04	100	25	125
3	10BT-53	Biosensors & Bioinstrumentation	BT/IT/ ML/BM	04	100	25	125
4	10BT-54	Immunotechnology	BT	04	100	25	125
5	10BT-55	Genetic Engg & Applications	BT	04	100	25	125
6	10BT-56	Bioinformatics	BT	04	100	25	125
7	10BTL-57	Genetic Engineering and Immunotechnology Lab	BT	03	50	25	75
8	10BTL-58	Bioinformatics Lab	BT	03	50	25	75
		Ttoal		30	700	200	900

SCHEME OF TEACHING & EXAMINATION
VI SEMESTER B. E. BIO-TECHNOLOGY

Sl. No.	Subject Code	Title	Teaching Dept.	Teaching (Theory/lab (Hrs/Week)	Examination Scheme (Max. Marks)		
					Theory / Practical	I A	Total Marks
1	10BT-61	Bioprocess Control & Automation	BT/ChE	04	100	25	125
2	10BT-62	Clinical & Pharmaceutical Biotechnology	BT	04	100	25	125
3	10BT-63	Enzyme Technology & Biotransformation	BT	04	100	25	125
4	10BT-64	Genomics and Proteomics	BT	04	100	25	125
5	10BT-65	Bioprocess Equipment Design & CAED	BT/ChE/ME	04	100	25	125
6	10BT-66	Elective – A	BT/ChE/ME/CSE	04	100	25	125
7	10BTL-67	Bioprocess Control & Automation Lab	BT/ChE	03	50	25	75
8	10BTL-68	Biokinetics & Enzyme Technology Lab	BT	03	50	25	75
		Ttoal		30	700	200	900

Elective A :

10BT-661	Animal BT
10BT-662	Plant BT
10BT-663	Microbial BT
10BT-664	Perl Programming
10BT-665	Transport Phenomena

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SCHEME OF TEACHING & EXAMINATION
VII SEMESTER B. E. BIO-TECHNOLOGY

Sl. No.	Subject Code	Title	Teaching Dept.	Teaching (Theory/ lab (Hrs/Week)	Examination Scheme (Max. Marks)		
					Theory / Practical	I A	Total Marks
1	10BT-71	Economics & Plant Design	BT/ChE	04	100	25	125
2	10BT-72	Upstream Process Technology	BT	04	100	25	125
3	10BT-73	Downstream Process Technology	BT/ChE	04	100	25	125
4	10BT-74	Food Biotechnology	BT	04	100	25	125
5	10BT-75	Elective – B	BT/ChE/CSE/ISE	04	100	25	125
6	10BT-76	Elective – C	BT/ChE/CSE/ISE	04	100	25	125
7	10BTL-77	Upstream processing Lab	BT	03	50	25	75
8	10BTL-78	Downstream processing Lab	BT/ChE	03	50	25	75
		Total		30	700	200	900

Elective B :

10BT-751	Aqua Culture & Marine BT
10BT-752	Dairy BT
10BT-753	Forensic Science
10BT-754	Data structures with C
10BT-755	Bioreactor Design Concepts

Elective C :

10BT-761	Biochips & Micro array Technology
10BT-762	Biomaterials
10BT-763	Health Diagnostics
10BT-764	Fundamentals of OS & DBMS
10BT-765	CAD & MATLAB

SCHEME OF TEACHING & EXAMINATION
VIII SEMESTER B. E. BIO-TECHNOLOGY

Sl. No.	Subject Code	Title	Teaching Dept.	Teaching (Theory/ lab (Hrs/Week)	Examination Scheme (Max. Marks)		
					Theory / Practical	I A	Total Marks
1	10BT-81	Project Management & IPR	BT/MBA/ME/IEM	04	100	25	125
2	10BT-82	Bioethics & Biosafety	BT	04	100	25	125
3	10BT-83	Elective – D	BT/ChE/BM	04	100	25	125
4	10BT-84	Elective – E	BT/ChE	04	100	25	125
5	10BT-85	Project Work	BT	15	100	100	200
6	10BT-86	Seminar	BT	09	—	50	50
		Total		40	500	250	750

Elective D :

10BT-831	Nano Bio-Technology
10BT-832	Lab to Industrial Scaling
10BT-833	Protein Engg. & Insilico Drug Design
10BT-834	Biomedical Instrumentation
10BT-835	Biomolecular Engineering

Elective E :

10BT-841	Environmental BT
10BT-842	Metabolic Engineering
10BT-843	Medical Informatics
10BT-844	Tissue Engineering
10BT-845	Facilitation, Validation & QC

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2017-18

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E.-BIOTECHNOLOGY

III SEMESTER

Sl No.	Subject Code	Title	Teaching Dept.	Teaching Hours/Week		Examination				Credits
				Theory	Practical/ Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15MAT-31	Mathematics-III	Mathematics	04		03	20	80	100	4
2	15BT-32	Unit Operations	BT/CHE	04		03	20	80	100	4
3	15BT-33	Biochemistry	BT	04		03	20	80	100	4
4	15BT-34	Microbiology	BT	04		03	20	80	100	4
5	15BT-35	Cell Biology and Genetics	BT	04		03	20	80	100	4
6	15BT-36	Basics of Computer Applications	BT/CSE/ISE/ MCA	04		03	20	80	100	4
7	15BTL-37	Unit Operations Lab	BT/CHE/ME		2L+1I	03	20	80	100	2
8	15BTL-38	Microbiology Lab	BT		2L+1I	03	20	80	100	2
		TOTAL		24	06	24	160	640	800	28

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E.-BIOTECHNOLOGY

IV SEMESTER

Sl No.	Subject Code	Title	Teaching Dept.	Teaching Hours/Week		Examination				Credits
				Theory	Practical/ Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15BT-41	Biostatistics and Biomodeling	Mathematics/ BT	04		03	20	80	100	4
2	15BT-42	Biochemical Thermodynamics	BT/CHE/ME	04		03	20	80	100	4
3	15BT-43	Molecular Biology	BT	04		03	20	80	100	4
4	15BT-44	Bioprocess Principles and Calculations	BT/CHE	04		03	20	80	100	4
5	15BT-45	Structural Biology	BT	04		03	20	80	100	4
6	15BT-46	Clinical Biochemistry	BT	04		03	20	80	100	4
7	15BTL-47	Cell and Molecular Biology Lab	BT		2L+1I	03	20	80	100	2
8	15BTL-48	Clinical Biochemistry Lab	BT		2L+1I	03	20	80	100	2
		TOTAL		24	06	24	160	640	800	28

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-16
B.E. Biotechnology

VI Semester

Sl No.	Subject Code	Title	Teaching Hours/Week			Examination				Credits
			Lecture	Tutorial	Practical /Drawing	Duration	I.A. Marks	Theory /Practical Marks	Total Marks	
1	15BT61	Bio-business and Entrepreneurship	4	0	0	3	20	80	100	4
2	15BT62	Bioprocess Control and Automation	4	0	0	3	20	80	100	4
3	15BT63	Enzyme Technology and Biotransformation	4	0	0	3	20	80	100	4
4	15BT64	Bioprocess Equipment Design & CAED	4	0	0	4	20	80	100	4
5	15BT65X	Professional Elective - 2	3	0	0	3	20	80	100	3
6	15BT66X	Open Elective - 2	3	0	0	3	20	80	100	3
7	15BTL67	Bioprocess Control and Automation Lab	0	0	3	3	20	80	100	2
8	15BTL68	Biokinetics and Enzyme Technology Lab	0	0	3	3	20	80	100	2
		TOTAL	22	0	6	-	160	640	800	26

Professional Elective - 2		Open Elective - 2	
15BT651	Bio-molecular Engineering	15BT661	Biological Data Management
15BT652	Advanced Microbiology	15BT662	Nano BT
15BT653	Cell Culture Techniques	15BT663	GMP
15BT654	Economics and Plant Design		

SCHEME OF TEACHING & EXAMINATION
VII SEMESTER B. E. BIO-TECHNOLOGY

Sl. No.	Subject Code	Title	Teaching Dept.	Teaching (Theory/lab (Hrs/Week)	Examination Scheme (Max. Marks)		
					Theory / Practical	I A	Total Marks
1	10BT-71	Economics & Plant Design	BT/ChE	04	100	25	125
2	10BT-72	Upstream Process Technology	BT	04	100	25	125
3	10BT-73	Downstream Process Technology	BT/ChE	04	100	25	125
4	10BT-74	Food Biotechnology	BT	04	100	25	125
5	10BT-75	Elective – B	BT/ChE/CSE/ISE	04	100	25	125
6	10BT-76	Elective – C	BT/ChE/CSE/ISE	04	100	25	125
7	10BTL-77	Upstream processing Lab	BT	03	50	25	75
8	10BTL-78	Downstream processing Lab	BT/ChE	03	50	25	75
		Total		30	700	200	900

Elective B :

10BT-751	Aqua Culture & Marine BT
10BT-752	Dairy BT
10BT-753	Forensic Science
10BT-754	Data structures with C
10BT-755	Bioreactor Design Concepts

Elective C :

10BT-761	Biochips & Micro array Technology
10BT-762	Biomaterials
10BT-763	Health Diagnostics
10BT-764	Fundamentals of OS & DBMS
10BT-765	CAD & MATLAB

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SCHEME OF TEACHING & EXAMINATION
VIII SEMESTER B. E. BIO-TECHNOLOGY

Sl. No.	Subject Code	Title	Teaching Dept.	Teaching (Theory/ lab (Hrs/Week)	Examination Scheme (Max. Marks)		
					Theory / Practical	I A	Total Marks
1	10BT-81	Project Management & IPR	BT/MBA/ME/IEM	04	100	25	125
2	10BT-82	Bioethics & Biosafety	BT	04	100	25	125
3	10BT-83	Elective – D	BT/ChE/BM	04	100	25	125
4	10BT-84	Elective – E	BT/ChE	04	100	25	125
5	10BT-85	Project Work	BT	15	100	100	200
6	10BT-86	Seminar	BT	09	—	50	50
		Total		40	500	250	750

Elective D :

10BT-831	Nano Bio-Technology
10BT-832	Lab to Industrial Scaling
10BT-833	Protein Engg. & Insilico Drug Design
10BT-834	Biomedical Instrumentation
10BT-835	Biomolecular Engineering

Elective E :

10BT-841	Environmental BT
10BT-842	Metabolic Engineering
10BT-843	Medical Informatics
10BT-844	Tissue Engineering
10BT-845	Facilitation, Validation & QC

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2018 -19

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2017-2018

B.E- BIOTECHNOLGY

III SEMESTER

Sl. No.	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17MAT31	Engineering Mathematics –III*	Maths	04		03	60	40	100	4
2	17BT32	Unit Operations	BT/CHE	04		03	60	40	100	4
3	17BT33	Biochemistry	BT	04		03	60	40	100	4
4	17BT34	Microbiology	BT	04		03	60	40	100	4
5	17BT35	Cell Biology and Genetics	BT	04		03	60	40	100	3
6	17BT36	Basics of Computer Applications	BT/CSE/ISE /MCA	03		03	60	40	100	4
7	17BTL37	Unit Operation Laboratory	BT/CHE/ME	01- Hour Instruction 02- Hour Practical		03	60	40	100	2
8	17BTL38	Microbiology Laboratory	BT	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
9	17KL/CPH39/49	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. **Kannada/Constitution of India, Professional Ethics and Human Rights**: 50 % of the programs of the Institution have to teach Kannada/Constitution of India, Professional Ethics and Human Rights in cycle based concept during III and IV semesters.

2. **Audit Course:**
(i) *All lateral entry students (except B.Sc candidates) have to register for Additional Mathematics – I. which is 03 contact hours per week.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2017-2018

B.E- BIOTECHNOLOGY

IV SEMESTER

Sl. No.	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical / Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17BT41	Biostatistics and Biomodeling	Mathematics/BT	04		03	60	40	100	4
2	17BT42	Biochemical Thermodynamics	BT/CHE/ME	04		03	60	40	100	3
3	17BT43	Molecular Biology	BT	04		03	60	40	100	4
4	17BT44	Bioprocess Principles & Calculations	BT/CHE	04		03	60	40	100	4
5	17BT45	Structural Biology	BT	04		03	60	40	100	4
6	17BT46	Clinical Biochemistry	BT	03		03	60	40	100	4
7	17BTL47	Cell and Molecular Biology Laboratory	BT	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17BTL48	Clinical Biochemistry Laboratory	BT	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
9	17KL/CPH39/49	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. **Kannada/Constitution of India, Professional Ethics and Human Rights**: 50 % of the programs of the Institution have to teach Kannada/Constitution of India, Professional Ethics and Human Rights in cycle based concept during III and IV semesters.

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CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-16
B.E. Biotechnology

VI Semester

Sl No.	Subject Code	Title	Teaching Hours/Week			Examination				Credits
			Lecture	Tutorial	Practical /Drawing	Duration	I.A. Marks	Theory /Practical Marks	Total Marks	
1	15BT61	Bio-business and Entrepreneurship	4	0	0	3	20	80	100	4
2	15BT62	Bioprocess Control and Automation	4	0	0	3	20	80	100	4
3	15BT63	Enzyme Technology and Biotransformation	4	0	0	3	20	80	100	4
4	15BT64	Bioprocess Equipment Design & CAED	4	0	0	4	20	80	100	4
5	15BT65X	Professional Elective - 2	3	0	0	3	20	80	100	3
6	15BT66X	Open Elective - 2	3	0	0	3	20	80	100	3
7	15BTL67	Bioprocess Control and Automation Lab	0	0	3	3	20	80	100	2
8	15BTL68	Biokinetics and Enzyme Technology Lab	0	0	3	3	20	80	100	2
		TOTAL	22	0	6	-	160	640	800	26

Professional Elective - 2		Open Elective - 2	
15BT651	Bio-molecular Engineering	15BT661	Biological Data Management
15BT652	Advanced Microbiology	15BT662	Nano BT
15BT653	Cell Culture Techniques	15BT663	GMP
15BT654	Economics and Plant Design		

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-16
B.E. Biotechnology

VII Semester

Sl No.	Subject Code	Title	Teaching Hours/Week			Examination				Credits
			Lecture	Tutorial	Practical /Drawing	Duration	I.A. Marks	Theory /Practical Marks	Total Marks	
1	15BT71	Fermentation Technology	4	0	0	3	20	80	100	4
2	15BT72	Genomics and Proteomics	4	0	0	3	20	80	100	4
3	15BT73	Plant BT	4	0	0	3	20	80	100	4
4	15BT74X	Professional Elective - 3	3	0	0	3	20	80	100	3
5	15BT75X	Professional Elective - 4	3	0	0	3	20	80	100	3
6	15BTL76	Fermentation Technology Lab	0	0	3	3	20	80	100	2
7	15BTL77	Plant BT lab	0	0	3	3	20	80	100	2
8	15BT78	Project Phase -1 + Seminar	-	-	-	3	100	-	100	2
		TOTAL	18	0	6	-	240	560	800	24

Professional Elective - 3		Professional Elective - 4	
15BT741	Health Informatics	15BT751	Diary BT
15BT742	Bioreactor Design Concepts	15BT752	Forensic Sciences
15BT743	Lab to Industrial Scaling	15BT753	Molecular Diagnostics
15BT744	Food BT	15BT754	Big Data Management

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CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-16
B.E. Biotechnology

VIII Semester

Sl No.	Subject Code	Title	Teaching Hours/Week			Examination				Credits
			Lecture	Tutorial	Practical /Drawing	Duration	I.A. Marks	Theory /Practical Marks	Total Marks	
1	15BT81	Clinical and Pharmaceutical Biotechnology	4	0	0	3	20	80	100	4
2	15BT82	Regulatory affairs in BT industry	3	0	0	3	20	80	100	4
3	15BT83X	Professional Elective - 5	3	0	0	3	20	80	100	3
4	15BT84	Internship/Professional Practice	-	-	-	3	50	50	100	2
5	15BT85X	Project Work Phase 2	-	-	-	3	100	100	200	6
6	15BTL86	Seminar	-	-	-	3	100	-	100	1
		TOTAL	10	0	0	-	310	390	700	20

Professional Elective - 5	
15BT831	Protein Engineering and In-Silico Drug Design
15BT832	Metabolic Engineering
15BT833	Environmental BT

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2019-20

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

Programme: BIOTECHNOLOGY

III SEMESTER

Sl. No	Course and Course Code		Course Title	Teaching Department	Theory Lecture L	Tutorial T	Practical/ Drawing P	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	BSC	18BT31	Biostatistics	Mathematics	3	1	--	03	40	60	100	3
2	PCC	18BT32	Microbiology	Biotech	4	0	--	03	40	60	100	4
3	PCC	18BT33	Unit Operations	Chemical/Biotech	3	1	--	03	40	60	100	3
4	PCC	18BT34	Introduction to Biomolecules	Biotech	3	1	--	03	40	60	100	3
5	PCC	18BT35	Cell Biology and Genetics	Biotech	3	0	--	03	40	60	100	3
6	PCC	18BT36	Python Programming	CSE	3	1	--	03	40	60	100	3
7	PCC	18BTL37	Microbiology Laboratory	Biotech	--	2	2	03	40	60	100	2
8	PCC	18BTL38	Unit Operations Laboratory	Chemical/Biotech	--	2	2	03	40	60	100	2
9	HSMC	18KVK39	Vyavaharika Kannada (Kannada for communication)/	HSMC	--	2	--	--	100	--	100	1
		18KAK39	Aadalitha Kannada (Kannada for Administration) OR									
		18CPC39	Constitution of India, Professional Ethics and Cyber Law		1	--	--	02	40	60		
			Examination is by objective type questions									
			TOTAL		19 OR 20	08 OR 10	04	24 OR 26	420 OR 360	480 OR 540	900	24

Note: BSC: Basic Science, PCC: Professional Core, HSMC: Humanity and Social Science, NCMC: Non-credit mandatory course.
18KVK39Vyavaharika Kannada (Kannada for communication) is for non-Kannada speaking, reading and writing students and 18KAK39 Aadalitha Kannada (Kannada for Administration) is for students who speak, read and write Kannada.

Course prescribed to lateral entry Diploma holders admitted to III semester of Engineering programs

| 10 | NCMC | 18MATDIP31 | Additional Mathematics - I | Mathematics | 02 | 01 | -- | 03 | 40 | 60 | 100 | 0 |

(a)The mandatory non – credit courses Additional Mathematics I and II prescribed for III and IV semesters respectively, to the lateral entry Diploma holders admitted to III semester of BE/B. Tech. programs shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the University examination. 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 F grade. In such a case, the students have to fulfill the requirements during subsequent semester/s to appear for SEE.
(b)These Courses shall not be considered for vertical progression, but completion of the courses shall be mandatory for the award of degree.

Courses prescribed to lateral entry B.Sc. degree holders admitted to III semester of Engineering programs

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

Programme: BIOTECHNOLOGY

IV SEMESTER

Sl. No	Course and Course Code		Course Title	Teaching Department	Theory Lecture L	Tutorial T	Practical/ Drawing P	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	PCC	18BT41	Stoichiometry	Chemical/Biotech	3	1	--	03	40	60	100	3
2	PCC	18BT42	Molecular Biology	Biotech	4	0	--	03	40	60	100	4
3	PCC	18BT43	Immunotechnology	Biotech	3	0	--	03	40	60	100	3
4	PCC	18BT44	Cell Culture Techniques	Biotech	3	0	--	03	40	60	100	3
5	PCC	18BT45	Biochemical Thermodynamics	Chemical/Biotech	3	1	--	03	40	60	100	3
6	PCC	18BT46	Clinical Biochemistry	Biotech	3	0	--	03	40	60	100	3
7	PCC	18BTL47	Biochemistry Laboratory	Biotech	--	2	2	03	40	60	100	2
8	PCC	18BTL48	Immunotechnology Laboratory	Biotech	--	2	2	03	40	60	100	2
9	HSMC	18KVK49	Vyavaharika Kannada (Kannada for communication)/	HSMC OR	--	2	--	--	100	--	100	1
		18KAK49	Aadalitha Kannada (Kannada for Administration)									
		18CPC49	Constitution of India, Professional Ethics and Cyber Law		1	--	--	02	40	60		
			Examination is by objective type questions									
			TOTAL		19 OR 20	06 OR 08	04	24 OR 26	420 OR 360	480 OR 540	900	24

Note: BSC: Basic Science, PCC: Professional Core, HSMC: Humanity and Social Science, NCMC: Non-credit mandatory course.
18KVK49Vyavaharika Kannada (Kannada for communication) is for non-Kannada speaking, reading and writing students and 18KAK49 Aadalitha Kannada (Kannada for Administration) is for students who speak, read and write Kannada.

Course prescribed to lateral entry Diploma holders admitted to III semester of Engineering programs

| 10 | NCMC | 18MATDIP41 | Additional Mathematics - II | Mathematics | 02 | 01 | -- | 03 | 40 | 60 | 100 | 0 |

(a)The mandatory non – credit courses Additional Mathematics I and II prescribed for III and IV semesters respectively, to the lateral entry Diploma holders admitted to III semester of BE/B. Tech. Programs shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the University examination. 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 F grade. In such a case, the students have to fulfill the requirements during subsequent semester/s to appear for SEE.
(b)These Courses shall not be considered for vertical progression, but completion of the courses shall be mandatory for the award of degree.

Courses prescribed to lateral entry B.Sc. degree holders admitted to IV semester of Engineering programs

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2017-2018

B.E-BIOTECHNOLOGY

V SEMESTER

Sl. No.	Course Code	Title	Teaching Department	Teaching Hours /Week Theory	Teaching Hours /Week Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	Credits
1	17BT51	Bio-Kinetics & Bioreaction Engineering	BT/CHE	04		03	60	40	100	4
2	17BT52	Genetic Engineering & Applications	BT	04		03	60	40	100	4
3	17BT53	Immunotechnology	BT	04		03	60	40	100	4
4	17BT54	Bioinformatics	BT	04		03	60	40	100	4
5	17BT55X	Professional Elective-1	BT/CHE	03		03	60	40	100	3
6	17BT56X	Open Elective-1	BT	03		03	60	40	100	3
7	17BTL57	Genetic Engineering & Immunotechnology Laboratory	BT	01- Hour Instruction 02- Hour Practical		03	60	40	100	2
8	17BTL58	Bioinformatics Laboratory	BT	01- Hour Instruction 02- Hour Practical		03	60	40	100	2
			TOTAL	Theory: 22hours Practical: 06 hours		24	480	320	800	26

Professional Elective-1		Open Elective – 1*** (List offered by Civil Engg Board only)	
17BT551	Microbial Biotechnology	17BT561	Biology for Engineers
17BT552	Transport Phenomena	17BT562	Biomaterials
17BT553	Animal Biotechnology	17BT563	Biotechnology for Sustainable Environment
17BT554	Bioinstrumentation & Biosensors		

***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, if:

SCHEME OF TEACHING AND EXAMINATION 2017-2018

B.E-BIOTECHNOLOGY

VI SEMESTER

Sl. No.	Course Code	Title	Teaching Department	Teaching Hours /Week Theory	Teaching Hours /Week Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	Credits
1	17BT61	Bio-business and Entrepreneurship	BT/MBA	04		03	60	40	100	4
2	17BT62	Bioprocess Control & Automation	BT/CHE	04		03	60	40	100	4
3	17BT63	Enzyme Technology & Biotransformation	BT	04		03	60	40	100	4
4	17BT64	Bioprocess Equipment Design & CAED	BT/CHE/ME	04		03	60	40	100	4
5	17BT65X	Professional Elective-2	BT/CHE	03		03	60	40	100	3
6	17BT66X	Open Elective-2	BT/CHE	03		03	60	40	100	3
7	17BTL67	Bioprocess Control & Automation Laboratory	BT/CHE	01- Hour Instruction 02- Hour Practical		03	60	40	100	2
8	17BTL68	Biokinetics & Enzyme Technology Laboratory	BT/CHE	01- Hour Instruction 02- Hour Practical		03	60	40	100	2
			TOTAL	Theory:22hours Practical: 06 hours		24	480	320	800	26

Professional Elective-2		Open Elective – 2*** (List offered by Civil Engg Board only)	
17BT651	Biomolecular Engineering	17BT661	Biological Data Management
17BT652	Advanced Microbiology	17BT662	Nano Biotechnology
17BT653	Cell Culture Techniques	17BT663	Good Manufacturing Practices
17BT654	Economics and Plant Design		

***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, if:
· The candidate has no pre – requisite knowledge.
· The candidate has studied similar content course during previous semesters.

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SCHEME OF TEACHING AND EXAMINATION 2015-16
B.E. Biotechnology

VII Semester

Sl No.	Subject Code	Title	Teaching Hours/Week			Examination				Credits
			Lecture	Tutorial	Practical /Drawing	Duration	I.A. Marks	Theory /Practical Marks	Total Marks	
1	15BT71	Fermentation Technology	4	0	0	3	20	80	100	4
2	15BT72	Genomics and Proteomics	4	0	0	3	20	80	100	4
3	15BT73	Plant BT	4	0	0	3	20	80	100	4
4	15BT74X	Professional Elective - 3	3	0	0	3	20	80	100	3
5	15BT75X	Professional Elective - 4	3	0	0	3	20	80	100	3
6	15BTL76	Fermentation Technology Lab	0	0	3	3	20	80	100	2
7	15BTL77	Plant BT lab	0	0	3	3	20	80	100	2
8	15BT78	Project Phase -1 + Seminar	-	-	-	3	100	-	100	2
		TOTAL	18	0	6	-	240	560	800	24

Professional Elective - 3		Professional Elective - 4	
15BT741	Health Informatics	15BT751	Diary BT
15BT742	Bioreactor Design Concepts	15BT752	Forensic Sciences
15BT743	Lab to Industrial Scaling	15BT753	Molecular Diagnostics
15BT744	Food BT	15BT754	Big Data Management

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-16
B.E. Biotechnology

VIII Semester

Sl No.	Subject Code	Title	Teaching Hours/Week			Examination				Credits
			Lecture	Tutorial	Practical /Drawing	Duration	I.A. Marks	Theory /Practical Marks	Total Marks	
1	15BT81	Clinical and Pharmaceutical Biotechnology	4	0	0	3	20	80	100	4
2	15BT82	Regulatory affairs in BT industry	3	0	0	3	20	80	100	4
3	15BT83X	Professional Elective - 5	3	0	0	3	20	80	100	3
4	15BT84	Internship/Professional Practice	-	-	-	3	50	50	100	2
5	15BT85X	Project Work Phase 2	-	-	-	3	100	100	200	6
6	15BTL86	Seminar	-	-	-	3	100	-	100	1
		TOTAL	10	0	0	-	310	390	700	20

Professional Elective - 5	
15BT831	Protein Engineering and In-Silico Drug Design
15BT832	Metabolic Engineering
15BT833	Environmental BT

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

Programme: BIOTECHNOLOGY

III SEMESTER

Sl. No	Course and Course Code		Course Title	Teaching Department	Teaching Hours /Week			Examination				
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
					L	T	P					
1	BSC	18BT31	Biostatistics	Mathematics	3	1	--	03	40	60	100	3
2	PCC	18BT32	Microbiology	Biotech	4	0	--	03	40	60	100	4
3	PCC	18BT33	Unit Operations	Chemical/Biotech	3	1	--	03	40	60	100	3
4	PCC	18BT34	Introduction to Biomolecules	Biotech	3	1	--	03	40	60	100	3
5	PCC	18BT35	Cell Biology and Genetics	Biotech	3	0	--	03	40	60	100	3
6	PCC	18BT36	Python Programming	CSE	3	1	--	03	40	60	100	3
7	PCC	18BTL37	Microbiology Laboratory	Biotech	--	2	2	03	40	60	100	2
8	PCC	18BTL38	Unit Operations Laboratory	Chemical/Biotech	--	2	2	03	40	60	100	2
9	HSMC	18KVK39	Vyavaharika Kannada (Kannada for communication)/	HSMC	--	2	--	--	100	--	100	1
		18KAK39	Aadalitha Kannada (Kannada for Administration)									
			OR									
		18CPC39	Constitution of India, Professional Ethics and Cyber Law		1	--	--	02	40	60		
					Examination is by objective type questions							
			TOTAL		19 OR 20	08 OR 10	04	24 OR 26	420 OR 360	480 OR 540	900	24

Note: BSC: Basic Science, PCC: Professional Core, HSMC: Humanity and Social Science, NCMC: Non-credit mandatory course.
18KVK39Vyavaharika Kannada (Kannada for communication) is for non-Kannada speaking, reading and writing students and 18KAK39 Aadalitha Kannada (Kannada for Administration) is for students who speak, read and write Kannada.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

Programme: BIOTECHNOLOGY

IV SEMESTER

Sl. No	Course and Course Code		Course Title	Teaching Department	Teaching Hours /Week			Examination				
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
					L	T	P					
1	PCC	18BT41	Stoichiometry	Chemical/Biotech	3	1	--	03	40	60	100	3
2	PCC	18BT42	Molecular Biology	Biotech	4	0	--	03	40	60	100	4
3	PCC	18BT43	Immunotechnology	Biotech	3	0	--	03	40	60	100	3
4	PCC	18BT44	Cell Culture Techniques	Biotech	3	0	--	03	40	60	100	3
5	PCC	18BT45	Biochemical Thermodynamics	Chemical/Biotech	3	1	--	03	40	60	100	3
6	PCC	18BT46	Clinical Biochemistry	Biotech	3	0	--	03	40	60	100	3
7	PCC	18BTL47	Biochemistry Laboratory	Biotech	--	2	2	03	40	60	100	2
8	PCC	18BTL48	Immunotechnology Laboratory	Biotech	--	2	2	03	40	60	100	2
9	HSMC	18KVK49	Vyavaharika Kannada (Kannada for communication)/	HSMC	--	2	--	--	100	--	100	1
		18KAK49	Aadalitha Kannada (Kannada for Administration)									
			OR									
		18CPC49	Constitution of India, Professional Ethics and Cyber Law		1	--	--	02	40	60		
					Examination is by objective type questions							
			TOTAL		19 OR 20	06 OR 08	04	24 OR 26	420 OR 360	480 OR 540	900	24

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Programme: BIOTECHNOLOGY

V SEMESTER

Sl. No	Course and Course Code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	HSMC	18BT51	Bio-Business and Entrepreneurship	HSMC/Biotech	3	--	--	03	40	60	100	3
2	PCC	18BT52	Chemical Reaction Engineering	Chemical/Biotech	4	1	–	03	40	60	100	4
3	PCC	18BT53	Enzyme Technology & Biotransformation	Biotech	4	--	–	03	40	60	100	4
4	PCC	18BT54	Genomics & Proteomics	Biotech	3	1	--	03	40	60	100	3
5	PCC	18BT55	Bioanalytical Techniques	Biotech	3	--	--	03	40	60	100	3
6	PCC	18BT56	Genetic Engineering &Applications	Biotech	3	--	--	03	40	60	100	3
7	PCC	18BTL57	Biokinetics & Enzyme Technology Laboratory	Chemical/Biotech	–	2	2	03	40	60	100	2
8	PCC	18BTL58	Genetic Engineering and Cell Culture Laboratory	Biotech	–	2	2	03	40	60	100	2
9	HSMC	18CIV59	Environmental Studies	Civil/ Environmental [Paper setting: Civil Engineering Board]	1	--	--	02	40	60	100	1
					Examination is by objective type questions							
				TOTAL	21	06	04	26	360	540	900	25

Note: BSC: Basic Science, PCC: Professional Core, HSMC: Humanity and Social Science, NCMC: Non-credit mandatory course.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
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Programme: BIOTECHNOLOGY

VI SEMESTER

Sl. No	Course and Course Code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18BT61	Process Control & Automation	Chemical	4	1	--	03	40	60	100	4
2	PCC	18BT62	Bioprocess Equipment Design & CAED	Chemical	4	2	--	04	40	60	100	4
3	PCC	18BT63	Bioinformatics	Biotech	4	–	--	03	40	60	100	4
4	PEC	18BT64X	Professional Elective -1	Biotech	3	--	--	03	40	60	100	3
5	OEC	18BT65X	Open Elective -A	Biotech	3	–	--	03	40	60	100	3
6	PCC	18BTL66	Process Control & Automation Laboratory	Chemical	--	2	2	03	40	60	100	2
7	PCC	18BTL67	Bioinformatics Laboratory	Biotech	--	2	2	03	40	60	100	2
8	MP	18BTMP68	Mini-project	-	--	1	2	03	40	60	100	2
9	Internship	--	Internship		To be carried out during the vacation/s of VI and VII semesters and /or VII and VIII semesters.							
				TOTAL	18	08	06	25	320	480	800	24

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project.

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(Effective from the academic year 2018 – 19)

Programme: BIOTECHNOLOGY

VI SEMESTER (continued)

SEE for Mini-project:
(i) Single discipline: Contribution to the Mini-project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted at the department.
(ii) Interdisciplinary: Contribution to the Mini-project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belongs to.
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 credit shall be included in 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 during subsequent University examination after satisfying the internship requirements.

Professional Elective -1

Course code under18BT64X	Course Title

18BT641: Food Process Engineering

18BT642: Phyto-Chemistry and Phyto-Harmones

18BT643: Human Physiology

Open Elective –A

18BT651: Biology for Engineers (Modified)

18BT652:Biomaterials (Modified)

18BT653: Nano-biotechnology (Modified)

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (Please refer to the list of open electives under 18BT65X).Selection of an open elective shall not be allowed if,
- The candidate has studied the same course during the previous semesters 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 of the programme.
Registration to electives shall be documented under the guidance of Programme Coordinator/ Advisor/Mentor.

AICTE activity Points: 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

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2017-2018

B.E-BIOTECHNOLOGY

VII SEMESTER

Sl. No.	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17BT71	Fermentation Technology	BT/CHE	04		03	60	40	100	4
2	17BT72	Genomics & Proteomics	BT	04		03	60	40	100	4
3	17BT73	Plant Biotechnology	BT	04		03	60	40	100	4
4	17BT74X	Professional Elective-3	BT/CHE	03		03	60	40	100	3
5	17BT75X	Professional Elective-4	BT/CHE	03		03	60	40	100	3
6	17BTL76	Fermentation Technology Laboratory	BT/CHE	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
7	17BTL77	Plant Biotechnology Laboratory	BT	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17BTP78	Project Work Phase–I + Project work Seminar	BT		03	--	--	100	100	2
		TOTAL		Theory:18 hours Practical and Project: 09 hours		21	420	380	800	24

Professional Elective-3		Professional Elective-4	
17BT741	Health Informatics	17BT751	Dairy Biotechnology
17BT742	Bioreactor Design Concepts	17BT752	Forensic Science
17BT743	Lab to Industrial Scaling	17BT753	Molecular Diagnostics
17BT744	Food Biotechnology	17BT754	Big Data Management

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SCHEME OF TEACHING AND EXAMINATION 2017-2018

B.E-BIOTECHNOLOGY

VIII SEMESTER

Sl. No.	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17BT81	Clinical & Pharmaceutical Biotechnology	BT	4	-	3	60	40	100	4
2	17BT82	Regulatory affairs in Biotech Industry	BT/MBA	4	-	3	60	40	100	4
3	17BT83X	Professional Elective-5	BT	3	-	3	60	40	100	3
4	17BT84	Internship/ Professional Practice	BT	Industry Oriented		3	50	50	100	2
5	17BTP85	Project Work-II	BT	-	6	3	100	100	200	6
6	17BTS86	Seminar on current trends in Engineering and Technology	BT	-	4	-	-	100	100	1
TOTAL				Theory: 11 hours Project and Seminar: 10 hours		15	330	370	700	20

Professional Elective -5	
17BT831	Protein Engineering and insilico drug design
17BT832	Metbolic Engineering
17BT833	Environmental Biotechnology

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2016-2017

B.E.MechanicalEngineering

IIISEMESTER

Sl. No	Subject Code	Title	TeachingHours/Week			Examination				Credits
			Lecture	Tutorial	Practical	Duration (Hours)	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15MAT31	Engineering Mathematics	04			03	80	20	100	04
2	15ME32	Materials Science	04			03	80	20	100	04
3	15ME33	Basic Thermodynamics	03	02		03	80	20	100	04
4	15ME34	Mechanics of materials	03	02		03	80	20	100	04
5	15ME35A	Metal casting & wielding	04			03	80	20	100	04
	15ME35B	Machine tools and operations								
6	15ME36A	Computer aided machine drawing	02		04	03	80	20	100	03
	15ME36B	Mechanical Measurements and Metrology	04							
7	15ME37A	Materials testing lab	01		02	03	80	20	100	02
	15ME37B	Mechanical Measurements and Metrology lab								
8	15ME38A	Foundry and forging lab	01		02	03	80	20	100	02
	15ME38B	Machine shop								
		TOTAL	22 / 24	04	08		640	160	800	27

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B.E.MechanicalEngineering

IVSEMESTER

Sl.No	SubjectCode	Title	Lecture	Tutorial	Practical	Duration(Hours)	Theory/PracticalMarks	I.A.Marks	TotalMarks	Credits
1	15MAT41	EngineeringMathematics–III	04			03	80	20	100	04
2	15ME42	KinematicsofMachinery	03	02		03	80	20	100	04
3	15ME43	AppliedThermodynamics	03	02		03	80	20	100	04
4	15ME44	Fluidmechanics	03	02		03	80	20	100	04
5	15ME45A/ 15ME45B	MetalCastingandWelding MachineToolsandOperations	04			03	80	20	100	04
6	15ME46A/ 15ME46B	ComputerAidedMachineDrawing MechanicalMeasurementsandMetrology	02 04		4	03	80	20	100	03
7	15MEL47A 15MEL47B	MaterialsTestingLab/ MechanicalMeasurements andMetrologyLab	1		2	03	80	20	100	02
8	15MEL48A/ 15MEL48B	FoundryandForgingLab MachineShop/	1		2	03	80	20	100	02
TOTAL			19/21	06	08/04		640	160	800	27

VSEMESTER

Sl No	Subject Code	Title	Lecture	Tutorial	Practical	Duration (Hours)	Theory/Practical Marks	I.A. Marks	Total Marks	Credits
1	15ME51	ManagementandEngineeringEconomics	3	2	0	03	80	20	100	4
2	15ME52	DynamicsofMachinery	3	2	0	03	80	20	100	4
3	15ME53	TurboMachines	3	2	0	03	80	20	100	4
4	15ME54	DesignofMachineElements-I	3	2	0	03	80	20	100	4
5	15ME55X	ProfessionalElective-I	3	0	0	03	80	20	100	3
6	15ME56X	OpenElective-I	3	0	0	03	80	20	100	3
7	15MEL57	FluidMechanics&MachineryLab	1	0	2	03	80	20	100	2
8	15MEL58	EnergyLab	1	0	2	03	80	20	100	2
		TOTAL	21	06	04		640	160	800	26

ProfessionalElective-I		OpenElective-I	
15ME551	RefrigerationandAir-conditioning	15ME561	OptimizationTechniques
15ME552	TheoryofElasticity	15ME562	EnergyandEnvironment
15ME553	HumanResourceManagement	15ME563	AutomationandRobotics
15ME554	NonTraditionalMachining	15ME564	ProjectManagemet

VISEMESTER

Sl No	Subject Code	Title	Lecture	Tutorial	Practical	Duration (Hours)	Theory/Practical Marks	I.A. Marks	Total Marks	Credits
1	15ME61	FiniteElementAnalysis	3	2	0	03	80	20	100	4
2	15ME62	ComputerintegratedManufacturing	4	0	0	03	80	20	100	4
3	15ME63	HeatTransfer	3	2	0	03	80	20	100	4
4	15ME64	DesignofMachineElements-II	3	2	0	03	80	20	100	4
5	15ME65X	ProfessionalElective-II	3	0	0	03	80	20	100	3
6	15ME66X	OpenElective-II	3	0	0	03	80	20	100	3
7	15MEL67	HeatTransferLab	1	0	2	03	80	20	100	2
8	15MEL68	ModelingandAnalysisLab(FEA)	1	0	2	03	80	20	100	2
		TOTAL	21	6	04		640	160	800	26

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2016–17
Outcome Based Education (OBE) and Choice Based Credit System (CBCS) (Effective from the academic year 2016–17)

VII SEMESTER

SL.No	Course and Course code		Course Title	Teaching Department	Theory Lecture (L)	Tutorial (T)	Practical/ Drawing (P)	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	PCC	15ME73	Control Engineering		3	--	--	03	40	60	100	3
2	PEC	15ME74X	Professional Elective		3	--	--	03	40	60	100	3
3	OEC	15ME75X	Open Elective-B		3	--	--	03	40	60	100	3
4	PCC	15MEL77	Computer Integrated Manufacturing Lab		--	1	1	03	40	60	100	2
	PCC	15MEL76	Design Lab		--	1	1	03	40	60	100	2
5	Project	18MEP78	Project Work Phase-1		--	--	2		100	--	100	1
6	Internship	--	Internship	(If not completed during the vacation of VI and VII semesters, it shall be carried out during the vacation of VII and VIII semesters)								
			TOTAL		09	04	06	15	300	300	600	14

Open Elective

Course code under 18XX75X	Course Title	Course code under 18XX75X	Course Title
15ME751	Automotive Electronics	15ME754	Mechatronics
15ME752	Fracture mechanics		
15ME753	Mechatronics		

Professional Electives

Course code under 18XX74X	Course Title	Course code under 18XX74X	Course Title
15ME741	Design of thermal equipments	15ME743	Financial management
15ME742	Tribology	15ME744	Design for manufacturing

VIII SEMESTER

Sl. No	Subject Code	Title	Lecture	Tutorial	Practical	Duration (Hours)	Theory/ Practical Marks	I.A. Marks	Total Marks	Credits
1	15ME81	Operations Research	3	2	0	03	80	20	100	4
2	15ME82	Additive Manufacturing	4	0	0	03	80	20	100	4
3	15ME83X	Professional Elective-V	3	0	0	03	80	20	100	3
4	15ME84	Internship/Professional Practice	Industry Oriented			03	50	50	100	2
5	15ME85	Project Phase –II	-	6	-	03	100	100	200	6
6	15MES86	Seminar	-	4	-	-	-	100	100	1
		TOTAL	10	12	-		390	310	700	20

Professional Elective-V	
15ME831	Cryogenics
15ME832	Experimental Stress Analysis
15ME833	Theory of Plasticity

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2017-2018

B.E.MechanicalEngineering

III SEMESTER

SI. No.	SubjectCode	Title	Teaching Department	TeachingHours/Week			Examination				Credits
				Lecture	Tutorial	Practical	Duration (Hours)	SEE Marks	CIE Marks	Total Marks	
1	17MAT31	EngineeringMathematics–III	Maths	04			03	60	40	100	4
2	17ME32	MaterialsScience	ME	04			03	60	40	100	4
3	17ME33	BasicThermodynamics	ME	03	02		03	60	40	100	4
4	17ME34	MechanicsofMaterials	ME	03	02		03	60	40	100	4
5	17ME35A/ 17ME35B	MetalCastingandWelding	ME	04			03	60	40	100	4
		MachineToolsandOperations	ME								
6	17ME36A/ 17ME36B	ComputerAidedMachineDrawing	ME	01		4	03	60	40	100	3
		MechanicalMeasurementsandMetrology	ME	03							
7	17MEL37A/ 17MEL37B	MaterialsTestingLab/	ME	1		2	03	60	40	100	2
		MechanicalMeasurementsandMetrology Lab	ME								
8	17MEL38A/ 17MEL38B	FoundryandForgingLab	ME	1		2	03	60	40	100	2
		MachineShop/	ME								

B.E.MechanicalEngineering

IV SEMESTER

SI.No	SubjectCode	Title	Teaching Department	TeachingHours/Week			Examination				Credits
				Lecte	Tutorial	Practical	Duration (Hours)	SEEMarks	CIE Marks	TotalMarks	
1	17MAT41	EngineeringMathematics–III	Maths	04			03	60	40	100	04
2	17ME42	KinematicsofMachinery	ME	03	02		03	60	40	100	04
3	17ME43	AppliedThermodynamics	ME	03	02		03	60	40	100	04
4	17ME44	Fluidmechanics	ME	03	02		03	60	40	100	04
5	17ME45A/ 17ME45B	MetalCastingandWelding	ME	04			03	60	40	100	04
		MachineToolsandOperations	ME								
6	17ME46A/ 17ME46B	ComputerAidedMachine Drawing	ME	01		4	03	60	40	100	03
		MechanicalMeasurementsand Metrology	ME	03							
7	17MEL47A/ 17MEL47B	MaterialsTestingLab/	ME	1		2	03	60	40	100	02
		MechanicalMeasurementsand MetrologyLab	ME								
8	17MEL48A/ 17MEL48B	FoundryandForgingLab	ME	1		2	03	60	40	100	02
		MachineShop/	ME								
9	17KL/CPH39/ 49	Kannada/ConstitutionofIndia, ProfessionalEthicsandHuman Rights	Humanities	1			01	30	20	50	1
		TOTAL		21/23	06	08/04		510	340	850	28

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B.E.MechanicalEngineering

V SEMESTER

| Sl. No | SubjectCode | Title | Teaching Hours/Week | | | Examination | | | | Credits |
			Lecture	Tutorial	Practical	Duration(Hours)	SEEMarks	CIE Marks	TotalMarks	
1	17ME51	ManagementandEngineeringEconomics	3	2	0	03	60	40	100	4
2	17ME52	DynamicsofMachinery	3	2	0	03	60	40	100	4
3	17ME53	Turbo Machines	3	2	0	03	60	40	100	4
4	17ME54	DesignofMachineElements-I	3	2	0	03	60	40	100	4
5	17ME55X	ProfessionalElective-I	3	0	0	03	60	40	100	3
6	17ME56X	OpenElective-I	3	0	0	03	60	40	100	3
7	17MEL57	FluidMechanics&MachineryLab	1	0	2	03	60	40	100	2
8	17MEL58	EnergyLab	1	0	2	03	60	40	100	2
		TOTAL	20	08	04		480	320	60	40

B.E.MechanicalEngineering

VI SEMESTER

| Sl. No | SubjectCode | Title | Teaching Hours/Week | | | Examination | | | | Credits |
			Lecture	Tutorial	Practical	Duration(Hours)	SEE Marks	CIE Marks	TotalMarks	
1	17ME61	FiniteElementAnalysis	3	2	0	03	60	40	100	4
2	17ME62	ComputerintegratedManufacturing	4	0	0	03	60	40	100	4
3	17ME63	HeatTransfer	3	2	0	03	60	40	100	4
4	17ME64	DesignofMachineElements-II	3	2	0	03	60	40	100	4
5	17ME65X	ProfessionalElective-II	3	0	0	03	60	40	100	3
6	17ME66X	OpenElective-II	3	0	0	03	60	40	100	3
7	17MEL67	HeatTransferLab	1	0	2	03	60	40	100	2
8	17MEL68	ModelingandAnalysisLab(FEA)	1	0	2	03	60	40	100	2
		TOTAL	21	6	04		480	320	60	40

VisvesvarayaTechnologicalUniversity,Belagavi
B.E.inMechanicalEngineering
2017-SchemeofTeachingandExamination Choice Based Credit System (CBCS)

VIISemester

| Sl.No | Subject Code | Title | Teaching Hours/Week | | | Examination | | | | Credits |
			Lecture	Tutorial	Practical	Duration (Hours)	SEE Marks	CIE Marks	Total Marks	
1	17ME71	EnergyEngineering	3	2	0	03	60	40	100	4
2	17ME72	FluidPowerSystems	4	0	0	03	60	40	100	4
3	17ME73	ControlEngineering	3	2	0	03	60	40	100	4
4	17ME74X	ProfessionalElective-III	3	0	0	03	60	40	100	3
5	17ME75X	ProfessionalElective-IV	3	0	0	03	60	40	100	3
6	17MEL76	DesignLab	1	0	2	03	60	40	100	2
7	17MEL77	CIMLab	1	0	2	03	60	40	100	2
8	17MEP78	ProjectPhase–I	-	-	-	-		100	100	2
		TOTAL	18	04	04	21	420	380	800	24

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2018-2019

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018–19
Outcome Based Education (OBE) and Choice Based Credit System (CBCS) (Effective from the academic year 2018–19)

III SEMESTER

Sl.No	Course and Course Code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory/Lecture	Tutorial	Practical/Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	BSC	18MAT31	Transform calculus, fourier series and Numerical techniques	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18ME32	Mechanics of Materials		3	1	--	03	40	60	100	4
3	PCC	18ME33	Basic Thermodynamics		3	0	--	03	40	60	100	3
4	PCC	18ME34	Material Science		3	0	--	03	40	60	100	3
5	PCC	18ME35A or 18ME35B	Metal cutting and forming / Metal Casting and Welding		3	0	--	03	40	60	100	3
6	PCC	18ME36A or	Computer Aided Machine Drawing /		1	4			40	60	100	3
		18ME36B	Mechanical Measurements and Metrology		3	0	--	03				
7	PCC	18MEL37A or	Material Testing lab		--	2	2	03	40	60	100	2
		18MEL37B	Mechanical Measurements and Metrology lab									
8	PCC	18MEL38A	Workshop and Machine Shop Practice (Consists of Fitting and Machining)		--	2	2	03	40	60	100	2
		18MEL38B	Foundry, Forging and Welding lab									
9	HSMC	18KVK39/49	Vyavaharika Kannada (Kannada for communication)/	HSMC	--	2	--	--	100	--	100	1
		18KAK39/49	Aadalitha Kannada (Kannada for Administration)									
		OR										

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018–19
Outcome Based Education (OBE) and Choice Based Credit System (CBCS) (Effective from the academic year 2018–19)

IV SEMESTER

Sl.No	Course and Course Code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory/Lecture	Tutorial	Practical/Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	BSC	18MAT41	Mathematics	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18ME42	Applied Thermodynamics		3	1	--	03	40	60	100	4
3	PCC	18ME43	Fluid Mechanics		3	0	--	03	40	60	100	3
4	PCC	18ME44	Kinematics of Machines		3	0	--	03	40	60	100	3
5	PCC	18ME45A 18ME45B	Metal cutting and forming Metal Casting and Welding		3	0	--	03	40	60	100	3
6	PCC	18ME46A or 18ME46B	Computer Aided Machine Drawing / Mechanical Measurements and Metrology		1 3	4 0	--	03	40	60	100	3

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 –
19 Outcome Based Education(OBE) and Choice Based Credit System(CBCS)
(Effective from the academic year 2018–19)

V SEMESTER

Sl.No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18ME51	Management and Economics		2	2	--	03	40	60	100	3
2	PCC	18ME52	Design of Machine Elements I		3	2	--	03	40	60	100	4
3	PCC	18ME53	Dynamics of Machines		3	2	--	03	40	60	100	4
4	PCC	18ME54	Turbo Machines		3	--	--	03	40	60	100	3
5	PCC	18ME55	Fluid Power Engineering		3	--	--	03	40	60	100	3
6	PCC	18ME56	Operations Management		3	--	--	03	40	60	100	3
7	PCC	18MEL57	Fluid Mechanics/Machines lab		--	2	2	03	40	60	100	2
8	PCC	18MEL58	Energy Conversion Lab		--	2	2	03	40	60	100	2
9	HSMC	18CIV59	Environmental Studies	Civil/Envronmental [Paper setting: Civil Engineering Board]	1	--	--	02	40	60	100	1
			TOTAL		18	10	04	26	360	540	900	25

Note: PCC: Professional Core, HSMC: Humanity and Social Science.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018–19
Outcome Based Education(OBE) and Choice Based Credit System(CBCS) (Effective from the academic year 2018–19)

VI SEMESTER

Sl. No	Courses and Course code		Course Title	Teaching Department	Teaching Hours/Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18ME61	Finite Element Methods		3	2	--	03	40	60	100	4
2	PCC	18ME62	Design of Machine Elements II		3	2	--	03	40	60	100	4
3	PCC	18ME63	Heat Transfer		3	2	--	03	40	60	100	4
4	PEC	18ME64X	Professional Elective-1		3	--	--	03	40	60	100	3
5	OEC	18ME65X	Open Elective-A		3	--	--	03	40	60	100	3
6	PCC	18MEL66	Computer Aided Modelling and Analysis Lab		--	2	2	03	40	60	100	2
7	PCC	18MEL67	Heat Transfer Lab		--	2	2	03	40	60	100	2
8	MP	18MEMP68	Mini-project		--	--	2	03	40	60	100	2
9	Internship	--	Internship	To be carried out during the vacation/s of VI and VII semesters and/or VII and VIII semesters.								
			TOTAL		15	10	06	24	320	480	800	24

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project.

Professional Elective-1			
Course code under 18 XX64X	Course Title	Course code under 18 XX64X	Course Title
18ME641	Non-Traditional Machining	18ME644	Vibrations and Noise Engineering
18ME642	Refrigeration and Air conditioning	18ME645	Composite Materials Technology
18ME643	Theory of Elasticity	18ME646	Entrepreneurship Development

Open Elective-A

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (Please refer to the list of open electives under 18XX65X).
Selection of an open elective shall not be allowed if,
- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of the Departmental core course or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.
Registration to electives shall be documented under the guidance of Programme Coordinator/Advisor/Mentor.

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Scheme of Teaching and Examination 2018–19
Outcome Based Education (OBE) and Choice Based Credit System (CBCS) (Effective from the academic year 2018–19)

VII SEMESTER

Sl.No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18ME71	Control Engineering		3	--	--	03	40	60	100	3
2	PCC	18ME72	Computer Aided Design and Manufacturing		3	--	--	03	40	60	100	3
3	PEC	18ME73X	Professional Elective-2		3	--	--	03	40	60	100	3
4	PEC	18ME74X	Professional Elective-3		3	--	--	03	40	60	100	3
5	OEC	18ME75X	Open Elective-B		3	--	--	03	40	60	100	3
6	PCC	18MEL76	Computer Integrated Manufacturing Lab		--	2	2	03	40	60	100	2
	PCC	18MEL77	Design Lab		--	2	2	03	40	60	100	2
7	Project	18MEP78	Project Work Phase-1		--	--	2		100	--	100	1
8	Internship	--	Internship	(If not completed during the vacation of VI and VII semesters, it shall be carried out during the vacation of VII and VIII semesters)								
			TOTAL		15	04	06	18	340	360	700	20

Professional Elective-2

Course code under 18XX73X	Course Title	Course code under 18XX73X	Course Title
18ME731	Design for Manufacture	18ME734	Total Quality Management
18ME732	Automation and Robotics	18ME735	Operations Research
18ME733	Computational Fluid Dynamics		

Professional Electives-3

Course code under 18XX74X	Course Title	Course code under 18XX74X	Course Title
18ME741	Additive Manufacturing	18ME744	Mechatronics
18ME742	Emerging Sustainable Building Cooling Technologies	18ME745	Project Management
18ME743	Theory of Plasticity		

Open Elective-B

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018–19
Outcome Based Education (OBE) and Choice Based Credit System (CBCS) (Effective from the academic year 2018–19)

VIII SEMESTER

Sl.No	Course and Course code		Course Title	Teaching Department	Teaching Hours/Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18ME81	Energy Engineering		3	--	--	03	40	60	100	3
2	PEC	18ME82X	Professional Elective-4		3	--	--	03	40	60	100	3
3	Project	18MEP83	Project Work Phase- 2		--	--	2	03	40	60	100	8
4	Seminar	18MES84	Technical Seminar		--	--	2	03	100	--	100	1
5	Internship	18XXI85	Internship	Completed during the vacation/s of VI and VII semesters and/or VII and VIII semesters.)			03	40	60	100	3
			TOTAL		06	--	04	15	260	240	500	18

Note: PCC: Professional Core, PEC: Professional Elective.

Professional Electives-4

Course code under 18XX82X	Course Title	Course code under 18XX82X	Course Title
18ME821	CNC Machine Tools	18ME824	Automobile Engineering
18ME822	Tribology	18ME825	Tool Design
18ME823	Non-Destructive Testing and Evaluation	18ME826	Fracture Mechanics

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2019-2020

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2019–20
Outcome Based Education(OBE) and Choice Based Credit System(CBCS) (Effective from the academic year 2018–19)

III SEMESTER

SLNo	Course and Course Code		Course Title	Teaching Department	Theory Lecture (L)	Tutorial (T)	Practical/Drawing (P)	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	BSC	18MAT31	Transform calculus, fourier series and Numerical techniques	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18ME32	Mechanics of Materials		3	2	--	03	40	60	100	4
3	PCC	18ME33	Basic Thermodynamics		3	0	--	03	40	60	100	3
4	PCC	18ME34	Material Science		3	0	--	03	40	60	100	3
5	PCC	18ME35A or 18ME35B	Metal cutting and forming / Metal Casting and Welding		3	0	--	03	40	60	100	3
6	PCC	18ME36A or 18ME36B	Computer Aided Machine Drawing / Mechanical Measurements and Metrology		1 / 3	4 / 0	--	03	40	60	100	3
7	PCC	18MEL37A or 18MEL37B	Material Testing lab / Mechanical Measurements and Metrology lab		--	2	2	03	40	60	100	2
8	PCC	18MEL38A / 18MEL38B	Workshop and Machine Shop Practice (Consists of Fitting, and Machining) / Foundry, Forging and Welding lab		--	2	2	03	40	60	100	2
9	HSMC	18KVK39/49	Vyavaharika Kannada (Kannada for communication)/	HSMC	--	2	--	--	100	--	100	1
		18KAK39/49	Aadalitha Kannada (Kannada for Administration)									
		OR										
		18CPC39	Constitution of India, Professional Ethics and Cyber Law		1	--	--	02	40	60		
					Examination is by objective type questions							
			TOTAL		17 OR 19	10 OR 14	04	24 OR 26	420 OR 360	480 OR 540	900	24

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2019–20
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IV SEMESTER

SLNo	Course and Course Code		Course Title	Teaching Department	Theory Lecture (L)	Tutorial (T)	Practical/Drawing (P)	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	BSC	18MAT41	Mathematics	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18ME42	Applied Thermodynamics		3	2	--	03	40	60	100	4
3	PCC	18ME43	Fluid Mechanics		3	0	--	03	40	60	100	3
4	PCC	18ME44	Kinematics of Machines		3	0	--	03	40	60	100	3
5	PCC	18ME45A / 18ME45B	Metal cutting and forming / Metal Casting and Welding		3	0	--	03	40	60	100	3
6	PCC	18ME46A or 18ME46B	Computer Aided Machine Drawing / Mechanical Measurements and Metrology		1 / 3	4 / 0	--	03	40	60	100	3
7	PCC	18MEL47A or 18MEL47B	Material Testing lab / Mechanical Measurements and Metrology lab		--	2	2	03	40	60	100	2
8	PCC	18MEL48A / 18MEL48B	Workshop and Machine Shop Practice (Consists of Fitting, and Machining) / Foundry, Forging and Welding lab		--	2	2	03	40	60	100	2

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Scheme of Teaching and Examination 2019 – 20 Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018–19)

V SEMESTER

SLNo	Course and Coursecode		CourseTitle	Teaching Department	Theory Lecture (L)	Tutorial (T)	Practical/ Drawing (P)	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	PCC	18ME51	Management and Economics		2	2	--	03	40	60	100	3
2	PCC	18ME52	Design of Machine Elements I		3	2	--	03	40	60	100	4
3	PCC	18ME53	Dynamics of Machines		3	2	--	03	40	60	100	4

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2019–20 Outcome Based Education (OBE) and Choice Based Credit System (CBCS) (Effective from the academic year 2018–19)

VI SEMESTER

Sl. No	Course and Coursecode		CourseTitle	Teaching Department	Theory Lecture (L)	Tutorial (T)	Practical/ Drawing (P)	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	PCC	18ME61	Finite Element Methods		3	2	--	03	40	60	100	4
2	PCC	18ME62	Design of MachineElements II		3	2	--	03	40	60	100	4
3	PCC	18ME63	Heat Transfer		3	2	--	03	40	60	100	4
4	PEC	18ME64X	Professional Elective-1		3	--	--	03	40	60	100	3
5	OEC	18ME65X	Open Elective-A		3	--	--	03	40	60	100	3
6	PCC	18MEL66	Computer Aided Modelling and Analysis Lab		--	2	2	03	40	60	100	2
7	PCC	18MEL67	HeatTransferLab		--	2	2	03	40	60	100	2
8	MP	18MEMP68	Mini-project		--	--	2	03	40	60	100	2
9	Internship	--	Internship	To be carried out during the vacation/s of VI and VII semesters and/or VII and VIII semesters.								
			TOTAL	15	10	06	24	320	480	800		24

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2019–20 Outcome Based Education (OBE) and Choice Based Credit System (CBCS) (Effective from the academic year 2018–19)

VII SEMESTER

SLNo	Course and Coursecode		Course Title	Teaching Department	Theory Lecture (L)	Tutorial (T)	Practical/ Drawing (P)	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	PCC	18ME71	Control Engineering		3	--	--	03	40	60	100	3
2	PCC	18ME72	Computer Aided Design and Manufacturing		3	--	--	03	40	60	100	3
3	PEC	18ME73X	Professional Elective-2		3	--	--	03	40	60	100	3
4	PEC	18ME74X	Professional Elective-3		3	--	--	03	40	60	100	3
5	OEC	18ME75X	Open Elective-B		3	--	--	03	40	60	100	3
6	PCC	18MEL76	Computer Integrated Manufacturing Lab		--	2	2	03	40	60	100	2
	PCC	18MEL77	Design Lab		--	2	2	03	40	60	100	2
7	Project	18MEP78	Project Work Phase-1		--	--	2	--	100	--	100	1
8	Internship	--	Internship	(If not completed during the vacation of VI and VII semesters, it shall be carried out during the vacation of VII and VIII semesters)								
			TOTAL	15	04	06	18	340	360	700		20

Professional Elective-2

Coursecode under 18XX73X	CourseTitle	Course code under 18XX73X	CourseTitle
18ME731	Design for Manufacture	18ME734	Total Quality Management
18ME732	Automation and Robotics	18ME735	Operations Research
18ME733	Computational Fluid Dynamics		

Professional Electives-3

Coursecode under 18XX74X	CourseTitle	Course code under 18XX74X	CourseTitle
18ME741	Additive Manufacturing	18ME744	Mechatronics
18ME742	Emerging Sustainable Building Cooling Technologies	18ME745	Project Management

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Scheme of Teaching and Examination 2019–20
Outcome Based Education (OBE) and Choice Based Credit System (CBCS) (Effective from the academic year 2018–19)

VIII SEMESTER

SLNo	Course and Course code		Course Title	Teaching Department	Teaching Hours/Week			Examination				
					Theory Lecture (L)	Tutorial (T)	Practical/ Drawing (P)	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	PCC	18ME81	Energy Engineering		3	--	--	03	40	60	100	3
2	PEC	18ME82X	Professional Elective-4		3	--	--	03	40	60	100	3
3	Project	18MEP83	Project Work Phase- 2		--	--	2	03	40	60	100	8
4	Seminar	18MES84	Technical Seminar		--	--	2	03	100	--	100	1

2020-2021

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2020–21
Outcome Based Education (OBE) and Choice Based Credit System (CBCS) (Effective from the academic year 2018–19)

III SEMESTER

SLNo	Course and Course Code		Course Title	Teaching Department	Teaching Hours /Week			Examination				
					Theory Lecture (L)	Tutorial (T)	Practical/ Drawing (P)	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	BSC	18MAT31	Transform calculus, fourier series and Numerical techniques	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18ME32	Mechanics of Materials		3	2	--	03	40	60	100	4
3	PCC	18ME33	Basic Thermodynamics		3	0	--	03	40	60	100	3
4	PCC	18ME34	Material Science		3	0	--	03	40	60	100	3
5	PCC	18ME35A or 18ME35B	Metal cutting and forming / Metal Casting and Welding		3	0	--	03	40	60	100	3
6	PCC	18ME36A or 18ME36B	Computer Aided Machine Drawing / Mechanical Measurements and Metrology		1 3	4 0	--	03	40	60	100	3
7	PCC	18MEL37A or	Material Testing lab									

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2020–21
Outcome Based Education (OBE) and Choice Based Credit System (CBCS) (Effective from the academic year 2018–19)

IV SEMESTER

SLNo	Course and Course Code		Course Title	Teaching Department	Teaching Hours /Week			Examination				
					Theory Lecture (L)	Tutorial (T)	Practical/ Drawing (P)	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	BSC	18MAT41	Mathematics	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18ME42	Applied Thermodynamics		3	2	--	03	40	60	100	4
3	PCC	18ME43	Fluid Mechanics		3	0	--	03	40	60	100	3
4	PCC	18ME44	Kinematics of Machines		3	0	--	03	40	60	100	3
5	PCC	18ME45A 18ME45B	Metal cutting and forming Metal Casting and Welding		3	0	--	03	40	60	100	3
6	PCC	18ME46A or 18ME46B	Computer Aided Machine Drawing / Mechanical Measurements and Metrology		1 3	4 0	--	03	40	60	100	3
7	PCC	18MEL47A or 18MEL47B	Material Testing lab Mechanical Measurements and Metrology lab		--	2	2	03	40	60	100	2
8	PCC	18MEL48A 18MEL48B	Workshop and Machine Shop Practice (Consists of Fitting, and Machining) Foundry, Forging and Welding lab		--	2	2	03	40	60	100	2
9	HSMC	18KVK49/49 18KAK49/49 OR 18CPH49	Vyavaharika Kannada (Kannada for communication)/ Aadalitha Kannada (Kannada for Administration) OR Constitution of India, Professional Ethics and Cyber Law	HSMC	-- 1	2 --	-- --	-- 02	100 40	-- 60	100	1
					Examination is by objective type questions							
			TOTAL		17 OR 19	10 OR 14	04	24 OR 26	420 OR 360	480 OR 540	900	24

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2020 –
21 Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018–19)

V SEMESTER

Sl.No	Course and Course code		Course Title	Teaching Department	Theory Lecture (L)	Tutorial (T)	Practical/ Drawing (P)	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	PCC	18ME51	Management and Economics		2	2	--	03	40	60	100	3
2	PCC	18ME52	Design of Machine Elements I		3	2	--	03	40	60	100	4
3	PCC	18ME53	Dynamics of Machines		3	2	--	03	40	60	100	4
4	PCC	18ME54	Turbo Machines		3	--	--	03	40	60	100	3
5	PCC	18ME55	Fluid Power Engineering		3	--	--	03	40	60	100	3
6	PCC	18ME56	Operations Management		3	--	--	03	40	60	100	3
7	PCC	18MEL57	Fluid Mechanics/Machines lab		--	2	2	03	40	60	100	2
8	PCC	18MEL58	Energy Conversion Lab		--	2	2	03	40	60	100	2
9	HSMC	18CIV59	Environmental Studies	Civil/Environmental [Paper setting: Civil Engineering Board]	1	--	--	02	40	60	100	1
			TOTAL		18	10	04	26	360	540	900	25

Note: PCC: Professional Core, HSMC: Humanity and Social Science.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2020–21
Outcome Based Education (OBE) and Choice Based Credit System (CBCS) (Effective from the academic year 2018–19)

VI SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Theory Lecture (L)	Tutorial (T)	Practical/ Drawing (P)	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	PCC	18ME61	Finite Element Methods		3	2	--	03	40	60	100	4
2	PCC	18ME62	Design of Machine Elements II		3	2	--	03	40	60	100	4
3	PCC	18ME63	Heat Transfer		3	2	--	03	40	60	100	4
4	PEC	18ME64X	Professional Elective-1		3	--	--	03	40	60	100	3
5	OEC	18ME65X	Open Elective-A		3	--	--	03	40	60	100	3
6	PCC	18MEL66	Computer Aided Modelling and Analysis Lab		--	2	2	03	40	60	100	2
7	PCC	18MEL67	Heat Transfer Lab		--	2	2	03	40	60	100	2
8	MP	18MEMP68	Mini-project		--	--	2	03	40	60	100	2
9	Internship	--	Internship	To be carried out during the vacation's of VI and VII semesters and/or VII and VIII semesters.								
			TOTAL		15	10	06	24	320	480	800	24

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project.

Professional Elective-1

Course code under 18XX64X	Course Title	Course code under 18XX64X	Course Title
18ME641	Non-Traditional Machining	18ME644	Vibrations and Noise Engineering
18ME642	Refrigeration and Airconditioning	18ME645	Composite Materials Technology
18ME643	Theory of Elasticity	18ME646	Entrepreneurship Development

Open Elective-A

Students can select any one of the open electives offered by other Departments except those that are offered by the parent Department (Please refer to the list of open electives under 18XX65X).
Selection of an open electives shall not be allowed if,
- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of the Department al core course or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.
Registration to electives shall be documented under the guidance of Programme Coordinator/Advisor/Mentor.

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VII SEMESTER

Sl.No	Course and Course Code		Course Title	Teaching Department	Theory Lecture (L)	Tutorial (T)	Practical/ Drawing (P)	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	PCC	18ME71	Control Engineering		3	--	--	03	40	60	100	3
2	PCC	18ME72	Computer Aided Design and Manufacturing		3	--	--	03	40	60	100	3
3	PEC	18ME73X	Professional Elective-2		3	--	--	03	40	60	100	3
4	PEC	18ME74X	Professional Elective-3		3	--	--	03	40	60	100	3
5	OEC	18ME75X	Open Elective-B		3	--	--	03	40	60	100	3
6	PCC	18MEL76	Computer Integrated Manufacturing Lab		--	2	2	03	40	60	100	2
	PCC	18MEL77	Design Lab		--	2	2	03	40	60	100	2
7	Project	18MEP78	Project Work Phase-1		--	--	2	--	100	--	100	1
8	Internship	--	Internship	(If not completed during the vacation of VI and VII semesters, it shall be carried out during the vacation of VII and VIII semesters)								
				TOTAL	15	04	06	18	340	360	700	20

Professional Elective-2

Course code under 18XX73X	Course Title	Course code under 18XX73X	Course Title
18ME731	Design for Manufacture	18ME734	Total Quality Management
18ME732	Automation and Robotics	18ME735	Operations Research
18ME733	Computational Fluid Dynamics		

Professional Electives-3

Course code under 18XX74X	Course Title	Course code under 18XX74X	Course Title
18ME741	Additive Manufacturing	18ME744	Mechatronics
18ME742	Emerging Sustainable Building Cooling Technologies	18ME745	Project Management
18ME743	Theory of Plasticity		

Open Elective-B

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2020–21
Outcome Based Education (OBE) and Choice Based Credit System (CBCS) (Effective from the academic year 2018–19)

VIII SEMESTER

Sl.No	Course and Course Code		Course Title	Teaching Department	Theory Lecture (L)	Tutorial (T)	Practical/ Drawing (P)	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	PCC	18ME81	Energy Engineering		3	--	--	03	40	60	100	3
2	PEC	18ME82X	Professional Elective-4		3	--	--	03	40	60	100	3
3	Project	18MEP83	Project Work Phase-2		--	--	2	03	40	60	100	8
4	Seminar	18MES84	Technical Seminar		--	--	2	03	100	--	100	1
5	Internship	18XXI85	Internship	Completed during the vacation/s of VI and VII semesters and/or VII and VIII semesters.)				03	40	60	100	3
				TOTAL	06	--	04	15	260	240	500	18

Note: PCC: Professional Core, PEC: Professional Elective.

Professional Electives-4

Course code under 18XX82X	Course Title	Course code under 18XX82X	Course Title
18ME821	CNC Machine Tools	18ME824	Automobile Engineering
18ME822	Tribology	18ME825	Tool Design
18ME823	Non-Destructive Testing and Evaluation	18ME826	Fracture Mechanics

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CIVIL

SCHEME OF TEACHING & EXAMINATION
BE CIVIL ENGINEERING
III SEMESTER

Sl. No	Subject Code	Title	Teaching Dept.	Teaching hours /week Th.	Pr.	Dur-ation	I.A. Max. Marks	Theory/ Pract. Max. Marks	Total Marks Max. Marks
1	10 MAT 31	Engineering Mathematics –III	Maths	4	--	3	25	100	125
2	10 CV 32	Building Materials and Construction Technology	Civil	4	--	3	25	100	125
3	10 CV 33	Strength of Materials	Civil	4	--	3	25	100	125
4	10 CV 34	Surveying – I	Civil	4	--	3	25	100	125
5	10 CV 35	Fluid Mechanics	Civil	4	--	3	25	100	125
6	10 CV 36	Applied Engineering Geology	Civil/Geo.	4	--	3	25	100	125
7	10 CVL 37	Civil Engg. Material Testing Laboratory	Civil	---	3	3	25	50	75
8	10 CVL 38	Surveying Practice – I	Civil	---	3	3	25	50	75
			Total	22	08	24	200	700	900

2016-17

SCHEME OF TEACHING & EXAMINATION
BE CIVIL ENGINEERING
IV SEMESTER

S. No	Subject Code	Title	Teaching Dept.	Teaching hours /week Th.	Pr.	Dur-ation	I.A. Max. Marks	Theory/ Pract. Max. Marks	Total Marks Max. Marks
1	10 MAT 41	Engineering Mathematics –IV	Maths	4	--	3	25	100	125
2	10 CV 42	Concrete Technology	Civil	4	--	3	25	100	125
3	10 CV 43	Structural Analysis – I	Civil	4	--	3	25	100	125
4	10 CV 44	Surveying – II	Civil	4	--	3	25	100	125
5	10 CV 45	Hydraulics and Hydraulic Machines	Civil	4	--	3	25	100	125
6	10 CV 46	Building Planning & Drawing	Civil	1	6	4	25	100	125
7	10 CVL 47	Surveying Practice-II Laboratory	Civil	---	3	3	25	50	75
8	10 CVL 48	Applied Engineering Geology Laboratory	Civil/Geo.	---	3	3	25	50	75
			Total	21	12	25	200	700	900

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SCHEME OF TEACHING AND EXAMINATION
B.E. CIVIL EINGINEERING
V SEMESTER

Sl. No.	Subject Code	Title of the Subject	Teaching Dept.	Theory	Practical	Duration (Hrs)	IA	Theory / Practical	Total
1	10 AL 51	Management & Entrepreneurship	Any Dept.	04	-	03	25	100	125
2	10 CV 52	Design of RCC Structural Elements	Civil	04	--	03	25	100	125
3	10 CV 53	Structural Analysis – II	Civil	04	--	03	25	100	125
4	10 CV 54	Geotechnical Engineering. – I	Civil	04	--	03	25	100	125
5	10 CV 55	Hydrology and Irrigation Engineering	Civil	04	--	03	25	100	125
6	10 CV 56	Transportation Engineering – I	Civil	04	--	03	25	100	125
7	10 CVL 57	Hydraulics and Hydraulic Machinery Lab.	Civil	--	03	03	25	50	75
8	10 CVL 58	Computer Aided Design Lab.	Civil	--	03	03	25	50	75
		TOTAL		**24**	**06**	**24**	**200**	**700**	**900**

SCHEME OF TEACHING AND EXAMINATION
B.E. CIVIL EINGINEERING
VI SEMESTER

Sl. No.	Subject Code	Title of the Subject	Teaching Dept.	Theory	Practical	Duration (Hrs)	IA	Theory / Practical	Total
1	10 CV 61	Environmental Engineering - I	Civil	04	--	03	25	100	125
2	10 CV 62	Design & Drawing of RC structures	Civil	02	03	04	25	100	125
3	10 CV 63	Transportation Engineering – II	Civil	04	--	03	25	100	125
4	10 CV 64	Geotechnical Engineering. – II	Civil	04	--	03	25	100	125
5	10 CV 65	Hydraulic Structures and Irrigation Design-Drawing	Civil	02	03	04	25	100	125
6	10 CV 66x	Elective-I (Group A)	Civil	04	--	03	25	100	125
7	10 CVL 67	Geotechnical Engineering. Lab.	Civil	--	03	03	25	50	75
8	10 CVL 68	Extensive Survey Viva Voce	Civil	--	03	03	25	50	75
		TOTAL		**20**	**12**	**25**	**200**	**700**	**900**

SCHEME OF TEACHING AND EXAMINATION
B.E. CIVIL EINGINEERING
VII SEMESTER

Sl. No.	Subject Code	Title of the Subject	Teaching Dept.	Theory	Practical	Duration (Hrs)	IA	Theory / Practical	Total
1	10 CV 71	Environmental Engineering.-II	Civil	04	--	03	25	100	125
2	10 CV 72	Design of Steel Structures	Civil	04	--	03	25	100	125
3	10 CV 73	Estimation and Valuation	Civil	04	--	03	25	100	125
4	10 CV 74	Design of Pre Stressed Concrete Structures	Civil	04	--	03	25	100	125
5	10 CV 75x	Elective-II (Group B)	Civil	04	--	03	25	100	125
6	10 CV 76x	Elective-III (Group C)	Civil	04	--	03	25	100	125
7	10 CVL 77	Environmental Engineering. Lab	Civil	--	03	03	25	50	75
8	10 CVL 78	Concrete and Highway Materials lab.	Civil	--	03	03	25	50	75
		TOTAL		**24**	**06**	**24**	**200**	**700**	**900**

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SCHEME OF TEACHING AND EXAMINATION
B.E. CIVIL EINGINEERING
VIII SEMESTER

Sl. No.	Subject Code	Title of the Subject	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Practical	Duration (Hrs)	Marks		
							IA	Theory / Practical	Total
1	10 CV 81	Advanced Concrete Technology	Civil	04	--	03	25	100	125
2	10 CV 82	Design and Drawing of Steel Structures	Civil	02	03	04	25	100	125
3	10 CV 83x	Elective-IV (Group D)	Civil	04	--	03	25	100	125
4	10 CV 84x	Elective-V (Group E)	Civil	04	--	03	25	100	125
5	10 CV 85	Project Work	Civil	--	06	03	100	100	200
6	10 CV 86	Seminar	Civil	--	03	03	50	--	50
		TOTAL		14	12	19	250	500	750

Elective-IV (Group D)

10 CV 831	Advanced Pre-stressed Concrete Structures
10 CV 832	Advanced Foundation Design
10 CV 833	Pavement Design
10 CV 834	Earthquake Resistant Design of Structures
10 CV 835	Industrial Waste Water Treatment
10 CV 836	Construction Management & Engineering Economics.

Elective-V (Group E)

10 CV 841	Finite Element Analysis
10 CV 842	Reinforced Earth Structures
10 CV 843	Urban Transport Planning
10 CV 844	Geographic Information System
10 CV 845	Advanced Design of Steel Structures
10 CV 846	Water Resources Engineering
10 CV 847	Environmental Impact Assessment

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B.E. CIVIL ENGINEERING

(Common to _____)

III SEMESTER

Sl. No	Subject Code	Title	Teaching Hours / Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15CV31	Engineering Mathematics – III	04		03	80	20	100	4
2	15CV32	Strength of Materials	04		03	80	20	100	4
3	15CV33	Fluid Mechanics	04		03	80	20	100	4
4	15CV34	Basic Surveying	04		03	80	20	100	4
5	15CV35	Engineering Geology	04		03	80	20	100	4
6	15CV36	Building Materials and Construction	04		03	80	20	100	4
7	15CVL37	Building Materials Testing Laboratory		1I+2P	03	80	20	100	2
8	15CVL38	Basic Surveying Practice		1I+2P	03	80	20	100	2
		TOTAL	24	6	24	640	160	800	28

Note:

Core Subjects:	15CV31, 15CV32, 15CV33, 15CV34, 15CV35, 15CV36
Laboratory & Practice:	15CVL37, 15CVL38

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B.E. CIVIL ENGINEERING

(Common to _____)

IV SEMESTER

Sl No	Subject Code	Title	Teaching Hours / Week		Examination				Credits
			Theory	Practical / Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15CV 41	Engineering Mathematics – IV	04		03	80	20	100	4
2	15CV42	Analysis of Determinate Structures	04		03	80	20	100	4
3	15CV43	Applied Hydraulics	04		03	80	20	100	4
4	15CV 44	Concrete Technology	04		03	80	20	100	4
5	15CV45	Basic Geotechnical Engineering	04		03	80	20	100	4
6	15CV46	Advanced Surveying	04		03	80	20	100	4
7	15CVL47	Fluid Mechanics and Hydraulic Machines Laboratory		1I+2P	03	80	20	100	2
8	15CVL48	Engineering Geology Laboratory		1I+2P	03	80	20	100	2
		TOTAL	24	06	24	640	160	800	28

Note:

Core Subjects:	15CV 41, 15CV42, 15CV43, 15CV 44, 15CV45, 15CV46
Laboratory & Practice:	15CVL47, 15CVL48

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B.E. CIVIL ENGINEERING

V SEMESTER

Sl. No.	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15CV51	Design of RC Structural Elements	04		03	80	20	100	4
2	15CV52	Analysis of Indeterminate Structures	04		03	80	20	100	4
3	15CV53	Applied Geotechnical Engineering	04		03	80	20	100	4
4	15CV54	Computer Aided Building Planning and Drawing	01	3D	03	80	20	100	4
5	15CV55X	Professional Elective-1	03		03	80	20	100	3
6	15CV56X	Open Elective-1	03		03	80	20	100	3
7	15CVL57	Geotechnical Engineering Laboratory		1I+2P	03	80	20	100	2
8	15CVL58	Concrete and Highway Materials Laboratory		1I+2P	03	80	20	100	2
		TOTAL	19	09	24	640	160	800	26

Professional Elective 1		Open Elective 1	
15CV551	Air pollution and Control	15CV561	Traffic Engineering
15CV552	Railways, Harbours, tunneling and Airports	15CV562	Sustainability Concepts in Engineering
15CV553	Masonry Structures	15CV563	Remote Sensing and GIS
15CV554	Theory of Elasticity	15CV564	Occupational Health and Safety
		15NC565	NCC

1. **Professional Elective**: Elective relevant to chosen specialization/ branch
2. **Open Elective**: Electives from other technical and/or emerging subject areas

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VI SEMESTER

Sl. No.	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15CV61	Construction Management and Entrepreneurship	04		03	80	20	100	4
2	15CV62	Design of Steel Structural Elements	04		03	80	20	100	4
3	15CV63	Highway Engineering	04		03	80	20	100	4
4	15CV64	Water Supply and Treatment Engineering	04		03	80	20	100	4
5	15CV65X	Professional Elective 2	03		03	80	20	100	3
6	15CV66X	Open Elective 2	03		03	80	20	100	3
7	15CVL67	Software Application Lab		1I+2P	03	80	20	100	2
8	15CVP68	Extensive Survey Project /Camp		1I+2P	03	80	20	100	2
		TOTAL	22	6	24	640	160	800	26

Professional Elective-2		Open Elective-2	
15CV651	Solid Waste Management	15CV661	Water Resource Management
15CV652	Matrix Method of Structural Analysis	15CV662	Environmental Protection and Management
15CV653	Alternative Building Materials	15CV663	Numerical Methods and applications
15CV654	Ground Improvement Techniques	15CV664	Finite Element Analysis

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B.E. CIVIL ENGINEERING

VII SEMESTER

Sl. No.	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15CV71	Municipal and Industrial Waste Water Engineering	04		03	20	80	100	4
2	15CV72	Design of RCC and Steel Structures	04		03	20	80	100	4
3	15CV73	Hydrology and Irrigation Engineering	04		03	20	80	100	4
4	15CV74X	Professional Elective 3	03		03	20	80	100	3
5	15CV75X	Professional Elective 4	03		03	20	80	100	3
6	15CVL76	Environmental Engineering Laboratory		1I+2P	03	20	80	100	2
7	15CVL77	Computer Aided Detailing of Structures		1I+2D	03	20	80	100	2
8	15CVP78	Project Phase I +Project Seminar		3		100		100	2
		TOTAL	18	9	21	240	560	800	24

Professional Elective 3		Professional Elective 4	
15CV741	Design of Bridges	15CV751	Urban Transportation and Planning
15CV742	Ground Water & Hydraulics	15CV752	Prefabricated Structures
15CV743	Design Concept of Building Services	15CV753	Rehabilitation and Retrofitting of Structures
15CV744	Structural Dynamics	15CV754	Reinforced Earth Structures

1. Project Phase-I + Seminar: Literature Survey, Problem Identification, objectives and Methodology, Submission of synopsis and seminar

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VIII SEMESTER

Sl. No.	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15CV81	Quantity Surveying and Contracts Management	4	-	3	20	80	100	4
2	15CV82	Design of Pre Stressed Concrete Elements	4	-	3	20	80	100	4
3	15CV83X	Professional Elective 5	3	-	3	20	80	100	3
4	15CV84	Internship/Professional Practice	Industry Oriented		3	50	50	100	2
5	15CVP85	Project Work	-	6	3	100	100	200	6
6	15CVS86	Seminar on current trends in Engineering and Technology	-	4	-	100	-	100	1
		TOTAL	11	10	15	310	390	700	20

Professional Elective 5	
15CV831	Earthquake Engineering
15CV832	Hydraulic Structures
15CV833	Pavement Design
15CV834	Advanced Foundation Design

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B.E: CIVIL ENGINEERING

III SEMESTER

Sl. No.	Course Code	Title	Teaching Department	Teaching Hours /Week Theory	Teaching Hours /Week Practical/ Drawing	Examination Duration in hours	Examination SEE Marks	Examination CIE Marks	Examination Total Marks	Credits
1	17MAT31	Engineering Mathematics –III*	Maths	04		03	60	40	100	4
2	17CV32	Strength of Materials	Civil Engg.	04		03	60	40	100	4
3	17CV33	Fluid Mechanics	Civil Engg.	04		03	60	40	100	4
4	17CV34	Basic Surveying	Civil Engg.	04		03	60	40	100	4
5	17CV35	Engineering Geology	Civil Engg.	04		03	60	40	100	3
6	17CV36	Building Materials and Construction	Civil Engg.	03		03	60	40	100	4
7	17CVL37	Building Materials Testing Laboratory	Civil Engg.	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17CVL38	Basic Surveying Practice	Civil Engg.	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
9	17KL/CPH39/49	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. Kannada/Constitution of India, Professional Ethics and Human Rights: 50 % of the programs of the Institution have to teach Kannada/Constitution of India, Professional Ethics and Human Rights in cycle based concept during III and IV semesters.

2. Audit Course:
(i) *All lateral entry students (except B.Sc candidates) have to register for Additional Mathematics – I, which is 03 contact hours per week.

1	17MATDIP31	Additional Mathematics –I	Maths	03		03	60	--	60	--

(ii) Language English (Audit Course) be compulsorily studied by all lateral entry students (except B.Sc candidates)

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B.E: CIVIL ENGINEERING

IV SEMESTER

Sl. No.	Course Code	Title	Teaching Department	Teaching Hours /Week Theory	Teaching Hours /Week Practical/ Drawing	Examination Duration in hours	Examination SEE Marks	Examination CIE Marks	Examination Total Marks	Credits
1	17MAT41	Engineering Mathematics –IV*	Maths	04		03	60	40	100	4
2	17CV42	Analysis of Determinate Structures	Civil Engg.	04		03	60	40	100	3
3	17CV43	Applied Hydraulics	Civil Engg.	04		03	60	40	100	4
4	17CV44	Concrete Technology	Civil Engg.	04		03	60	40	100	4
5	17CV45	Basic Geotechnical Engineering	Civil Engg.	04		03	60	40	100	4
6	17CV46	Advanced Surveying	Civil Engg.	03		03	60	40	100	4
7	17CVL47	Fluid Mechanics Laboratory	Civil Engg.	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17CVL48	Engineering Geology Laboratory	Civil Engg.	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
9	17KL/CPH39/49	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. Kannada/Constitution of India, Professional Ethics and Human Rights: 50 % of the programs of the Institution have to teach Kannada/Constitution of India, Professional Ethics and Human Rights in cycle based concept during III and IV semesters.

2.Audit Course:
(i) *All lateral entry students (except B.Sc candidates) have to register for Additional Mathematics – II, which is 03 contact hours per week.

1	17MATDIP41	Additional Mathematics –II	Maths	03		03	60	--	60	--

(ii) Language English (Audit Course) be compulsorily studied by all lateral entry students (except B.Sc candidates)

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B.E: CIVIL ENGINEERING

V SEMESTER

Sl. No.	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17CV51	Design of RC Structural Elements	Civil Engg.	04		03	60	40	100	4
2	17CV52	Analysis of Indeterminate Structures	Civil Engg.	04		03	60	40	100	4
3	17CV53	Applied Geotechnical Engineering	Civil Engg.	04		03	60	40	100	4
4	17CV54	Computer Aided Building Planning and Drawing	Civil Engg.	04		03	60	40	100	4
5	17CV55X	Professional Elective-1	Civil Engg.	03		03	60	40	100	3
6	17CV56X	Open Elective-1	Civil Engg.	03		03	60	40	100	3
7	17CVL57	Geotechnical Engineering Laboratory	Civil Engg.	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17CVL58	Concrete and Highway Materials Laboratory	Civil Engg.	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
			TOTAL	Theory: 22hours Practical: 06 hours		24	480	320	800	26

Professional Elective-1		Open Elective – 1*** (List offered by Civil Engg Board only)	
17CV551	Air pollution and Control	17CV561	Traffic Engineering
17CV552	Railways, Harbours, tunneling and Airports	17CV562	Sustainability Concepts in Engineering
17CV553	Masonry Structures	17CV563	Remote Sensing and GIS
17CV554	Theory of Elasticity	17CV563	Occupational Health and Safety
		17CV563	NCC

***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, if:
· The candidate has no pre – requisite knowledge.
· The candidate has studied similar content course during previous semesters.
· The syllabus content of the selected open elective is similar to that of Departmental core course(s) or to be studied Professional elective(s).
Registration to open electives shall be documented under the guidance of Programme Coordinator and Adviser.

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VI SEMESTER

Sl. No.	Course Code	Title	Teaching Department	Teaching Hours /Week Theory	Teaching Hours /Week Practical/ Drawing	Examination Duration in hours	Examination SEE Marks	Examination CIE Marks	Examination Total Marks	Credits
1	17CV61	Construction Management and Entrepreneurship	Civil Engg.	04		03	60	40	100	4
2	17CV62	Design of Steel Structural Elements	Civil Engg.	04		03	60	40	100	4
3	17CV63	Highway Engineering	Civil Engg.	04		03	60	40	100	4
4	17CV64	Water Supply and Treatment Engineering	Civil Engg.	04		03	60	40	100	4
5	17CV65X	Professional Elective-2	Civil Engg.	03		03	60	40	100	3
6	17CV66X	Open Elective-2	Civil Engg.	03		03	60	40	100	3
7	17CVL67	Software Application Laboratory	Civil Engg.	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17CVL68	Extensive Survey Project /Camp	Civil Engg.	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
		TOTAL		Theory:22hours Practical: 06 hours		24	480	320	800	26

Professional Elective-2		Open Elective – 2*** (List offered by Civil Engg Board only)	
17CV651	Solid Waste Management	17CV661	Water Resource Management
17CV652	Matrix Method of Structural Analysis	17CV662	Environmental Protection and Management
17CV653	Alternative Building Materials	17CV663	Numerical Methods and Applications
17CV654	Ground Improvement Techniques	17CV664	Finite Element Analysis

***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, if:
· The candidate has no pre – requisite knowledge.
· The candidate has studied similar content course during previous semesters.
· The syllabus content of the selected open elective is similar to that of Departmental core course(s) or to be studied Professional elective(s).
Registration to open electives shall be documented under the guidance of Programme Coordinator and Adviser.

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2017-2018

B.E: CIVIL ENGINEERING

VII SEMESTER

Sl. No.	Course Code	Title	Teaching Department	Teaching Hours /Week Theory	Teaching Hours /Week Practical/ Drawing	Examination Duration in hours	Examination SEE Marks	Examination CIE Marks	Examination Total Marks	Credits
1	17CV71	Municipal and Industrial Waste Water Engineering	Civil Engg.	04		03	60	40	100	4
2	17CV72	Design of RCC and Steel Structures	Civil Engg.	04		03	60	40	100	4
3	17CV73	Hydrology and Irrigation Engineering	Civil Engg.	04		03	60	40	100	4
4	17CV74X	Professional Elective-3	Civil Engg.	03		03	60	40	100	3
5	17CV75X	Professional Elective-4	Civil Engg.	03		03	60	40	100	3
6	17CVL76	Environmental Engineering Laboratory	Civil Engg.	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
7	17CVL77	Computer Aided Detailing of Structures	Civil Engg.	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17CVP78	Project Work Phase–I + Project work Seminar	Civil Engg.		03	--	--	100	100	2
		TOTAL		Theory:18 hours Practical and Project: 09 hours		21	420	380	800	24

Professional Elective-3		Professional Elective-4	
17CV741	Design of Bridges	17CV751	Urban Transportation and Planning
17CV742	Ground Water & Hydraulics	17CV752	Prefabricated Structures
17CV743	Design Concept of Building Services	17CV753	Rehabilitation and Retrofitting of Structures
17CV744	Structural Dynamics	17CV754	Reinforced Earth Structures

1. **Project Phase – I and Project 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.

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SCHEME OF TEACHING AND EXAMINATION 2017-2018

B.E: CIVIL ENGINEERING

VIII SEMESTER

Sl. No.	Course Code	Title	Teaching Department	Teaching Hours /Week Theory	Teaching Hours /Week Practical/ Drawing	Examination Duration in hours	Examination SEE Marks	Examination CIE Marks	Examination Total Marks	Credits
1	17CV81	Quantity Surveying and Contracts Management	Civil Engg.	4	-	3	60	40	100	4
2	17CV82	Design of Pre Stressed Concrete Elements	Civil Engg.	4	-	3	60	40	100	4
3	17CV83X	Professional Elective-5	Civil Engg.	3	-	3	60	40	100	3
4	17CV84	Internship/ Professional Practice	Civil Engg.	Industry Oriented		3	50	50	100	2
5	17CVP85	Project Work-II	Civil Engg.	-	6	3	100	100	200	6
6	17CVS86	Seminar on current trends in Engineering and Technology	Civil Engg.	-	4	-	-	100	100	1
		TOTAL		**Theory: 11 hours Project and Seminar: 10 hours**		15	330	370	700	20

Professional Elective -5	
17CV831	Earthquake Engineering
17CV832	Hydraulic Structures
17CV833	Pavement Design
17CV834	Advanced Foundation Design

1. Internship/ Professional Practice: 4 Weeks internship to be completed between the (VI and VII semester vacation) and/or (VII and VIII semester vacation) period

2019-20

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

Programme: CIVIL ENGINEERING

III SEMESTER

Sl. No	Course and Course Code		Course Title	Teaching Department	Teaching Hours /Week			Examination				
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
					L	T	P					
1	BSC	18MAT31	Transform Calculus, Fourier Series and Numerical Techniques	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18CV32	Strength of Materials	Civil Engg.	3	2	--	03	40	60	100	4
3	PCC	18CV33	Fluid Mechanics	Civil Engg.	3	0	--	03	40	60	100	3
4	PCC	18CV34	Building Materials and Construction	Civil Engg.	3	0	--	03	40	60	100	3
5	PCC	18CV35	Basic Surveying	Civil Engg.	3	0	--	03	40	60	100	3
6	PCC	18CV36	Engineering Geology	Geology	3	0	--	03	40	60	100	3
7	PCC	18CVL37	Computer Aided Building Planning & Drawing	Civil Engg.	--	2	2	03	40	60	100	2
8	PCC	18CVL38	Building Materials Testing Laboratory	Civil Engg.	--	2	2	03	40	60	100	2
9	HSMC	18KVK39	Vyavaharika Kannada (Kannada for communication)/ OR	HSMC	--	2	--	--	100	--	100	1
		18KAK39	Aadalitha Kannada (Kannada for Administration) OR									
		18CPC39	Constitution of India, Professional Ethics and Cyber Law		1	--	--	02	40	60		
					Examination is by objective type questions							
				TOTAL	17 OR 18	08 OR 10	04	24 OR 26	420 OR 360	480 OR 540	900	24

Note: BSC: Basic Science, PCC: Professional Core, HSMC: Humanity and Social Science, NCMC: Non-credit mandatory course.
18KVK39Vyavaharika Kannada (Kannada for communication) is for non-Kannada speaking, reading and writing students and 18KAK39 Aadalitha Kannada (Kannada for Administration) is for students who speak, read and write Kannada.

Course prescribed to lateral entry Diploma holders admitted to III semester of Engineering programs

| 10 | NCMC | 18MATDIP31 | Additional Mathematics - I | Mathematics | 02 | 01 | -- | 03 | 40 | 60 | 100 | 0 |

(a)The mandatory non – credit courses Additional Mathematics I and II prescribed for III and IV semesters respectively, to the lateral entry Diploma holders admitted to III semester of BE/B. Tech programs, shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the University examination. 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 F

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Programme: CIVIL ENGINEERING

IV SEMESTER

Sl No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
					L	T	P					
1	BSC	18MAT41	Complex Analysis, Probability And Statistical Methods	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18CV42	Analysis of Determinate Structures	Civil Engg.	3	2	--	03	40	60	100	4
3	PCC	18CV43	Applied Hydraulics	Civil Engg.	3	0	--	03	40	60	100	3
4	PCC	18CV44	Concrete Technology	Civil Engg.	3	0	--	03	40	60	100	3
5	PCC	18CV45	Advanced Surveying	Civil Engg.	3	0	--	03	40	60	100	3
6	PCC	18CV46	Water Supply & Treatment Engineering	Civil Engg.	3	0	--	03	40	60	100	3
7	PCC	18CVL47	Engineering Geology Laboratory	Geology	--	2	2	03	40	60	100	2
8	PCC	18CVL48	Fluid Mechanics and Hydraulic Machines Laboratory	Civil Engg.	--	2	2	03	40	60	100	2
9	HSMC	18KVK39/49	Vyavaharika Kannada (Kannada for Communication)/ OR	HSMC	--	2	--	--	100	--	100	1
		18KAK39/49	Aadalitha Kannada (Kannada for Administration) OR									
		18CPC39/49	Constitution of India, Professional Ethics and Cyber Law		1	--	--	02	40	60		
					Examination is by objective type questions							
				TOTAL	17 OR 18	08 OR 10	04	24 OR 26	420 OR 360	480 OR 540	900	24

Note: BSC: Basic Science, PCC: Professional Core, HSMC: Humanity and Social Science, NCMC: Non-credit mandatory course.
18KVK39/49Vyavaharika Kannada (Kannada for communication) is for non-Kannada speaking, reading and writing students and 18KAK39/49Aadalitha Kannada (Kannada for Administration) is for students who speak, read and write Kannada.

Course prescribed to lateral entry Diploma holders admitted to III semester of Engineering programs

| 10 | NCMC | 18MATDIP41 | Additional Mathematics - II | Mathematics | 02 | 01 | -- | 03 | 40 | 60 | 100 | 0 |

(a)The mandatory non – credit courses Additional Mathematics I and II prescribed for III and IV semesters respectively, to the lateral entry Diploma holders admitted to III semester of BE/B. Tech programs, shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the University examination. 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 F grade. In such a case, the students have to fulfill the requirements during subsequent semester/s to appear for SEE.

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V SEMESTER

SL No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	HSMC	18CV51	Construction Management & Entrepreneurship	Civil Engg.	2	2	--	03	40	60	100	3
2	PCC	18CV52	Analysis of Indeterminate Structures	Civil Engg.	3	2	--	03	40	60	100	4
3	PCC	18CV53	Design of RC Structural Elements	Civil Engg.	3	2	--	03	40	60	100	4
4	PCC	18CV54	Basic Geotechnical Engineering	Civil Engg.	3	–	--	03	40	60	100	3
5	PCC	18CV55	Municipal Wastewater Engineering	Civil Engg.	3	–	--	03	40	60	100	3
6	PCC	18CV56	Highway Engineering	Civil Engg.	3	–	--	03	40	60	100	3
7	PCC	18CVL57	Surveying Practice	Civil Engg.	–	2	2	03	40	60	100	2
8	PCC	18CVL58	Concrete and Highway Materials Laboratory	Civil Engg.	–	2	2	03	40	60	100	2
9	HSMC	18CIV59	Environmental Studies	Civil/Environmental [Paper setting Board: Civil Engineering]	1	–	--	02	40	60	100	1
				TOTAL	18	10	04	26	360	540	900	25

Note: PCC: Professional Core, HSMC: Humanity and Social Science.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

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VI SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutoria l	Practic al/ Drawin g	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18CV61	Design of Steel Structural Elements	Civil Engg.	3	2	--	03	40	60	100	4
2	PCC	18CV62	Applied Geotechnical Engineering	Civil Engg.	3	2	--	03	40	60	100	4
3	PCC	18CV63	Hydrology and Irrigation Engineering	Civil Engg.	3	2	--	03	40	60	100	4
4	PEC	18CV64X	Professional Elective -1	Civil Engg.	3	--	--	03	40	60	100	3
5	OEC	18CV65X	Open Elective -A	Civil Engg.	3	--	--	03	40	60	100	3
6	PCC	18CVL66	Software Application Laboratory	Civil Engg.	--	2	2	03	40	60	100	2
7	PCC	18CVL67	Environmental Engineering Laboratory	Civil Engg.	--	2	2	03	40	60	100	2
8	EP	18CVEP68	Extensive Survey project	Civil Engg.	--	2	2	03	40	60	100	2
9	Internship	--	Internship	To be carried out during the vacation/s of VI and VII semesters and /or VII and VIII semesters.								
				TOTAL	15	12	06	24	320	480	800	24

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project.

Professional Elective -1	
Course code under18CV64X	
18CV641	Matrix Method of Structural Analysis

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VII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Theory Lecture L	Tutorial T	Practical/ Drawing P	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	PCC	18CV71	Quality Surveying and Contract Management	Civil Engg.	3	–	--	03	40	60	100	3
2	PCC	18CV72	Design of RCC and Steel Structures	Civil Engg.	3	–	--	03	40	60	100	3
3	PEC	18CV73X	Professional Elective - 2	Civil Engg.	3	–	--	03	40	60	100	3
4	PEC	18CV74X	Professional Elective - 3	Civil Engg.	3	–	--	03	40	60	100	3
5	OEC	18CV75X	Open Elective -B	Civil Engg.	3	–	--	03	40	60	100	3
6	PCC	18CVL76	Computer Aided Detailing of Structures	Civil Engg.	--	2	2	03	40	60	100	2
7	PCC	18CVL77	Geotechnical Engineering Laboratory	Civil Engg.	--	2	2	03	40	60	100	2
8	Project	18CVP78	Project Work Phase - 1		--	–	--	--	100	--	100	1
9	Internship	--	Internship	(If not completed during the vacation of VI and VII semesters, it shall be carried out during the vacation of VII and VIII semesters)								
				TOTAL	15	04	06	21	380	420	00	20

Note: PCC: Professional core, PEC: Professional Elective.

Professional Elective - 2

Course code under 18CV73X	Course Title
18CV731	Theory of Elasticity
18CV732	Air Pollution and Control
18CV733	Pavement Materials & Construction
18CV734	Ground Water Hydraulics
18CV735	Masonry Structures

Professional Electives - 3

Course code under 18CV74X	Course Title
18CV741	Earthquake Engineering
18CV742	Design Concepts of Building Services
18CV743	Reinforced Earth Structures

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VIII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Theory Lecture L	Tutorial T	Practical/ Drawing P	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	PCC	18CV81	Design of Pre-stressed Concrete	Civil Engg.	3	--	--	03	40	60	100	3
2	PEC	18CV82X	Professional Elective - 4	Civil Engg.	3	--	--	03	40	60	100	3
3	Project	18CVP83	Project Work Phase - 2	Civil Engg.	--	--	16	03	40	60	100	8
4	Seminar	18CVS84	Technical Seminar	Civil Engg.	--	--	2	03	100	--	100	1
5	Internship	18CVI85	Internship	Completed during the vacation/s of VI and VII semesters and /or VII and VIII semesters.)				03	40	60	100	3
				TOTAL	06	--	18	15	260	240	500	18

Note: PCC: Professional Core, PEC: Professional Elective.

Professional Electives - 4

Course code under 18CV82X	Course Title
18CV821	Bridge Engineering
18CV822	Prefabricated Structures
18CV823	Advanced Foundation Engineering
18CV824	Rehabilitation & Retrofitting
18CV825	Pavement Design

Project Work
CIE procedure for Project Work Phase - 2:
(i) 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 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.
(ii) 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 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.
SEE for Project Work Phase - 2:

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III SEMESTER

Sl. No	Course and Course Code		Course Title	Teaching Department	Teaching Hours /Week			Examination				
					Theory Lecture L	Tutorial T	Practical/ Drawing P	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	BSC	18MAT31	Transform Calculus, Fourier Series and Numerical Techniques	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18CV32	Strength of Materials	Civil Engg.	3	2	--	03	40	60	100	4
3	PCC	18CV33	Fluid Mechanics	Civil Engg.	3	0	--	03	40	60	100	3
4	PCC	18CV34	Building Materials and Construction	Civil Engg.	3	0	--	03	40	60	100	3
5	PCC	18CV35	Basic Surveying	Civil Engg.	3	0	--	03	40	60	100	3
6	PCC	18CV36	Engineering Geology	Geology	3	0	--	03	40	60	100	3
7	PCC	18CVL37	Computer Aided Building Planning & Drawing	Civil Engg.	--	2	2	03	40	60	100	2
8	PCC	18CVL38	Building Materials Testing Laboratory	Civil Engg.	--	2	2	03	40	60	100	2
9	HSMC	18KVK39	Vyavaharika Kannada (Kannada for communication)/ OR	HSMC	--	2	--	--	100	--	100	1
		18KAK39	Aadalitha Kannada (Kannada for Administration) OR									
		18CPC39	Constitution of India, Professional Ethics and Cyber Law		1	--	--	02	40	60		
					Examination is by objective type questions							
				TOTAL	17 OR 18	08 OR 10	04	24 OR 26	420 OR 360	480 OR 540	900	24

Note: BSC: Basic Science, PCC: Professional Core, HSMC: Humanity and Social Science, NCMC: Non-credit mandatory course.

18KVK39Vyavaharika Kannada (Kannada for communication) is for non-Kannada speaking, reading and writing students and 18KAK39 Aadalitha Kannada (Kannada for Administration) is for students who speak, read and write Kannada.

Course prescribed to lateral entry Diploma holders admitted to III semester of Engineering programs

| 10 | NCMC | 18MATDIP31 | Additional Mathematics - I | Mathematics | 02 | 01 | -- | 03 | 40 | 60 | 100 | 0 |

(a)The mandatory non – credit courses Additional Mathematics I and II prescribed for III and IV semesters respectively, to the lateral entry Diploma holders admitted to III semester of BE/B. Tech programs, shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the University examination. 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 F

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Programme: CIVIL ENGINEERING

IV SEMESTER

Sl No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				
					Theory Lecture L	Tutorial T	Practical/ Drawing P	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	BSC	18MAT41	Complex Analysis, Probability And Statistical Methods	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18CV42	Analysis of Determinate Structures	Civil Engg.	3	2	--	03	40	60	100	4
3	PCC	18CV43	Applied Hydraulics	Civil Engg.	3	0	--	03	40	60	100	3
4	PCC	18CV44	Concrete Technology	Civil Engg.	3	0	--	03	40	60	100	3
5	PCC	18CV45	Advanced Surveying	Civil Engg.	3	0	--	03	40	60	100	3
6	PCC	18CV46	Water Supply & Treatment Engineering	Civil Engg.	3	0	--	03	40	60	100	3
7	PCC	18CVL47	Engineering Geology Laboratory	Geology	--	2	2	03	40	60	100	2
8	PCC	18CVL48	Fluid Mechanics and Hydraulic Machines Laboratory	Civil Engg.	--	2	2	03	40	60	100	2
9	HSMC	18KVK39/49	Vyavaharika Kannada (Kannada for Communication)/ OR	HSMC	--	2	--	--	100	--	100	1
		18KAK39/49	Aadalitha Kannada (Kannada for Administration) OR									
		18CPC39/49	Constitution of India, Professional Ethics and Cyber Law		1	--	--	02	40	60		
					Examination is by objective type questions							
				TOTAL	17 OR 18	08 OR 10	04	24 OR 26	420 OR 360	480 OR 540	900	24

Note: BSC: Basic Science, PCC: Professional Core, HSMC: Humanity and Social Science, NCMC: Non-credit mandatory course.

18KVK39/49Vyavaharika Kannada (Kannada for communication) is for non-Kannada speaking, reading and writing students and 18KAK39/49Aadalitha Kannada (Kannada for Administration) is for students who speak, read and write Kannada.

Course prescribed to lateral entry Diploma holders admitted to III semester of Engineering programs

| 10 | NCMC | 18MATDIP41 | Additional Mathematics - II | Mathematics | 02 | 01 | -- | 03 | 40 | 60 | 100 | 0 |

(a)The mandatory non – credit courses Additional Mathematics I and II prescribed for III and IV semesters respectively, to the lateral entry Diploma holders admitted to III semester of BE/B. Tech programs, shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the University examination. 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 F grade. In such a case, the students have to fulfill the requirements during subsequent semester's to appear for SEE.

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

Programme: CIVIL ENGINEERING

V SEMESTER

SL No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	HSMC	18CV51	Construction Management & Entrepreneurship	Civil Engg.	2	2	--	03	40	60	100	3
2	PCC	18CV52	Analysis of Indeterminate Structures	Civil Engg.	3	2	--	03	40	60	100	4
3	PCC	18CV53	Design of RC Structural Elements	Civil Engg.	3	2	--	03	40	60	100	4
4	PCC	18CV54	Basic Geotechnical Engineering	Civil Engg.	3	–	--	03	40	60	100	3
5	PCC	18CV55	Municipal Wastewater Engineering	Civil Engg.	3	–	--	03	40	60	100	3
6	PCC	18CV56	Highway Engineering	Civil Engg.	3	–	--	03	40	60	100	3
7	PCC	18CVL57	Surveying Practice	Civil Engg.	–	2	2	03	40	60	100	2
8	PCC	18CVL58	Concrete and Highway Materials Laboratory	Civil Engg.	–	2	2	03	40	60	100	2
9	HSMC	18CIV59	Environmental Studies	Civil/Environmental [Paper setting Board: Civil Engineering]	1	–	--	02	40	60	100	1
				TOTAL	18	10	04	26	360	540	900	25

Note: PCC: Professional Core, HSMC: Humanity and Social Science.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CIVIL ENGINEERING
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

VI SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutoria l	Practic al/ Drawin g	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18CV61	Design of Steel Structural Elements	Civil Engg.	3	2	--	03	40	60	100	4
2	PCC	18CV62	Applied Geotechnical Engineering	Civil Engg.	3	2	--	03	40	60	100	4
3	PCC	18CV63	Hydrology and Irrigation Engineering	Civil Engg.	3	2	--	03	40	60	100	4
4	PEC	18CV64X	Professional Elective -1	Civil Engg.	3	--	--	03	40	60	100	3
5	OEC	18CV65X	Open Elective -A	Civil Engg.	3	--	--	03	40	60	100	3
6	PCC	18CVL66	Software Application Laboratory	Civil Engg.	--	2	2	03	40	60	100	2
7	PCC	18CVL67	Environmental Engineering Laboratory	Civil Engg.	--	2	2	03	40	60	100	2
8	EP	18CVEP68	Extensive Survey project	Civil Engg.	--	2	2	03	40	60	100	2
9	Internship	--	Internship	To be carried out during the vacation/s of VI and VII semesters and /or VII and VIII semesters.								
				TOTAL	15	12	06	24	320	480	800	24

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project.

Professional Elective -1	
Course code under18CV64X	
18CV641	Matrix Method of Structural Analysis

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Programme: CIVIL ENGINEERING

VII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18CV71	Quality Surveying and Contract Management	Civil Engg.	3	–	--	03	40	60	100	3
2	PCC	18CV72	Design of RCC and Steel Structures	Civil Engg.	3	–	--	03	40	60	100	3
3	PEC	18CV73X	Professional Elective - 2	Civil Engg.	3	–	--	03	40	60	100	3
4	PEC	18CV74X	Professional Elective - 3	Civil Engg.	3	–	--	03	40	60	100	3
5	OEC	18CV75X	Open Elective -B	Civil Engg.	3	–	--	03	40	60	100	3
6	PCC	18CVL76	Computer Aided Detailing of Structures	Civil Engg.	--	2	2	03	40	60	100	2
7	PCC	18CVL77	Geotechnical Engineering Laboratory	Civil Engg.	--	2	2	03	40	60	100	2
8	Project	18CVP78	Project Work Phase - 1		--	–	2	--	100	--	100	1
9	Internship	--	Internship	(If not completed during the vacation of VI and VII semesters, it shall be carried out during the vacation of VII and VIII semesters)								
				TOTAL	15	04	06	21	380	420	00	20

Note: PCC: Professional core, PEC: Professional Elective.

Professional Elective - 2

Course code under 18CV73X	Course Title
18CV731	Theory of Elasticity
18CV732	Air Pollution and Control
18CV733	Pavement Materials & Construction
18CV734	Ground Water Hydraulics
18CV735	Masonry Structures

Professional Electives - 3

Course code under 18CV74X	Course Title
18CV741	Earthquake Engineering
18CV742	Design Concepts of Building Services
18CV743	Reinforced Earth Structures

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Programme: CIVIL ENGINEERING

VIII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18CV81	Design of Pre-stressed Concrete	Civil Engg.	3	--	--	03	40	60	100	3
2	PEC	18CV82X	Professional Elective - 4	Civil Engg.	3	--	--	03	40	60	100	3
3	Project	18CVP83	Project Work Phase - 2	Civil Engg.	--	--	16	03	40	60	100	8
4	Seminar	18CVS84	Technical Seminar	Civil Engg.	--	--	2	03	100	--	100	1
5	Internship	18CVI85	Internship	Completed during the vacation/s of VI and VII semesters and /or VII and VIII semesters.)				03	40	60	100	3
				TOTAL	06	--	18	15	260	240	500	18

Note: PCC: Professional Core, PEC: Professional Elective.

Professional Electives - 4

Course code under 18CV82X	Course Title
18CV821	Bridge Engineering
18CV822	Prefabricated Structures
18CV823	Advanced Foundation Engineering
18CV824	Rehabilitation & Retrofitting
18CV825	Pavement Design

Project Work
CIE procedure for Project Work Phase - 2:
(i) 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 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.
(ii) 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 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.
SEE for Project Work Phase - 2:

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2016-2017

Scheme of Teaching and Examination
III Semester (Automobile Engineering)

Sl. No.	Sub-Code	Subject Title	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Pract.	Duration (Hrs)	IA Max Marks	Theory/ Pract. Max Marks	Total Marks
1	10MAT31	Mathematics –III	Maths	4		03	25	100	125
2	10AU32A/ 10AU32B	Material Science and Metallurgy/Mechanical Measurements and Metrology	Auto	4		03	25	100	125
3	10AU33	Basic Thermodynamics	Auto	4		03	25	100	125
4	10AU34	Mechanics of Materials	Auto	4		03	25	100	125
5	10AU35	Manufacturing Process-I	Auto	4		03	25	100	125
6	10AU36A/ 10AU36B	Computer Aided M/c Drawing / Fluid Mechanics	Auto	1 4	3	03	25	100	125
7	10AUL37A/ 10AUL37B	Metallography and Material testing / Mechanical Measurements & Metrology Lab	Auto		3	03	25	50	75
8	10AUL38A/ 10AUL38B	Foundry and Forging Laboratory/Machine Shop	Auto		3	03	25	50	75
				24	9		200	700	900

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Scheme of Teaching and Examination
IV Semester (Automobile Engineering)

SI No.	Sub-Code	Subject Title	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Pract.	Duration (Hrs)	IA Max Marks	Theory/ Pract. Max Marks	Total Marks
1	10MAT41	Mathematics-IV	Maths	4		03	25	100	125
2	10AU42A/ 10AU42B	Material Science and Metallurgy /Mechanical Measurements and Metrology	Auto	4		03	25	100	125
3	10AU43	Applied Thermodynamics	Auto	4		03	25	100	125
4	10AU44	Kinematics of Machines	Auto	4		03	25	100	125
5	10AU45	Manufacturing Process-II	Auto	4		03	25	100	125
6	10AU46A/ 10AU46B	Computer Aided M/c Drawing/ Fluid Mechanics	Auto	1 4	3	03	25	100	125
7	10AUL47A/ 10AUL47B	Metallography and Material testing / Mechanical Measurements & Metrology Lab	Auto		3	03	25	50	75
8	10AUL48A/ 10AUL48B	Foundry and Forging Laboratory/Machine Shop	Auto		3	03	25	50	75
				24	9		200	700	900

Scheme of Teaching and Examination
V Semester (Automobile Engineering)

SI No.	Sub-Code	Subject Title	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Pract.	Duration (Hrs)	IA Max Marks	Theory/ Pract. Max Marks	Total Marks
1	10AU51	Management and Entrepreneurship	Auto	4		03	25	100	125
2	10AU52	Design of Machines Elements-I	Auto	4		03	25	100	125
3	10AU53	Automotive Engines and Components	Auto	4		03	25	100	125
4	10AU54	Dynamics of machines	Auto	4		03	25	100	125
5	10AU55	Auxiliary Systems of Automotive Engines	Auto	4		03	25	100	125
6	10AU56	Automotive Fuels & Combustion	Auto	4		03	25	100	125
7	10AUL57	Automobile Engg Lab- I	Auto		3	03	25	50	75
8	10AUL58	Fuel Testing and Fluid Mechanics Lab	Auto		3	03	25	50	75
				24	06		200	700	

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Scheme of Teaching and Examination VI Semester (Automobile Engineering)

Sl No.	Sub-Code	Subject Title	Teaching Dept.	Teaching Hrs / Week Theory	Teaching Hrs / Week Pract.	Examination Duration (Hrs)	Examination IA Max Marks	Examination Theory/ Pract.Max Marks	Total Marks
1	10AU61	Automotive Chassis and Suspension	Auto	4		03	25	100	125
2	10AU62	Automotive Transmission	Auto	4		03	25	100	125
3	10AU63	Design of Machines Elements-II	Auto	4		03	25	100	125
4	10AU64	Auto Electrical & Electronic Systems	Auto	4		03	25	100	125
5	10AU65	Heat and Mass Transfer	Auto	4		03	25	100	125
6	10AU66x	Elective –A	Auto	4		03	25	100	125
7	10AUL67	Automobile Engg Lab – II	Auto		3	03	25	50	75
8	10AUL68	Engine Testing lab	Auto		3	03	25	50	75
				24	06		200	700	900

Elective –I (Group –A)

SL No	Sub Code	Subject Title
1	10AU661	CAD/CAM/CAE
2	10AU662	Automotive Air Conditioning
3	10AU663	Composite Materials
4	10AU664	Modeling and FEA
5	10AU665	Statistical Quality Control and Reliability

Scheme of Teaching and Examination VII Semester (Automobile Engineering)

Sl No.	Sub-Code	Subject Title	Teaching Dept.	Teaching Hrs / Week Theory	Teaching Hrs / Week Pract.	Examination Duration (Hrs)	Examination IA Max Marks	Examination Theory/ Pract.Max Marks	Total Marks
1	10AU71	Operations Research	Auto	4		03	25	100	125
2	10AU72	Vehicle Body Engineering and Safety	Auto	4		03	25	100	125
3	10AU73	Mechanical Vibration & Vehicle Dynamics	Auto	4		03	25	100	125
4	10AU74	Automotive Air Pollution and Control	Auto	4		03	25	100	125
5	10AU75x	Elective – B	Auto	4		03	25	100	125
6	10AU76x	Elective – C	Auto	4		03	25	100	125
7	10AUL77	Service and Reconditioning Lab	Auto		3	03	25	50	75
8	10AUL78	CAD/CAM/CAE Lab	Auto		3	03	25	50	75
				24	06		200	700	900

Elective - II (Group – B)

Sl. No.	Sub.Code	Subject Title
1	10AU751	Vehicle Transport Management
2	10AU752	Two and Three Wheeled Vehicles
3	10AU753	Non Traditional Machining
4	10AU754	Computer Integrated Manufacturing
5	10AU755	Total Quality Management

Elective – III (Group – C)

Sl. No.	Sub. Code	Subject Title
1	10AU761	Non Destructive Testing
2	10AU762	Engg. Economics & Automotive Cost Estimation
3	10AU763	Advanced IC Engines
4	10AU764	Engineering System Design
5	10AU765	Robotics

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Scheme of Teaching and Examination VIII Semester (Automobile Engineering)

| Sl No. | Sub-Code | Subject Title | Teaching Dept. | Teaching Hrs / Week | | Examination | | | |
				Theory	Pract.	Duration (Hrs)	IA Max Marks	Theory/ Pract.Max Marks	Total Marks
1	10AU81	Earth Moving Equipmentsand Tractors	Auto	4		03	25	100	125
2	10AU82	Autotronics	Auto	4		03	25	100	125
3	10AU83x	Elective –D	Auto	4		03	25	100	125
4	10AU84x	Elective –E	Auto	4		03	25	100	125
5	10AU85	Project Work	Auto		6	03	100	100	200
6	10AU86	Seminar on Current Topic	Auto		3		50		50
				16	9	15	250	500	750

* Students shall register for one subject in each group of Electives.

Elective - IV (Group-D)			Elective – V (Group-E)		
Sl. No.	Sub.Code	Subject Title	Sl. No.	Sub. Code	Subject Title
1	10AU831	Tribology	1	10AU841	Hybrid Vehicles
2	10AU832	Simulation of IC Engine Processes	2	10AU842	Control Engineering
3	10AU833	Hydraulics and Pneumatics	3	10AU843	Nano Technology
4	10AU834	Alternative EnergySources for Automobiles	4	10AU844	Maintenance Engineering

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Scheme of Teaching and Examination
III Semester (Automobile Engineering)

Sl No.	Sub-Code	Subject Title	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Pract.	Duration (Hrs)	IA Max Marks	Theory/ Pract.Max Marks	Total Marks
1	10MAT31	Mathematics –III	Maths	4		03	25	100	125
2	10AU32A/ 10AU32B	Material Science and Metallurgy/Mechanical Measurements and Metrology	Auto	4		03	25	100	125
3	10AU33	Basic Thermodynamics	Auto	4		03	25	100	125
4	10AU34	Mechanics of Materials	Auto	4		03	25	100	125
5	10AU35	Manufacturing Process-I	Auto	4		03	25	100	125
6	10AU36A/ 10AU36B	Computer Aided M/c Drawing / Fluid Mechanics	Auto	1 4	3	03	25	100	125
7	10AUL37A/ 10AUL37B	Metallography and Material testing / Mechanical Measurements & Metrology Lab	Auto		3	03	25	50	75
8	10AUL38A/ 10AUL38B	Foundry and Forging Laboratory/Machine Shop	Auto		3	03	25	50	75
				24	9		200	700	900

Scheme of Teaching and Examination
IV Semester (Automobile Engineering)

Sl No.	Sub-Code	Subject Title	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Pract.	Duration (Hrs)	IA Max Marks	Theory/ Pract.Max Marks	Total Marks
1	10MAT41	Mathematics-IV	Maths	4		03	25	100	125
2	10AU42A/ 10AU42B	Material Science and Metallurgy /Mechanical Measurements and·Metrology	Auto	4		03	25	100	125
3	10AU43	Applied Thermodynamics	Auto	4		03	25	100	125
4	10AU44	Kinematics of Machines	Auto	4		03	25	100	125
5	10AU45	Manufacturing Process-II	Auto	4		03	25	100	125
6	10AU46A/ 10AU46B	Computer Aided M/c Drawing/ Fluid Mechanics	Auto	1 4	3	03	25	100	125
7	10AUL47A/ 10AUL47B	Metallography and Material testing / Mechanical Measurements & Metrology Lab	Auto		3	03	25	50	75
8	10AUL48A/ 10AUL48B	Foundry and Forging Laboratory/Machine-Shop	Auto		3	03	25	50	75
				24	9		200	700	900

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Scheme of Teaching and Examination
V Semester (Automobile Engineering)

Sl No.	Sub-Code	Subject Title	Teaching Dept.	Theory	Pract.	Duration (Hrs)	IA Max Marks	Theory/Pract.Max Marks	Total Marks
1	10AU51	Management and Entrepreneurship	Auto	4		03	25	100	125
2	10AU52	Design of Machines Elements-I	Auto	4		03	25	100	125
3	10AU53	Automotive Engines and Components	Auto	4		03	25	100	125
4	10AU54	Dynamics of machines	Auto	4		03	25	100	125
5	10AU55	Auxiliary Systems of Automotive Engines	Auto	4		03	25	100	125
6	10AU56	Automotive Fuels & Combustion	Auto	4		03	25	100	125
7	10AUL57	Automobile Engg Lab- I	Auto		3	03	25	50	75
8	10AUL58	Fuel Testing and Fluid Mechanics Lab	Auto		3	03	25	50	75
				24	06		200	700	

Scheme of Teaching and Examination VI Semester (Automobile Engineering)

Sl No.	Sub-Code	Subject Title	Teaching Dept.	Theory	Pract.	Duration (Hrs)	IA Max Marks	Theory/Pract.Max Marks	Total Marks
1	10AU61	Automotive Chassis and Suspension	Auto	4		03	25	100	125
2	10AU62	Automotive Transmission	Auto	4		03	25	100	125
3	10AU63	Design of Machines Elements-II	Auto	4		03	25	100	125
4	10AU64	Auto Electrical & Electronic Systems	Auto	4		03	25	100	125
5	10AU65	Heat and Mass Transfer	Auto	4		03	25	100	125
6	10AU66x	Elective –A	Auto	4		03	25	100	125
7	10AUL67	Automobile Engg Lab – II	Auto		3	03	25	50	75
8	10AUL68	Engine Testing lab	Auto		3	03	25	50	75
				24	06		200	700	900

Elective –I (Group –A)

SL No	Sub Code	Subject Title
1	10AU661	CAD/CAM/CAE
2	10AU662	Automotive Air Conditioning
3	10AU663	Composite Materials
4	10AU664	Modeling and FEA
5	10AU665	Statistical Quality Control and Reliability

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Scheme of Teaching and Examination VII Semester (Automobile Engineering)

Sl No.	Sub-Code	Subject Title	Teaching Dept.	Theory	Pract.	Duration (Hrs)	IA Max Marks	Theory/ Pract. Max Marks	Total Marks
1	10AU71	Operations Research	Auto	4		03	25	100	125
2	10AU72	Vehicle Body Engineering and Safety	Auto	4		03	25	100	125
3	10AU73	Mechanical Vibration & Vehicle Dynamics	Auto	4		03	25	100	125
4	10AU74	Automotive Air Pollution and Control	Auto	4		03	25	100	125
5	10AU75x	Elective – B	Auto	4		03	25	100	125
6	10AU76x	Elective – C	Auto	4		03	25	100	125
7	10AUL77	Service and Reconditioning Lab	Auto		3	03	25	50	75
8	10AUL78	CAD/CAM/CAE Lab	Auto		3	03	25	50	75
				24	06		200	700	900

Elective - II (Group – B)			Elective – III (Group – C)		
Sl. No.	Sub.Code	Subject Title	Sl. No.	Sub. Code	Subject Title
1	10AU751	Vehicle Transport Management	1	10AU761	Non Destructive Testing
2	10AU752	Two and Three Wheeled Vehicles	2	10AU762	Engg. Economics & Automotive Cost Estimation
3	10AU753	Non Traditional Machining	3	10AU763	Advanced IC Engines
4	10AU754	Computer Integrated Manufacturing	4	10AU764	Engineering System Design
5	10AU755	Total Quality Management	5	10AU765	Robotics

Scheme of Teaching and Examination VIII Semester (Automobile Engineering)

Sl No.	Sub-Code	Subject Title	Teaching Dept.	Theory	Pract.	Duration (Hrs)	IA Max Marks	Theory/ Pract. Max Marks	Total Marks
1	10AU81	Earth Moving Equipments and Tractors	Auto	4		03	25	100	125
2	10AU82	Autotronics	Auto	4		03	25	100	125
3	10AU83x	Elective –D	Auto	4		03	25	100	125
4	10AU84x	Elective –E	Auto	4		03	25	100	125
5	10AU85	Project Work	Auto		6	03	100	100	200
6	10AU86	Seminar on Current Topic	Auto		3		50		50
				16	9	15	250	500	750

* Students shall register for one subject in each group of Electives.

Elective - IV (Group-D)			Elective – V (Group-E)		
Sl. No.	Sub.Code	Subject Title	Sl. No.	Sub. Code	Subject Title
1	10AU831	Tribology	1	10AU841	Hybrid Vehicles
2	10AU832	Simulation of IC Engine Processes	2	10AU842	Control Engineering
3	10AU833	Hydraulics and Pneumatics	3	10AU843	Nano Technology
4	10AU834	Alternative EnergySources for Automobiles	4	10AU844	Maintenance Engineering

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2018-2019

B.E. Automobile Engineering

III SEMESTER

Sl. No	Subject Code	Title	Teaching Dept.	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15MAT31	Engineering Mathematics-III	Mathematics	04		03	20	80	100	4
2	15AU32	Material Science and Metallurgy	Automobile	04		03	20	80	100	4
3	15AU33	Engineering Thermodynamics	Automobile	04		03	20	80	100	4
4	15AU34	Mechanics of Materials	Automobile	04		03	20	80	100	4
5	15AU35	Measurements and Metrology	Automobile	04		03	20	80	100	4
6	15AU36X	Elective	Automobile	03		03	20	80	100	3
7	15AUL37	Metallography & Material Testing Laboratory	Automobile		1I + 2P	03	20	80	100	2
8	15 AUL38	Manufacturing Processes Laboratory-I	Automobile		1I + 2P	03	20	80	100	2
		TOTAL		**23**	**06**	**24**	**160**	**640**	**800**	**27**

Elective			
15 AU361	Manufacturing Process-I	15 AU363	Fuels and Lubricants
15 AU362	Automobile Manufacturing Techniques		

B.E. Automobile Engineering

IV SEMESTER

Sl. No	Subject Code	Title	Teaching Dept.	Teaching Hours /Week		Examination				Credits
				Theory	Practical / Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15MAT 41	Engineering Mathematics-IV	Mathematics	04		03	20	80	100	4
2	15AU42	Fluid Mechanics	Automobile	04		03	20	80	100	4
3	15AU43	Automotive Engines	Automobile	04		03	20	80	100	4
4	15AU44	Kinematics of Machines	Automobile	04		03	20	80	100	4
5	15AU45	Computer Aided Machine Drawing	Automobile	01	03	03	20	80	100	4
6	15AU46X	Elective	Automobile	03		03	20	80	100	3
7	15AUL47	Automotive Measurements and Metrology Lab	Automobile		1I + 2P	03	20	80	100	2
8	15AUL48	Manufacturing Processes Laboratory-II	Automobile		1I + 2P	03	20	80	100	2
		TOTAL		**23**	**06**	**24**	**160**	**640**	**800**	**27**

Elective			
15AU461	Manufacturing Process-II	15AU462	Automotive Welding Technology
15AU463	Non-Traditional Machining		

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B.E. AUTOMOBILE ENGINEERING

V SEMESTER

Sl. No	Subject Code	Title	Teaching Dept.	Teaching Hours /Week		Examination				Credits
				Theory	Practical / Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15AU51	Management and Entrepreneurship	Auto. Engg.	04		03	80	20	100	4
2	15AU52	Dynamics of Machines	Auto. Engg.	04+1T		03	80	20	100	4
3	15AU53	Design of Machine Elements-I	Auto. Engg.	04+ 1T		03	80	20	100	4
4	15AU54	Automotive Fuels and Combustion	Auto. Engg.	04		03	80	20	100	4
5	15AU55X	Professional Elective*	Auto. Engg.	03		03	80	20	100	3
6	15XX56X	Open Elective**	Concerned Branch	03		03	80	20	100	3
7	15AUL57	Automotive Engine Component Lab	Auto. Engg.		1I+2P	03	80	20	100	2
8	15 AUL58	Fluid Mechanics and Fuel Testing Lab	Auto. Engg.		1I+2P	03	80	20	100	2
		TOTAL		24	06		640	160	800	26

B.E. AUTOMOBILE ENGINEERING

VI SEMESTER

Sl. No	Subject Code	Title	Teaching Dept.	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15AU61	Automotive Chassis & Suspension	Auto. Engg.	04		03	80	20	100	4
2	15AU62	Heat and Mass transfer	Auto. Engg.	04 +1T		03	80	20	100	4
3	15AU63	Design of Machine Elements-II	Auto. Engg.	04+ 1T		03	80	20	100	4
4	15AU64	Automotive Transmission	Auto. Engg.	04		03	80	20	100	4
5	15AU65X	Professional Elective	Auto. Engg.	03		03	80	20	100	3
6	15XX66X	Open Elective	Concerned branch	03		03	80	20	100	3
7	15AUL67	Automotive Chassis Components Lab	Auto. Engg.		1I+2P	03	80	20	100	2
8	15 AUL68	Engine Testing and Emission Measurement Lab.	Auto. Engg.		1I+2P	03	80	20	100	2
		TOTAL		24	06		640	160	800	26

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B.E. AUTOMOBILE ENGINEERING

VII SEMESTER

Sl. No	Subject Code	Title	Teaching Dept.	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration	Theory / Practical Marks	I.A. Marks	Total Marks	
1	15AU71	Automotive Electrical and Electronic Systems	Auto. Engg.	04		03	80	20	100	4
2	15AU72	Automotive Engine Components Design and Auxiliary Systems	Auto. Engg	04		03	80	20	100	4
3	15AU73	Finite Element Modeling and Analysis	Auto. Engg	04		03	80	20	100	4
4	15AU74X	Professional Elective	Auto. Engg	03		03	80	20	100	3
5	15AU75X	Professional Elective	Auto. Engg	03		03	80	20	100	3
6	15AUL76	Automobile Scanning and Re-conditioning lab	Auto. Engg		1I+2P	03	80	20	100	2
7	15AUL77	Modeling and Analysis Lab	Auto. Engg		1I+2P	03	80	20	100	2
8	15 AUP78	Project Phase- I + Project seminar	Auto. Engg	---	03	---	---	100	100	2
		TOTAL		18	09		560	240	800	24

B.E. AUTOMOBILE ENGINEERING

VIII SEMESTER

Sl. No	Subject Code	Title	Teaching Dept.	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15AU81	Vehicle Body Engineering and Safety	Auto. Engg.	04		03	80	20	100	4
2	15AU82	Mechanical Vibrations	Auto. Engg	04		03	80	20	100	4
3	15AU83X	Professional Elective	Auto. Engg.	03		03	80	20	100	3
4	15AU84	Internship/Professional Practice	Auto. Engg	Industry Oriented		03	50	50	100	2
5	15AUP85	Project work Phase II	Auto. Engg.		6	03	100	100	200	6
6	15AUS86	Seminar*	Auto. Engg		4			100	100	1
		TOTAL		11	10		390	310	700	20

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2019-2020

B.E. Automobile Engineering

III SEMESTER

Sl. No	Subject Code	Title	Teaching Dept.	Teaching Hours /Week Theory	Teaching Hours /Week Practical/ Drawing	Examination Duration	Examination I.A. Marks	Examination Theory/ Practical Marks	Examination Total Marks	Credits
1	15MAT31	Engineering Mathematics-III	Mathematics	04		03	20	80	100	4
2	15AU32	Material Science and Metallurgy	Automobile	04		03	20	80	100	4
3	15AU33	Engineering Thermodynamics	Automobile	04		03	20	80	100	4
4	15AU34	Mechanics of Materials	Automobile	04		03	20	80	100	4
5	15AU35	Measurements and Metrology	Automobile	04		03	20	80	100	4
6	15AU36X	Elective	Automobile	03		03	20	80	100	3
7	15AUL37	Metallography & Material Testing Laboratory	Automobile		1I + 2P	03	20	80	100	2
8	15 AUL38	Manufacturing Processes Laboratory-I	Automobile		1I + 2P	03	20	80	100	2
		TOTAL		23	06	24	160	640	800	27

Elective				
15 AU361	Manufacturing Process-I		15 AU363	Fuels and Lubricants
15 AU362	Automobile Manufacturing Techniques			

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B.E. Automobile Engineering

IV SEMESTER

Sl. No	Subject Code	Title	Teaching Dept.	Teaching Hours /Week		Examination				Credits
				Theory	Practical / Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15MAT 41	Engineering Mathematics-IV	Mathematics	04		03	20	80	100	4
2	15AU42	Fluid Mechanics	Automobile	04		03	20	80	100	4
3	15AU43	Automotive Engines	Automobile	04		03	20	80	100	4
4	15AU44	Kinematics of Machines	Automobile	04		03	20	80	100	4
5	15AU45	Computer Aided Machine Drawing	Automobile	01	03	03	20	80	100	4
6	15AU46X	Elective	Automobile	03		03	20	80	100	3
7	15AUL47	Automotive Measurements and Metrology Lab	Automobile		1I + 2P	03	20	80	100	2
8	15AUL48	Manufacturing Processes Laboratory-II	Automobile		1I + 2P	03	20	80	100	2
		TOTAL		23	06	24	160	640	800	27

Elective				
15AU461	Manufacturing Process-II	15AU462	Automotive Welding Technology
15AU463	Non-Traditional Machining		

B.E. AUTOMOBILE ENGINEERING

V SEMESTER

Sl. No	Subject Code	Title	Teaching Dept.	Teaching Hours /Week		Examination			Credits
				Theory	Practical / Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15AU51	Management and Entrepreneurship	Auto. Engg.	04		03	80	20	100	4
2	15AU52	Dynamics of Machines	Auto. Engg.	04+1T		03	80	20	100	4
3	15AU53	Design of Machine Elements-I	Auto. Engg.	04+ 1T		03	80	20	100	4
4	15AU54	Automotive Fuels and Combustion	Auto. Engg.	04		03	80	20	100	4
5	15AU55X	Professional Elective*	Auto. Engg.	03		03	80	20	100	3
6	15XX56X	Open Elective**	Concerned Branch	03		03	80	20	100	3
7	15AUL57	Automotive Engine Component Lab	Auto. Engg.		1I+2P	03	80	20	100	2
8	15 AUL58	Fluid Mechanics and Fuel Testing Lab	Auto. Engg.		1I+2P	03	80	20	100	2
		TOTAL		24	06		640	160	800	26

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B.E. AUTOMOBILE ENGINEERING

VI SEMESTER

Sl. No	Subject Code	Title	Teaching Dept.	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15AU61	Automotive Chassis & Suspension	Auto. Engg.	04		03	80	20	100	4
2	15AU62	Heat and Mass transfer	Auto. Engg.	04 +1T		03	80	20	100	4
3	15AU63	Design of Machine Elements-II	Auto. Engg.	04+ 1T		03	80	20	100	4
4	15AU64	Automotive Transmission	Auto. Engg.	04		03	80	20	100	4
5	15AU65X	Professional Elective	Auto. Engg.	03		03	80	20	100	3
6	15XX66X	Open Elective	Concerned branch	03		03	80	20	100	3
7	15AUL67	Automotive Chassis Components Lab	Auto. Engg.		1I+2P	03	80	20	100	2
8	15 AUL68	Engine Testing and Emission Measurement Lab.	Auto. Engg.		1I+2P	03	80	20	100	2
		TOTAL		24	06		640	160	800	26

B.E. AUTOMOBILE ENGINEERING

VII SEMESTER

Sl. No	Subject Code	Title	Teaching Dept.	Teaching Hours /Week		Examination			Credits
				Theory	Practical/ Drawing	Duration	Theory / Practical Marks	I.A. Marks	Total Marks	
1	15AU71	Automotive Electrical and Electronic Systems	Auto. Engg.	04		03	80	20	100	4
2	15AU72	Automotive Engine Components Design and Auxiliary Systems	Auto. Engg	04		03	80	20	100	4
3	15AU73	Finite Element Modeling and Analysis	Auto. Engg	04		03	80	20	100	4
4	15AU74X	Professional Elective	Auto. Engg	03		03	80	20	100	3
5	15AU75X	Professional Elective	Auto. Engg	03		03	80	20	100	3
6	15AUL76	Automobile Scanning and Re-conditioning lab	Auto. Engg		1I+2P	03	80	20	100	2
7	15AUL77	Modeling and Analysis Lab	Auto. Engg		1I+2P	03	80	20	100	2
8	15 AUP78	Project Phase- I + Project seminar	Auto. Engg	---	03	---	---	100	100	2
		TOTAL		18	09		560	240	800	24

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VIII SEMESTER

Sl. No	Subject Code	Title	Teaching Dept.	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15AU81	Vehicle Body Engineering and Safety	Auto. Engg.	04		03	80	20	100	4
2	15AU82	Mechanical Vibrations	Auto. Engg	04		03	80	20	100	4
3	15AU83X	Professional Elective	Auto. Engg.	03		03	80	20	100	3
4	15AU84	Internship/Professional Practice	Auto. Engg	Industry Oriented		03	50	50	100	2
5	15AUP85	Project work Phase II	Auto. Engg.		6	03	100	100	200	6
6	15AUS86	Seminar*	Auto. Engg		4			100	100	1
		TOTAL		11	10		390	310	700	20

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B.E: Automobile Engineering

III SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration inhours	SEE Marks	CIE Marks	Total Marks	
1	17MAT31	Engineering Mathematics –III*	Maths	04		03	60	40	100	4
2	17AU32	Material Science and Metallurgy	Auto. Engg.	04		03	60	40	100	4
3	17AU33	Engineering Thermodynamics	Auto. Engg.	04		03	60	40	100	4
4	17AU34	Mechanics of Materials	Auto. Engg.	04		03	60	40	100	4
5	17AU35	Mechanical Measurements and Metrology	Auto. Engg.	04		03	60	40	100	4
6	17AU36	Manufacturing Process-I	Auto. Engg.	03		03	60	40	100	3
7	17AUL37	Metallography and Material Testing Laboratory	Auto. Engg.	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17AUL38	Foundry and Forging Laboratory	Auto. Engg.	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
9	17KL/CPH39/49	Kannada/Constitutionof India, Professional Ethics and HumanRights	Humanities	01		01	30	20	50	01
		TOTAL		**Theory:24hours Practical: 06 hours**		25	510	340	850	28

B.E: Automobile Engineering

IV SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration inhours	SEE Marks	CIE Marks	Total Marks	
1	17MAT41	Engineering Mathematics –IV*	Maths	04		03	60	40	100	4
2	17AU42	Fluid Mechanics	Auto. Engg.	04		03	60	40	100	4
3	17AU43	Kinematics of Machines	Auto. Engg.	04		03	60	40	100	4
4	17AU44	Automotive Engines	Auto. Engg.	04		03	60	40	100	4
5	17AU45	Computer Aided Machine Drawing	Auto. Engg.	04		03	60	40	100	4
6	17AU46	Manufacturing Process -II	Auto. Engg.	03		03	60	40	100	3
7	17AUL47	Mechanical Measurement and Metrology Lab	Auto. Engg.	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17AUL48	Machine Shop	Auto. Engg.	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
9	17KL/CPH39/49	Kannada/Constitutionof India, ProfessionalEthics and HumanRights	Humanities	01		01	30	20	50	01
			TOTAL	**Theory:24hours Practical: 06 hours**		25	510	340	850	28

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B.E: Automobile Engineering

V SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week Theory	Teaching Hours /Week Practical/ Drawing	Examination Duration inhours	Examination SEE Marks	Examination CIE Marks	Examination Total Marks	Credits
1	17AU51	Management of Entrepreneurship	Auto. Engg.	04		03	60	40	100	4
2	17AU52	Dynamics of Machines	Auto. Engg.	04		03	60	40	100	4
3	17AU53	Design of Machine Elements - I	Auto. Engg.	04		03	60	40	100	4
4	17AU54	Automotive Fuels and Combustion	Auto. Engg.	04		03	60	40	100	4
5	17AU55X	Professional Elective-1	Auto. Engg.	03		03	60	40	100	3
6	17AU56X	Open Elective-1	Auto. Engg.	03		03	60	40	100	3
7	17AUL57	Automotive Engine Components Lab	Auto. Engg.	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17AUL58	Fluid Mechanics and Fuel testing Lab.	Auto. Engg.	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
			TOTAL	Theory:22hours Practical: 06 hours		24	480	320	800	26

Professional Elective-1		Open Elective – 1***	
17AU551	CAD/CAM	17AU561	Automobile Engineering
17AU552	Vehicle Transport Management	17AU562	Alternative Energy Sources for Automobiles
17AU553	Automotive Air Conditioning and Refrigeration	17AU563	Non Traditional Machining
17AU554	Hydraulics and Pneumatics	…	

B.E: Automobile Engineering

VI SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week Theory	Teaching Hours /Week Practical/ Drawing	Examination Duration inhours	Examination SEE Marks	Examination CIE Marks	Examination Total Marks	Credits
1	17AU61	Automotive Chassis & Suspension	Auto. Engg.	04		03	60	40	100	4
2	17AU62	Heat and Mass transfer	Auto. Engg.	04		03	60	40	100	4
3	17AU63	Design of Machine Elements-II	Auto. Engg.	04		03	60	40	100	4
4	17AU64	Automotive Transmission	Auto. Engg.	04		03	60	40	100	4
5	17AU65X	Professional Elective-2	Auto. Engg.	03		03	60	40	100	3
6	17AU66X	Open Elective-2	Auto. Engg.	03		03	60	40	100	3
7	17AUL67	Automotive Chassis Components Lab	Auto. Engg.	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17AUL68	Engine Testing and Emission Measurement Lab.	Auto. Engg.	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
			TOTAL	Theory:22hours Practical: 06 hours		24	480	320	800	26

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Ph: 080-61754601/602, Fax: 080 - 25730551
E-mail: engprincipal@theoxford.edu Web: www.theoxfordengg.org

B.E: Automobile Engineering

VII SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17AU71	Automotive Electrical and Electronic Systems	Auto. Engg.	04		03	60	40	100	4
2	17AU72	Automotive Engine Components Design and Auxiliary Systems	Auto. Engg.	04		03	60	40	100	4
3	17AU73	Finite Element Modeling and Analysis	Auto. Engg.	04		03	60	40	100	4
4	17AU74X	Professional Elective-3	Auto. Engg.	03		03	60	40	100	3
5	17AU75X	Professional Elective-4	Auto. Engg.	03		03	60	40	100	3
6	17AUL76	Automobile Scanning and Re-conditioning lab	Auto. Engg.	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
7	17AUL77	Modeling and Analysis Lab	Auto. Engg.	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17AUP78	Project Work Phase–I + Project work Seminar	Auto. Engg.		03	--	--	100	100	2
		TOTAL		Theory:18 hours Practical and Project: 09 hours		21	420	380	800	24

Professional Elective-3		Professional Elective-4	
17AU741	Earthmoving Equipment & Tractors	17AU751	Control Engineering
17AU742	Computer Integrated Manufacturing	17AU752	Engineering Economy
17AU743	Tribology	17AU753	Operations Research
17AU744	Engineering System Design	17AU754	Two and Three wheeled Vehicle

B.E:Automobile Engineering

VIII SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17AU81	Vehicle Body Engineering and Safety	Auto. Engg.	4	-	3	60	40	100	4
2	17AU82	Mechanical Vibrations	Auto. Engg.	4	-	3	60	40	100	4
3	17AU83X	Professional Elective-5	Auto. Engg.	3	-	3	60	40	100	3
4	17AU84	Internship/ Professional Practice	Auto. Engg.	Industry Oriented		3	50	50	100	2
5	17AUP85	Project Work-II	Auto. Engg.	-	6	3	100	100	200	6
6	17AUS86	Seminar		-	4	-	-	100	100	1
		TOTAL		Theory:11 hours Project and Seminar: 10 hours		15	330	370	700	20

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THE OXFORD COLLEGE OF ENGINEERING

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Estd. 1974

MT

2016-17

2018-19

VISVESVARAYATECHNOLOGICALUNIVERSITY,BELAGAVI
SchemeofTeachingandExamination2018 – 19
OutcomeBasedEducation(OBE)andChoiceBasedCreditSystem(CBCS)
(Effectivefromtheacademicyear2018– 19)

Programme:Mechatronics Engineering

IIISEMESTER

Sl. No	CourseandCourse Code		CourseTitle	TeachingDepartment	TeachingHours/Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/Drawing	Durationin hours	CIEMarks	SEE Marks	TotalMarks	
					L	T	P					
1	BSC	18MAT31	TransformCalculus,FourierSeriesandNumerical Techniques	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18MT32	Material science and Technology	MTE Engg	3	2	--	03	40	60	100	4
3	PCC	18MT33	Mechanics of materials	MTE Engg	3	0	--	03	40	60	100	3
4	PCC	18MT34	Control Systems	MTE Engg	3	0	--	03	40	60	100	3
5	PCC	18MT35	Analog and Digital Electronics	MTE Engg		0	--	03	40	60	100	3
6	PCC	18MT36	Computer Organization	MTE Engg		0	--	03	40	60	100	3
7	PCC	18MTL37	Machine shop and material Testing lab	MTE Engg	--	2	2	03	40	60	100	2
8	PCC	18MTL38	Analog and digital electronics lab	MTE Engg	--	2	2	03	40	60	100	2
9	HSMC	18KVK39	VyavaharikaKannada(Kannadaforcommunication)/ OR	HSMC	--	2	--	--	100	--	100	1
		18KAK39	AadalithaKannada(KannadaforAdministration) OR									
		18CPC39	ConstitutionofIndia,ProfessionalEthicsandCyber Law		1	--	--	02	40	60		
					Examinationisbyobjectivetypequestions							
				TOTAL	17 OR 18	08 OR 10	04	24 OR 26	420 OR 360	480 OR 540	900	24

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Note:BSC:BasicScience,PCC:ProfessionalCore,HSMC:HumanityandSocialScience,NCMC:Non-creditmandatorycourse.

18KVK39VyavaharikaKannada(Kannadaforcommunication)isfornon-Kannadaspeaking,readingandwritingstudentsand18KAK39AadalithaKannada(Kannadafor Administration)isforstudentswhospeak,readandwriteKannada.

			Courseprescribedtolateralentry DiplomaholdersadmittedtoIIIsemesterof Engineeringprograms									
10	NCMC	18MATDIP31	AdditionalMathematics-I	Mathematics	02	01	--	03	40	60	100	0

(a)The mandatory non – credit courses AdditionalMathematics I and II prescribed for III and IV semesters respectively, to thelateral entry Diploma holders admittedto III semester of BE/B. Tech programs, shall attend the classes duringthe respective semesters to complete all the formalities of the course and appear forthe University examination.Incase,any student failstoregisterforthesaidcourse/failstosecurethe minimum 40%of theprescribedCIEmarks,he/sheshall bedeemedtohave securedF

grade.Insuchacase,thestudentshavetofulfilltherequirementsduringsubsequentsemester/stoappearforSEE.

(b)TheseCoursesshallnotbeconsideredforverticalprogression,butcompletionofthecoursesshallbemandatoryfortheawardofdegree.

CoursesprescribedtolateralentryB.ScdegreeholdersadmittedtoIIIsemesterofEngineeringprograms

LateralentrantstudentsfromB.Sc.Stream,shallclearthenon-creditcoursesEngineeringGraphicsandElementsofCivilEngineeringandMechanicsoftheFirstYear EngineeringProgramme.TheseCoursesshallnotbeconsideredforverticalprogression,butcompletionofthecoursesshallbemandatoryfortheawardofdegree.

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 Activity Point Programme.Students transferred from other Universitiesto fifth semesterare required to earn 50 ActivityPointsfromthe yearofentryto VTU. The ActivityPointsearned shallbereflected on thestudent'seighth semester Grade Card.

The activities can be can be spread over the years, anytime duringthe semester weekends andholidays, as per the likingand convenience ofthe studentfromthe year ofentryto the programme. However, minimumhours' requirement should be fulfilled.Activity Points (non-credit) have no effect on SGPA/CGPAand shall not be considered for vertical progression.

In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points.Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS) (Effective from the academic year 2018 – 19)

Programme: MECHATRONICS ENGINEERING

IV SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours/Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/Drawing	Durationin hours	CIEMarks	SEE Marks	TotalMarks	
					L	T	P					
1	BSC	18MAT41	ComplexAnalysis,ProbabilityAndStatisticalMethods	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18MT42	Fluid mechanics and machines	MTEEngg.	3	2	--	03	40	60	100	4
3	PCC	18 MT 4	Microcontroller	MTEEngg.	3	0	--	03	40	60	100	3
4	PCC	18 MT 44	Manufacturing technology	MTEEngg.	3	0	--	03	40	60	100	3
5	PCC	18 MT 45	Theory of Machines	MTEEngg.	3	0	--	03	40	60	100	3
6	PCC	18 MT 46	Instrumentation and measurements	MTEEngg.	3	0	--	03	40	60	100	3
7	PCC	18 MT L47	FM and pneumatic – Laboratory	MTEEngg.		2	2	03	40	60	100	2
8	PCC	18 MT L48	Microcontroller – Laboratory(BV	MTEEngg.		2	2	03	40	60	100	2
9	HSMC	18KVK39/49	VyavaharikaKannada(KannadaforCommunication)/ OR	HSMC	--	2	--	--	100	--	100	1
		18KAK39/49	AadalithaKannada(KannadaforAdministration) OR									
		18CPC39/49	ConstitutionofIndia,ProfessionalEthicsandCyberLaw		1	--	--	02	40	60		
					Examinationisbyobjectivetypequestions							
				TOTAL	17 OR 18	08 OR 10	04	24 OR 26	420 OR 360	480 OR 540	900	24

Note:BSC:BasicScience,PCC:ProfessionalCore,HSMC:HumanityandSocialScience,NCMC:Non-creditmandatorycourse.

18KVK39/49VyavaharikaKannada(Kannadaforcommunication)isfornon-Kannadaspeaking,readingandwritingstudentsand18KAK39/49AadalithaKannada(KannadaforAdministration)isfor studentswhospeak,readandwriteKannada.

			Courseprescribedtolateralentry DiplomaholdersadmittedtoIIIsemesterof Engineeringprograms									
10	NCMC	18MATDIP41	AdditionalMathematics-II	Mathematics	02	01	--	03	40	60	100	0

(a)The mandatory non – credit courses AdditionalMathematics I and II prescribedfor III and IV semesters respectively,to thelateral entry Diploma holders admittedto III semester of BE/B.Tech programs,shallattendtheclasses duringthe respectivesemesterstocompletealltheformalitiesofthecourseandappearfortheUniversityexamination.In case,anystudentfailstoregisterforthesaid course/fails tosecure the minimum 40% of theprescribedCIE marks,he/she shallbe deemedtohave securedFgrade.Insucha case,the students have tofulfillthe requirements during subsequent semester/s to appear for SEE.

(b)TheseCoursesshallnotbeconsideredforverticalprogression,butcompletionofthecoursesshallbemandatoryfortheawardofdegree.

CoursesprescribedtolateralentryB.ScdegreeholdersadmittedtoIIIsemesterofEngineeringprograms

LateralentrantstudentsfromB.Sc.Stream,shallclearthenon-creditcoursesEngineeringGraphicsand ElementsofCivilEngineeringand MechanicsoftheFirstYearEngineering Programme.

TheseCoursesshall notbeconsideredforverticalprogression,butcompletionofthecoursesshallbemandatoryfortheawardofdegree.

AICTEactivityPoints: In casestudentsfailtoearn the prescribedactivityPoints, EighthsemesterGradeCard shall beissuedonlyafterearningtherequiredactivityPoints.Studentsshall be admitted fortheawardofdegreeonlyafter thereleaseoftheEighthsemesterGradeCard.

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Programme:MECHATRONICSENGINEERING

VSEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours/Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	HSMC	18MT51	Technological Innovation Management And Entrepreneurship	MteEngg	2	2	--	03	40	60	100	3
2	PCC	18 MT52	Design and analysis of Machine Elements	MteEngg	3	2	--	03	40	60	100	4
3	PCC	18 MT53	Virtual Instrumentation	MteEngg	3	2	--	03	40	60	100	4
4	PCC	18 MT54	Hydraulics and Pneumatics	MteEngg	3	--	--	03	40	60	100	3
5	PCC	18 MT55	Micro and Smart Systems Technology	MteEngg	3	--	--	03	40	60	100	3
6	PCC	18 MT56	Wireless Networks &Communication	MteEngg	3	--	--	03	40	60	100	3
7	PCC	18 MTL57	Virtual Instrumentation Laboratory	MteEngg	--	2	2	03	40	60	100	2
8	PCC	18 MTL58	MSST –Laboratory	MteEngg	--	2	2	03	40	60	100	2
9	HSMC	18CIV59	EnvironmentalStudies	Civil/Environmental [PapersettingBoard: CivilEngineering]	1	--	--	02	40	60	100	1
				TOTAL	18	10	04	26	360	540	900	25

Note:PCC:ProfessionalCore,HSMC:HumanityandSocialScience.

AICTEactivityPoints:In casestudentsfailtoearn the prescribedactivityPoints, EighthsemesterGradeCard shall beissuedonlyafterearningtherequiredactivityPoints.Studentsshall be admitted fortheawardofdegreeonlyafter thereleaseoftheEighthsemesterGradeCard.

VISEMESTER

Sl. No	Course and Coursecode		Course Title	Teaching Department	Teaching Hours/Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18MT61	PLC & SCADA	MTE Engg	3	2	--	03	40	60	100	4
2	PCC	18MT62	Power Electronics	MTE Engg	3	2	--	03	40	60	100	4
3	PCC	18MT63	Computer Aided Machine Drawing	MTE Engg	3	2	--	03	40	60	100	4
4	PEC	18MT642	ProfessionalElective-1	MTE Engg	3	--	--	03	40	60	100	3
5	OEC	18MT653	OpenElective-A	MTE Engg	3	--	--	03	40	60	100	3
6	PCC	18MTL66	PLC and SCADA-Laboratory	MTE Engg	--	2	2	03	40	60	100	2
7	PCC	18MTL67	Power electronics - Laboratory	MTE Engg	--	2	2	03	40	60	100	2

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8	MP	18MTEP68	Mini-project	---- Engg.		--	--	03	40	60	100	2
9	Internship	--	Internship	To be carried out during the vacation/s of VI and VII semesters and /or VII and VIII semesters.								
				TOTAL	15	12	06	24	320	480	800	24

Note:PCC:Professionalcore,PEC:ProfessionalElective,OE:OpenElective,MP:Mini-project.

ProfessionalElective-1	
Coursecodeunder18MT64X	
18 MT641	Modeling And Simulatio

18 MT642	Rapid Prototyping
18 MT643	Artificial neural network
18 MT644	Satellite Communication
18 MT645	Computer Integrated Manufacturing
OpenElective-A	
Coursecodeunder18MT65X	
18 MT651	Robotics and Automation,
18 MT652	Process Instrumentation

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (Please refer to the list of open electives under 18XX65X).
Selectionofanopenelectiveshallnotbeallowed if,
- Thecandidatehasstudiedthesamecourseduringthepprevioussemestersoftheprogramme.
- ThesyllabuscontentofopenelectiveissimilartothatoftheDepartmentalcorecoursesorprofessionalelectives.
- Asimilarcourse,underanycategory,isprescribedinthehighersemestersoftheprogramme.

RegistrationtoelectivesshallbedocumentedundertheguidanceofProgrammeCoordinator/Advisor/Mentor.

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 theprescribedcreditshallbeincludedin VIIIsemester.Internship shallbe consideredasaheadofpassing and shallbeconsideredfor 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.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earningtherequiredactivityPoints.StudentsshallbeadmittedfortheawardofdegreeonlyafterthereleaseoftheEighthsemester GradeCard.

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VII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours/Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18MT71	Industrial Robotics	MTE Engg	3	--	--	03	40	60	100	3
2	PCC	18MT72	Thermal Engineering	MTE Engg	3	--	--	03	40	60	100	3
3	PEC	18MT73X	Professional Elective – 2	MTE Engg	3	--	--	03	40	60	100	3
4	PEC	18MT74X	Professional Elective – 3	MTE Engg	3	--	--	03	40	60	100	3
5	OEC	18MT75X	Open Elective –B	MTE Engg	3	--	--	03	40	60	100	3
6	PCC	18MTL76	Robotics Lab	MTE Engg	--	2	2	03	40	60	100	2
7	PCC	18MTL77	Thermal –Laboratory	MTE Engg	--	2	2	03	40	60	100	2
8	Project	18MTP78	Project Work Phase-1	MTE Engg	--	--	2	--	100	--	100	1
9	Internship	--	Internship	(If not completed during the vacation of VI and VII semesters, it shall be carried out during the vacation of VII and VIII semesters)								
				TOTAL	15	04	06	21	380	420	00	20

Note:PCC: Professional core, PEC: Professional Elective.

Professional Elective-2	
Course code under 18CV73X	Course Title
18MT731	Automation In Process Control
18MT732	Signal Process
18MT733	Real Time Systems
18MT734	OOPS using C++
18MT735	Analytical Instrumentation

Professional Electives-3	
Course code under 18CV74X	Course Title
18MT741	Finite element analysis.
18MT742	Machine Learning
18MT743	Artificial Intelligence
18MT744	Digital Image Processing
18MT745	Mechanical vibration

Open Elective-B	
Course code under 18CV75X	Course Title
18MT751	Biomedical Signal Processing
18MT752	Mechatronics system design

Students can select any one of the open electives offered by other Departments except those that are offered by the parent Department (Please refer to the list of open electives under 18XX75X).
Selection of an open elective shall not be allowed if,
- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of the Departmental core course or professional electives.
- A similar course under any category is prescribed in the higher semesters of the programme.
Registration to electives shall be documented under the guidance of Programme Coordinator/Advisor/Mentor.

Project work:
Based on the ability/abilities of the student/s and recommendations of the mentor, a single discipline or a multidisciplinary project can be assigned to an individual student or to a group having not more than 4 students. In extraordinary cases, like the funded projects requiring students from different disciplines, the project student strength can be 5 or 6.
CIE procedure for Project Work Phase-1:
(v) **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 phase-1, shall be based on the evaluation of the project work phase -1 Report (covering Literature Survey, Problem identification, Objectives and Methodology), 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.
(vi) **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 phase-1, shall be based on the evaluation of project work phase-1 Report (covering Literature Survey, Problem identification, Objectives and Methodology), 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.
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 in VIII semester. Internship shall be considered as ahead 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.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

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Estd. 1974

VIIISEMESTER

Sl. No	\multicolumn{2}{c}{Course and Course code}	CourseTitle	TeachingDepartment	\multicolumn{3}{c}{TeachingHours/Week}	\multicolumn{5}{c}{Examination}
					Theory Lecture	Tutorial	Practical/Drawing	Durationin hours	CIEMarks	SEE Marks	TotalMarks	Credits
					L	T	P					
1	PCC	18MT81	Automotive Electronics & Hybrid Vehicles	MTEEngg.	3	--	--	03	40	60	100	3
2	PEC	18MT82X	ProfessionalElective-4	MTEEngg	3	--	--	03	40	60	100	3
3	Project	18MTP83	ProjectWorkPhase-2	MTEEngg	--	--	16	03	40	60	100	8
4	Seminar	18MTS84	TechnicalSeminar	MTEEngg	--	--	2	03	100	--	100	1
5	Internship	18MTI85	Internship	Completedduringthe vacation/sofVIandVII semestersand/orVIIandVIIIsemesters.)				03	40	60	100	3
				TOTAL	06	--	18	15	260	240	500	18

Note:PCC:ProfessionalCore,PEC:ProfessionalElective.

ProfessionalElectives-4
Coursecodeunder18MT82X	CourseTitle
18MT821	Operation Research.
18MT822	Communication system
18MT823	Digital Control System
18MT824	Management Information Systems
18MT825	Radar Engineering

ProjectWork

CIEprocedureforProjectWorkPhase-2:

(v)**Singlediscipline:**TheCIE marksshallbe awarded byacommitteeconsistingoftheHeadoftheconcerned Departmentandtwo seniorfacultymembersoftheDepartment, oneofwhomshallbe the Guide. TheCIEmarksawardedfor theprojectworkphase-2,shallbebasedontheevaluationofprojectworkphase -2Report,projectpresentationskilland questionand answersessionintheratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.

(vi)**Interdisciplinary:** ContinuousInternalEvaluationshallbegroupwiseatthecollegelevelwiththeparticipationofallguidesofthecollege.Participation ofexternalguide/s,ifany,isdesirable. The CIE marks awarded for the 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.Themarksawardedfortheprojectreportshallbethesameforallthebatchmates.

SEEforProject WorkPhase-2:

2017-18

2018-19

VISVESVARAYATECHNOLOGICALUNIVERSITY,BELAGAVI
SchemeofTeachingandExamination2018 – 19
OutcomeBasedEducation(OBE)andChoiceBasedCreditSystem(CBCS)
(Effectivefromtheacademicyear2018– 19)

Programme:Mechatronics Engineering

IIISEMESTER

Sl. No	\multicolumn{2}{c}{Course and Course Code}	CourseTitle	TeachingDepartment	\multicolumn{3}{c}{TeachingHours/Week}	\multicolumn{5}{c}{Examination}
					Theory Lecture	Tutorial	Practical/Drawing	Durationin hours	CIEMarks	SEE Marks	TotalMarks	Credits
					L	T	P					
1	BSC	18MAT31	TransformCalculus,FourierSeriesandNumerical Techniques	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18MT32	Material science and Technology	MTE Engg	3	2	--	03	40	60	100	4
3	PCC	18MT33	Mechanics of materials	MTE Engg	3	0	--	03	40	60	100	3
4	PCC	18MT34	Control Systems	MTE Engg	3	0	--	03	40	60	100	3
5	PCC	18MT35	Analog and Digital Electronics	MTE Engg		0	--	03	40	60	100	3
6	PCC	18MT36	Computer Organization	MTE Engg		0	--	03	40	60	100	3
7	PCC	18MTL37	Machine shop and material Testing lab	MTE Engg	--	2	2	03	40	60	100	2
8	PCC	18MTL38	Analog and digital electronics lab	MTE Engg	--	2	2	03	40	60	100	2
9	HSMC	18KVK39	VyavaharikaKannada(Kannadaforcommunication)/ OR	HSMC	--	2	--	--	100	--	100	1
		18KAK39	AadalithaKannada(KannadaforAdministration) OR									
		18CPC39	ConstitutionofIndia,ProfessionalEthicsandCyber Law		1	--	--	02	40	60		
					Examinationisbyobjectivetypequestions
				TOTAL	17 OR 18	08 OR 10	04	24 OR 26	420 OR 360	480 OR 540	900	24

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Note:BSC:BasicScience,PCC:ProfessionalCore,HSMC:HumanityandSocialScience,NCMC:Non-creditmandatorycourse.

18KVK39VyavaharikaKannada(Kannadaforcommunication)isfornon-Kannadaspeaking,readingandwritingstudentsand18KAK39AadalithaKannada(Kannadafor Administration)isforstudentswhospeak,readandwriteKannada.

CoursesprescribedtolateralentryDiplomaholdersadmittedtoIIIsemesterofEngineeringprograms

| 10 | NCMC | 18MATDIP31 | AdditionalMathematics-I | Mathematics | 02 | 01 | -- | 03 | 40 | 60 | 100 | 0 |

(a)The mandatory non – credit courses AdditionalMathematics I and II prescribed for III and IV semesters respectively, to thelateral entry Diploma holders admittedto III semester of BE/B. Tech programs, shall attend the classes duringthe respective semesters to complete all the formalities of the course and appear forthe University examination.Incase,any student failstoregisterforthesaidcourse/failstosecurethe minimum 40%of theprescribedCIEmarks,he/sheshall bedeemedtohave securedF

grade.Insuchacase,thestudentshavetofulfilltherequirementsduringsubsequentsemester/stoappearforSEE.

(b)TheseCoursesshallnotbeconsideredforverticalprogression,butcompletionofthecoursesshallbemandatoryfortheawardofdegree.

CoursesprescribedtolateralentryB.ScdegreeholdersadmittedtoIIIsemesterofEngineeringprograms

LateralentrantstudentsfromB.Sc.Stream,shallclearthenon-creditcoursesEngineeringGraphicsandElementsofCivilEngineeringandMechanicsoftheFirstYear EngineeringProgramme.TheseCoursesshallnotbeconsideredforverticalprogression,butcompletionofthecoursesshallbemandatoryfortheawardofdegree.

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 Activity Point Programme.Students transferred from other Universitiesto fifth semesterare required to earn 50 ActivityPointsfromthe yearofentryto VTU. The ActivityPointsearned shallbereflected on thestudent'seighth semester Grade Card.

The activities can be can be spread over the years, anytime duringthe semester weekends andholidays, as per the likingand convenience ofthe studentfromthe year ofentryto the programme. However, minimumhours' requirement should be fulfilled.Activity Points (non-credit) have no effect on SGPA/CGPAand shall not be considered for vertical progression.

In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points.Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS) (Effective from the academic year 2018 – 19)

Programme: MECHATRONICS ENGINEERING

IV SEMESTER

Sl. No		CourseandCourse code	CourseTitle	TeachingDepartment	Theory Lecture L	Tutorial T	Practical/Drawing P	Durationin hours	CIEMarks	SEE Marks	TotalMarks	Credits
1	BSC	18MAT41	ComplexAnalysis,ProbabilityAndStatisticalMethods	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18MT42	Fluid mechanics and machines	MTEEngg.	3	2	--	03	40	60	100	4
3	PCC	18 MT 4	Microcontroller	MTEEngg.	3	0	--	03	40	60	100	3
4	PCC	18 MT 44	Manufacturing technology	MTEEngg.	3	0	--	03	40	60	100	3
5	PCC	18 MT 45	Theory of Machines	MTEEngg.		0	--	03	40	60	100	3
6	PCC	18 MT 46	Instrumentation and measurements	MTEEngg.	3	0	--	03	40	60	100	3
7	PCC	18 MT L47	FM and pneumatic – Laboratory	MTEEngg.		2	2	03	40	60	100	2
8	PCC	18 MT L48	Microcontroller – Laboratory(BV	MTEEngg.		2	2	03	40	60	100	2
9	HSMC	18KVK39/49	VyavaharikaKannada(KannadaforCommunication)/ OR	HSMC	--	2	--	--	100	--	100	1
		18KAK39/49	AadalithaKannada(KannadaforAdministration) OR									
		18CPC39/49	ConstitutionofIndia,ProfessionalEthicsandCyberLaw		1	--	--	02	40	60		
			Examinationisbyobjectivetypequestions									
			TOTAL		17 OR 18	08 OR 10	04	24 OR 26	420 OR 360	480 OR 540	900	24

Note:BSC:BasicScience,PCC:ProfessionalCore,HSMC:HumanityandSocialScience,NCMC:Non-creditmandatorycourse.

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CoursesprescribedtolateralentryDiplomaholdersadmittedtoIIIsemesterofEngineeringprograms

| 10 | NCMC | 18MATDIP41 | AdditionalMathematics-II | Mathematics | 02 | 01 | -- | 03 | 40 | 60 | 100 | 0 |

(a)The mandatory non – credit courses AdditionalMathematics I and II prescribedfor III and IV semesters respectively,to thelateral entry Diploma holders admittedto III semester of BE/B.Tech programs,shallattendtheclasses duringthe respectivesemesterstocompletealltheformalitiesofthecourseandappearfortheUniversityexamination.In case,anystudentfailstoregisterforthesaid course/fails tosecure the minimum 40% of theprescribedCIE marks,he/she shallbe deemedtohave securedFgrade.Insucha case,the students have tofulfillthe requirements during subsequent semester/s to appear for SEE.

(b)TheseCoursesshallnotbeconsideredforverticalprogression,butcompletionofthecoursesshallbemandatoryfortheawardofdegree.

CoursesprescribedtolateralentryB.ScdegreeholdersadmittedtoIIIsemesterofEngineeringprograms

LateralentrantstudentsfromB.Sc.Stream,shallclearthenon-creditcoursesEngineeringGraphicsand ElementsofCivilEngineeringand MechanicsoftheFirstYearEngineering Programme. TheseCoursesshall notbeconsideredforverticalprogression,butcompletionofthecoursesshallbemandatoryfortheawardofdegree.

AICTEactivityPoints: In casestudentsfailtoearn the prescribedactivityPoints, EighthsemesterGradeCard shall beissuedonlyafterearningtherequiredactivityPoints.Studentsshall be admitted fortheawardofdegreeonlyafter thereleaseoftheEighthsemesterGradeCard.

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Programme: MECHATRONICS ENGINEERING

V SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours/Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	HSMC	18MT51	Technological Innovation Management And Entrepreneurship	MteEngg	2	2	--	03	40	60	100	3
2	PCC	18 MT52	Design and analysis of Machine Elements	MteEngg	3	2	--	03	40	60	100	4
3	PCC	18 MT53	Virtual Instrumentation	MteEngg	3	2	--	03	40	60	100	4
4	PCC	18 MT54	Hydraulics and Pneumatics	MteEngg	3	--	--	03	40	60	100	3
5	PCC	18 MT55	Micro and Smart Systems Technology	MteEngg	3	--	--	03	40	60	100	3
6	PCC	18 MT56	Wireless Networks &Communication	MteEngg	3	--	--	03	40	60	100	3
7	PCC	18 MTL57	Virtual Instrumentation Laboratory	MteEngg	--	2	2	03	40	60	100	2
8	PCC	18 MTL58	MSST –Laboratory	MteEngg	--	2	2	03	40	60	100	2
9	HSMC	18CIV59	Environmental Studies	Civil/Environmental [Papersetting Board: Civil Engineering]	1	--	--	02	40	60	100	1
				TOTAL	18	10	04	26	360	540	900	25

Note: PCC: Professional Core, HSMC: Humanity and Social Science.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

VI SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours/Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18MT61	PLC & SCADA	MTE Engg	3	2	--	03	40	60	100	4
2	PCC	18MT62	Power Electronics	MTE Engg	3	2	--	03	40	60	100	4
3	PCC	18MT63	Computer Aided Machine Drawing	MTE Engg	3	2	--	03	40	60	100	4
4	PEC	18MT642	Professional Elective-1	MTE Engg	3	--	--	03	40	60	100	3
5	OEC	18MT653	Open Elective-A	MTE Engg	3	--	--	03	40	60	100	3
6	PCC	18MTL66	PLC and SCADA-Laboratory	MTE Engg	--	2	2	03	40	60	100	2
7	PCC	18MTL67	Power electronics - Laboratory	MTE Engg	--	2	2	03	40	60	100	2

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8	MP	18MTEP68	Mini-project	Engg.		–	–	03	40	60	100	2
9	Internship	--	Internship	To be carried out during the vacation/s of VI and VII semesters and/or VII and VIII semesters.								
				TOTAL	15	12	06	24	320	480	800	24

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project.

ProfessionalElective-1	
Coursecodeunder18MT64X	
18 MT641	Modeling And Simulatio
18 MT642	Rapid Prototyping
18 MT643	Artificial neural network
18 MT644	Satellite Communication
18 MT645	Computer Integrated Manufacturing
OpenElective-A	
Coursecodeunder18MT65X	
18 MT651	Robotics and Automation,
18 MT652	Process Instrumentation

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (Please refer to the list of open electives under 18XX65X).
Selection of an open elective shall not be allowed if,

- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of the Departmental core courses or professional electives.
- A similar course under any category is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/Advisor/Mentor.

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 credit shall be included in 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 and shall have to complete during subsequent University examination after satisfying the internship requirements.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester GradeCard.

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VII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours/Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18MT71	Industrial Ribotics	MTE Engg	3	--	--	03	40	60	100	3
2	PCC	18MT72	Thermal Engineering	MTE Engg	3	--	--	03	40	60	100	3
3	PEC	18MT73X	Professional Elective – 2	MTE Engg	3	--	--	03	40	60	100	3
4	PEC	18MT74X	Professional Elective – 3	MTE Engg	3	--	--	03	40	60	100	3
5	OEC	18MT75X	Open Elective –B	MTE Engg	3	--	--	03	40	60	100	3
6	PCC	18MTL76	Robotics Lab	MTE Engg	--	2	2	03	40	60	100	2
7	PCC	18MTL77	Thermal –Laboratory	MTE Engg	--	2	2	03	40	60	100	2
8	Project	18MTP78	Project Work Phase-1	MTE Engg	--	--	2	--	100	--	100	1
9	Internship	--	Internship	(If not completed during the vacation of VI and VII semesters, it shall be carried out during the vacation of VII and VIII semesters)								
			TOTAL		15	04	06	21	380	420	00	20

Note:PCC:Professionalcore,PEC:ProfessionalElective.

Professional Elective-2	
Coursecodeunder18CV73X	CourseTitle
18MT731	Automation In Process Control
18MT732	Signal Process
18MT733	Real Time Systems
18MT734	OOPS using C++
18MT735	Analytical Instrumentation

Professional Electives-3	
Coursecodeunder18CV74X	CourseTitle
18MT741	Finite element analysis.
18MT742	Machine Learning
18MT743	Artificial Intelligence
18MT744	Digital Image Processing
18MT745	Mechanical vibration

Open Elective-B	
Coursecodeunder18CV75X	CourseTitle
18MT751	Biomedical Signal Processing
18MT752	Mechatronics system design

StudentscanselectanyoneoftheopenelectivesofferedbyotherDepartmentsexpectthosethatareofferedbytheparentDepartment(Pleaserefertothelistofopenelectivesunder 18XX75X).
Selectionofanopenelectiveshallnotbeallowedif,
• Thecandidatehasstudiedthesamecourseduringtheprevioussemestersofthe programme.
• ThesyllabuscontentofopenelectiveissimilartothatoftheDepartmentalcorecourseorprofessionalelectives.
• Asimilarcourse underanycategory isprescribedinthehighersemestersoftheprogramme.
RegistrationtoelectivesshallbedocumentedundertheguidanceofProgrammeCoordinator/Advisor/Mentor.

Projectwork:
Based on the ability/abilitiesofthestudent/sand recommendationsofthementor, asingledisciplineora multidisciplinaryprojectcan beassigned to an individualstudentorto agroup having not more than 4 students. In extraordinary cases, like the funded projects requiring students from different disciplines, the project student strength can be 5 or 6.
CIEprocedureforProjectWorkPhase-1:
(v)Singlediscipline: TheCIE marksshallbeawarded byacommitteeconsistingoftheHeadoftheconcerned Departmentandtwo seniorfacultymembersoftheDepartment, oneofwhom shall be the Guide.
TheCIEmarksawardedfortheprojectworkphase-1 shallbebased ontheevaluationoftheprojectworkphase -1 Report (coveringLiteratureSurvey,Problemidentification,Objectivesand Methodology), 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.
(vi)Interdisciplinary: ContinuousInternalEvaluationshall begroupwiseatthecollegelevelwiththeparticipationof allguides of thecollege.Participationof externalguide/s,if any,is desirable.
The CIEmarks awarded for the project work phase-1, shall be based on the evaluation of project work phase-1 Report (covering Literature Survey, Problem identification, Objectives andMethodology), 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.
Internship: AllthestudentsadmittedtoIIIyearofBE/B.Techshallhavetoundergomandatoryinternshipof4weeksduringthevacationofVIandVIIsemestersand/orVIIandVIII semesters.AUniversity examinationshallbeconductedduringVIIIsemesterandtheprescribedcreditsshallbeincludedinVIIIsemester.Internshipshallbeconsideredasaheadofpassing and shallbeconsidered fortheaward ofdegree. Those, who do nottake-up/completetheinternship shallbedeclared failand shall haveto completeduringsubsequentUniversityexamination after satisfying the internship requirements.

AICTEactivityPoints: In casestudentsfail toearntheprescribedactivityPoints,EighthsemesterGradeCardshallbeissuedonlyafter earningtherequiredactivityPoints.Studentsshallbe admittedfortheawardofdegreeonlyafterthereleaseoftheEighthsemesterGradeCard.

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VIIISEMESTER

Sl. No	Courses and Course code		Course Title	Teaching Department	Teaching Hours/Week			Examination				
					Theory Lecture	Tutorial	Practical/Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
					L	T	P					
1	PCC	18MT81	Automotive Electronics & Hybrid Vehicles	MTEEngg.	3	--	--	03	40	60	100	3
2	PEC	18MT82X	Professional Elective-4	MTEEngg	3	--	--	03	40	60	100	3
3	Project	18MTP83	ProjectWorkPhase-2	MTEEngg	--	--	16	03	40	60	100	8
4	Seminar	18MTS84	TechnicalSeminar	MTEEngg	--	--	2	03	100	--	100	1
5	Internship	18MTI85	Internship	Completed during the vacation/s of VI and VII semesters and/or VII and VIII semesters.)				03	40	60	100	3
				TOTAL	06	--	18	15	260	240	500	18

Note:PCC:ProfessionalCore,PEC:ProfessionalElective.

ProfessionalElectives-4	
Coursecodeunder18MT82X	CourseTitle
18MT821	Operation Research.
18MT822	Communication system
18MT823	Digital Control System
18MT824	Management Information Systems
18MT825	Radar Engineering

ProjectWork
CIEprocedureforProjectWorkPhase-2:
(v)**Singlediscipline:**TheCIE marksshallbe awarded byacommitteeconsistingoftheHeadoftheconcerned Departmentandtwo seniorfacultymembersoftheDepartment, oneofwhomshallbe the Guide. TheCIEmarksawardedfor theprojectworkphase-2,shallbebasedontheevaluationofprojectworkphase -2Report,projectpresentationskilland questionand answersessionintheratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.
(vi)**Interdisciplinary:** ContinuousInternalEvaluationshallbegroupwiseatthecollegelevelwiththeparticipationofallguidesofthecollege.Participation ofexternalguide/s,ifany,isdesirable. The CIE marks awarded for the 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.Themarksawardedfortheprojectreportshallbethesameforallthebatchmates.

SEEforProject WorkPhase-2:

2018-19

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(Effectivefromtheacademicyear2018– 19)

Programme:Mechatronics Engineering

IIISEMESTER

Sl. No	Courses and Course Code		Course Title	Teaching Department	Teaching Hours/Week			Examination				
					Theory Lecture	Tutorial	Practical/Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
					L	T	P					
1	BSC	18MAT31	TransformCalculus,FourierSeriesandNumerical Techniques	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18MT32	Material science and Technology	MTE Engg	3	2	--	03	40	60	100	4
3	PCC	18MT33	Mechanics of materials	MTE Engg	3	0	--	03	40	60	100	3
4	PCC	18MT34	Control Systems	MTE Engg	3	0	--	03	40	60	100	3
5	PCC	18MT35	Analog and Digital Electronics	MTE Engg		0	--	03	40	60	100	3
6	PCC	18MT36	Computer Organization	MTE Engg		0	--	03	40	60	100	3
7	PCC	18MTL37	Machine shop and material Testing lab	MTE Engg	--	2	2	03	40	60	100	2
8	PCC	18MTL38	Analog and digital electronics lab	MTE Engg	--	2	2	03	40	60	100	2
9	HSMC	18KVK39	VyavaharikaKannada(Kannadaforcommunication)/ OR	HSMC	--	2	--	--	100	--	100	1
		18KAK39	AadalithaKannada(KannadaforAdministration) OR									
		18CPC39	ConstitutionofIndia,ProfessionalEthicsandCyber Law		1	--	--	02	40	60		
					Examinationisbyobjectivetypequestions							
				TOTAL	17 OR 18	08 OR 10	04	24 OR 26	420 OR 360	480 OR 540	900	24

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		CourseprescribedtolateralentryDiplomaholdersadmittedtoIIIsemesterofEngineeringprograms										
10	NCMC	18MATDIP31	AdditionalMathematics-I	Mathematics	02	01	--	03	40	60	100	0

(a)The mandatory non – credit courses AdditionalMathematics-I and II prescribed for III and IV semesters respectively, to thelateral entry Diploma holders admittedto III semester of BE/B. Tech programs, shall attend the classes duringthe respective semesters to complete all the formalities of the course and appear forthe University examination.Incase,any student failstoregisterforthesaidcourse/failstosecurethe minimum 40%of theprescribedCIEmarks,he/sheshall bedeemedtohave securedF

grade.Insuchacase,thestudentshavetofulfilltherequirementsduringsubsequentsemester/stoappearforSEE.

(b)TheseCoursesshallnotbeconsideredforverticalprogression,butcompletionofthecoursesshallbemandatoryfortheawardofdegree.

CoursesprescribedtolateralentryB.ScdegreeholdersadmittedtoIIIsemesterofEngineeringprograms

LateralentrantstudentsfromB.Sc.Stream,shallclearthenon-creditcoursesEngineeringGraphicsandElementsofCivilEngineeringandMechanicsoftheFirstYear EngineeringProgramme.TheseCoursesshallnotbeconsideredforverticalprogression,butcompletionofthecoursesshallbemandatoryfortheawardofdegree.

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 Activity Point Programme.Students transferred from other Universitiesto fifth semesterare required to earn 50 ActivityPointsfromthe yearofentryto VTU. The ActivityPointsearned shallbereflected on thestudent'seighth semester Grade Card.

The activities can be can be spread over the years, anytime duringthe semester weekends andholidays, as per the likingand convenience ofthe studentfromthe year ofentryto the programme. However, minimumhours' requirement should be fulfilled.Activity Points (non-credit) have no effect on SGPA/CGPAand shall not be considered for vertical progression.

In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points.Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

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Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS) (Effective from the academic year 2018 – 19)

Programme: MECHATRONICS ENGINEERING

IV SEMESTER

Sl. No	CourseandCourse code		CourseTitle	TeachingDepartment	TeachingHours/Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/Drawing	Durationin hours	CIEMarks	SEE Marks	TotalMarks	
					L	T	P					
1	BSC	18MAT41	ComplexAnalysis,ProbabilityAndStatisticalMethods	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18MT42	Fluid mechanics and machines	MTEEngg.	3	2	--	03	40	60	100	4
3	PCC	18 MT 4	Microcontroller	MTEEngg.	3	0	--	03	40	60	100	3
4	PCC	18 MT 44	Manufacturing technology	MTEEngg.	3	0	--	03	40	60	100	3
5	PCC	18 MT 45	Theory of Machines	MTEEngg.	3	0	--	03	40	60	100	3
6	PCC	18 MT 46	Instrumentation and measurements	MTEEngg.	3	0	--	03	40	60	100	3
7	PCC	18 MT L47	FM and pneumatic – Laboratory	MTEEngg.		2	2	03	40	60	100	2
8	PCC	18 MT L48	Microcontroller – Laboratory(BV	MTEEngg.		2	2	03	40	60	100	2
9	HSMC	18KVK39/49	VyavaharikaKannada(KannadaforCommunication)/ OR	HSMC	--	2	--	--	100	--	100	1
		18KAK39/49	AadalithaKannada(KannadaforAdministration) OR									
		18CPC39/49	ConstitutionofIndia,ProfessionalEthicsandCyberLaw		1	--	--	02	40	60		
					Examinationisbyobjectivetypequestions							
				TOTAL	17 OR 18	08 OR 10	04	24 OR 26	420 OR 360	480 OR 540	900	24

Note:BSC:BasicScience,PCC:ProfessionalCore,HSMC:HumanityandSocialScience,NCMC:Non-creditmandatorycourse.

18KVK39/49VyavaharikaKannada(Kannadaforcommunication)isfornon-Kannadaspeaking,readingandwritingstudentsand18KAK39/49AadalithaKannada(KannadaforAdministration)isfor studentswhospeak,readandwriteKannada.

		CourseprescribedtolateralentryDiplomaholdersadmittedtoIIIsemesterofEngineeringprograms										
10	NCMC	18MATDIP41	AdditionalMathematics-II	Mathematics	02	01	--	03	40	60	100	0

(a)The mandatory non – credit courses AdditionalMathematics I and II prescribedfor III and IV semesters respectively,to thelateral entry Diploma holders admittedto III semester of BE/B.Tech programs,shallattendtheclasses duringthe respectivesemesterstocompletealltheformalitiesofthecourseandappearfortheUniversityexamination.In case,anystudentfailstoregisterforthesaid course/fails tosecure the minimum 40% of theprescribedCIE marks,he/she shallbe deemedtohave securedFgrade.Insucha case,the students have tofulfillthe requirements during subsequent semester/s to appear for SEE.

(b)TheseCoursesshallnotbeconsideredforverticalprogression,butcompletionofthecoursesshallbemandatoryfortheawardofdegree.

CoursesprescribedtolateralentryB.ScdegreeholdersadmittedtoIIIsemesterofEngineeringprograms

LateralentrantstudentsfromB.Sc.Stream,shallclearthenon-creditcoursesEngineeringGraphicsand ElementsofCivilEngineeringand MechanicsoftheFirstYearEngineering Programme. TheseCoursesshall notbeconsideredforverticalprogression,butcompletionofthecoursesshallbemandatoryfortheawardofdegree.

AICTEactivityPoints: In casestudentsfailtoearn the prescribedactivityPoints, EighthsemesterGradeCard shall beissuedonlyafterearningtherequiredactivityPoints.Studentsshall be admitted fortheawardofdegreeonlyafter thereleaseoftheEighthsemesterGradeCard.

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Programme: MECHATRONICS ENGINEERING

V SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours/Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	HSMC	18MT51	Technological Innovation Management And Entrepreneurship	MteEngg	2	2	--	03	40	60	100	3
2	PCC	18 MT52	Design and analysis of Machine Elements	MteEngg	3	2	--	03	40	60	100	4
3	PCC	18 MT53	Virtual Instrumentation	MteEngg	3	2	--	03	40	60	100	4
4	PCC	18 MT54	Hydraulics and Pneumatics	MteEngg	3	--	--	03	40	60	100	3
5	PCC	18 MT55	Micro and Smart Systems Technology	MteEngg	3	--	--	03	40	60	100	3
6	PCC	18 MT56	Wireless Networks & Communication	MteEngg	3	--	--	03	40	60	100	3
7	PCC	18 MTL57	Virtual Instrumentation Laboratory	MteEngg	--	2	2	03	40	60	100	2
8	PCC	18 MTL58	MSST –Laboratory	MteEngg	--	2	2	03	40	60	100	2
9	HSMC	18CIV59	Environmental Studies	Civil/Environmental [Papersetting Board: Civil Engineering]	1	--	--	02	40	60	100	1
				TOTAL	18	10	04	26	360	540	900	25

Note: PCC: Professional Core, HSMC: Humanity and Social Science.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

VI SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours/Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18MT61	PLC & SCADA	MTE Engg	3	2	--	03	40	60	100	4
2	PCC	18MT62	Power Electronics	MTE Engg	3	2	--	03	40	60	100	4
3	PCC	18MT63	Computer Aided Machine Drawing	MTE Engg	3	2	--	03	40	60	100	4
4	PEC	18MT642	Professional Elective-1	MTE Engg	3	--	--	03	40	60	100	3
5	OEC	18MT653	Open Elective-A	MTE Engg	3	--	--	03	40	60	100	3
6	PCC	18MTL66	PLC and SCADA- Laboratory	MTE Engg	--	2	2	03	40	60	100	2
7	PCC	18MTL67	Power electronics - Laboratory	MTE Engg	--	2	2	03	40	60	100	2

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8	MP	18MTEP68	Mini-project	Engg.		–	–	03	40	60	100	2
9	Internship	--	Internship	To be carried out during the vacation/s of VI and VII semesters and/or VII and VIII semesters.								
				TOTAL	15	12	06	24	320	480	800	24

Note:PCC:Professionalcore,PEC:ProfessionalElective,OE:OpenElective,MP:Mini-project.

ProfessionalElective-1	
Coursecodeunder18MT64X	
18 MT641	Modeling And Simulatio

18 MT642	Rapid Prototyping
18 MT643	Artificial neural network
18 MT644	Satellite Communication
18 MT645	Computer Integrated Manufacturing
OpenElective-A	
Coursecodeunder18MT65X	
18 MT651	Robotics and Automation,
18 MT652	Process Instrumentation

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (Please refer to the list of open electives under 18XX65X).
Selectionofanopenelectiveshallnotbeallowed if,
• Thecandidatehasstudiedthesamecourseduringtheprevioussemestersoftheprogramme.
• ThesyllabuscontentofopenelectiveissimilartothatoftheDepartmentalcorecoursesorprofessionalelectives.
• Asimilarcourse,underanycategory,isprescribedinthehighersemestersoftheprogramme.

RegistrationtoelectivesshallbedocumentedundertheguidanceofprogrammeCoordinator/Advisor/Mentor.

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 theprescribedcreditshallbeincludedin VIIIsemester.Internship shallbe consideredasaheadofpassing and shallbeconsideredfor 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.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earningtherequiredactivityPoints.StudentsshallbeadmittedfortheawardofdegreeonlyafterthereleaseoftheEighthsemester GradeCard.

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VII SEMESTER

Sl. No	CourseandCourse code		CourseTitle	TeachingDepartment	Theory Lecture L	Tutorial T	Practical/Drawing P	Durationin hours	CIEMarks	SEE Marks	TotalMarks	Credits
1	PCC	18MT71	Industrial Ribotics	MTE Engg	3	--	--	03	40	60	100	3
2	PCC	18MT72	Thermal Engineering	MTE Engg	3	--	--	03	40	60	100	3
3	PEC	18MT73X	Professional Elective – 2	MTE Engg	3	--	--	03	40	60	100	3
4	PEC	18MT74X	Professional Elective – 3	MTE Engg	3	--	--	03	40	60	100	3
5	OEC	18MT75X	Open Elective –B	MTE Engg	3	--	--	03	40	60	100	3
6	PCC	18MTL76	Robotics Lab	MTE Engg	--	2	2	03	40	60	100	2
7	PCC	18MTL77	Thermal –Laboratory	MTE Engg	--	2	2	03	40	60	100	2
8	Project	18MTP78	ProjectWorkPhase-1	MTE Engg	--	--	2	03	100	--	100	1
9	Internship	--	Internship	(Ifnotcompletedduringthevacationof VIandVIIsemesters,itshallbecarriedoutduringthe vacationofVIIandVIIIsemesters)								
			TOTAL		15	04	06	21	380	420	00	20

Note:PCC:Professionalcore,PEC:ProfessionalElective.

ProfessionalElective-2	
Coursecodeunder18CV73X	CourseTitle
18MT731	Automation In Process Control
18MT732	Signal Process
18MT733	Real Time Systems
18MT734	OOPS using C++
18MT735	Analytical Instrumentation

ProfessionalElectives-3	
Coursecodeunder18CV74X	CourseTitle
18MT741	Finite element analysis.
18MT742	Machine Learning
18MT743	Artificial Intelligence

18MT744	Digital Image Processing
18MT745	Mechanical vibration

OpenElective-B	
Coursecodeunder18CV75X	CourseTitle
18MT751	Biomedical Signal Processing
18MT752	Mechatronics system design

StudentscanselectanyoneoftheopenelectivesofferedbyotherDepartmentsexpectthosethatareofferedbytheparentDepartment(Pleaserefertothelistofopenelectivesunder 18XX75X).

Selectionofanopenelectiveshallnotbeallowedif,
- Thecandidatehasstudiedthesamecourseduringtheprevioussemestersofthe programme.
- ThesyllabuscontentofopenelectiveissimilartothatoftheDepartmentalcorecourseorprofessionalelectives.
- Asimilarcourse underanycategory isprescribedinthehighersemestersoftheprogramme.

RegistrationtoelectivesshallbedocumentedundertheguidanceofProgrammeCoordinator/Advisor/Mentor.

Projectwork:
Based on the ability/abilitiesofthestudent/sand recommendationsofthementor,asingledisciplineora multidisciplinaryprojectcan beassigned to an individualstudentorto agroup having not more than 4 students. In extraordinary cases, like the funded projects requiring students from different disciplines, the project student strength can be 5 or 6.
CIEprocedureforProjectWorkPhase-1:
(v)**Singlediscipline:**TheCIE marksshallbeawarded byacommitteeconsistingoftheHeadoftheconcerned Departmentandtwo seniorfacultymembersoftheDepartment, oneofwhom shall be the Guide.
TheCIEmarksawardedfortheprojectworkphase-1,shallbebased ontheevaluationoftheprojectworkphase -1 Report (coveringLiteratureSurvey,Problemidentification,Objectivesand Methodology), 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.
(vi)**Interdisciplinary:**ContinuousInternalEvaluationshall begroupwiseatthecollegelevelwiththeparticipationof allguides of thecollege.Participationof externalguide/s,if any,is desirable.
The CIEmarks awarded for the project work phase-1, shall be based on the evaluation of project work phase-1 Report (covering Literature Survey, Problem identification, Objectives andMethodology), 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.
Internship: AllthestudentsadmittedtoIIIyearofBE/B.Techshallhavetoundergomandatoryinternshipof4weeksduringthevacationofVIandVIIsemestersand/orVIIandVIII semesters.AUniversity examinationshallbeconductedduringVIIIsemesterandtheprescribedcreditsshallbeincludedinVIIIsemester.Internshipshallbeconsideredasaheadofpassing
and shallbeconsidered fortheaward ofdegree. Those, who do nottake-up/completetheinternship shallbedeclared failand shall haveto completeduringsubsequentUniversityexamination after satisfying the internship requirements.

AICTEactivityPoints: In casestudentsfail toearntheprescribedactivityPoints,EighthsemesterGradeCardshallbeissuedonlyafter earningtherequiredactivityPoints.Studentsshallbe admittedfortheawardofdegreeonlyafterthereleaseoftheEighthsemesterGradeCard.

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VIIISEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours/Week			Examination				
					Theory Lecture	Tutorial	Practical/Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
					L	T	P					
1	PCC	18MT81	Automotive Electronics & Hybrid Vehicles	MTEEngg.	3	--	--	03	40	60	100	3
2	PEC	18MT82X	Professional Elective-4	MTEEngg	3	--	--	03	40	60	100	3
3	Project	18MTP83	ProjectWorkPhase-2	MTEEngg	--	--	16	03	40	60	100	8
4	Seminar	18MTS84	TechnicalSeminar	MTEEngg	--	--	2	03	100	--	100	1
5	Internship	18MTI85	Internship	Completed during the vacation/s of VI and VII semesters and/or VII and VIII semesters.)				03	40	60	100	3
				TOTAL	06	--	18	15	260	240	500	18

Note:PCC:ProfessionalCore,PEC:ProfessionalElective.

ProfessionalElectives-4	
Coursecodeunder18MT82X	CourseTitle
18MT821	Operation Research.
18MT822	Communication system
18MT823	Digital Control System
18MT824	Management Information Systems
18MT825	Radar Engineering

ProjectWork

CIEprocedureforProjectWorkPhase-2:

(v)**Singlediscipline:**TheCIE marksshallbe awarded byacommitteeconsistingoftheHeadoftheconcerned Departmentandtwo seniorfacultymembersoftheDepartment, oneofwhomshallbe the Guide. TheCIEmarksawardedfor theprojectworkphase-2,shallbebasedontheevaluationofprojectworkphase -2Report,projectpresentationskilland questionand answersessionintheratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.

(vi)**Interdisciplinary:** ContinuousInternalEvaluationshallbegroupwiseatthecollegelevelwiththeparticipationofallguidesofthecollege.Participation ofexternalguide/s,ifany,isdesirable. The CIE marks awarded for the 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.Themarksawardedfortheprojectreportshallbethesameforallthebatchmates.

SEEforProject WorkPhase-2:

2019-20

VISVESVARAYATECHNOLOGICALUNIVERSITY,BELAGAVI												
SchemeofTeachingandExamination2019 – 20 OutcomeBasedEducation(OBE)andChoiceBasedCreditSystem(CBCS) (Effectivefromtheacademicyear2019– 20)												

Programme:Mechatronics Engineering

IIISEMESTER

Sl. No	Course and Course Code		Course Title	Teaching Department	Teaching Hours/Week			Examination				
					Theory Lecture	Tutorial	Practical/Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
					L	T	P					
1	BSC	18MAT31	TransformCalculus,FourierSeriesandNumerical Techniques	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18MT32	Material science and Technology	MTE Engg	3	2	--	03	40	60	100	4
3	PCC	18MT33	Mechanics of materials	MTE Engg	3	0	--	03	40	60	100	3
4	PCC	18MT34	Control Systems	MTE Engg	3	0	--	03	40	60	100	3
5	PCC	18MT35	Analog and Digital Electronics	MTE Engg		0	--	03	40	60	100	3
6	PCC	18MT36	Computer Organization	MTE Engg		0	--	03	40	60	100	3
7	PCC	18MTL37	Machine shop and material Testing lab	MTE Engg	--	2	2	03	40	60	100	2
8	PCC	18MTL38	Analog and digital electronics lab	MTE Engg	--	2	2	03	40	60	100	2
		18KVK39	VyavaharikaKannada(Kannadaforcommunication)/		--	2	--	--	100	--		
			OR									
		18KAK39	AadalithaKannada(KannadaforAdministration)									

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9	HSMC	18CPC39	ConstitutionofIndia,ProfessionalEthicsandCyber Law	HSMC	1	--	--	02	40	60	100	1
					Examinationisbyobjectivetypequestions							
				TOTAL	17 OR 18	08 OR 10	04	24 OR 26	420 OR 360	480 OR 540	900	24

Note:BSC:BasicScience,PCC:ProfessionalCore,HSMC:HumanityandSocialScience,NCMC:Non-creditmandatorycourse.

18KVK39VyavaharikaKannada(Kannadaforcommunication)isfornon-Kannadaspeaking,readingandwritingstudentsand18KAK39AadalithaKannada(Kannadafor Administration)isforstudentswhospeak,readandwriteKannada.

CoursesprescribedtolateralentryDiplomaholdersadmittedtoIIIsemesterofEngineeringprograms

| 10 | NCMC | 18MATDIP31 | AdditionalMathematics-I | Mathematics | 02 | 01 | -- | 03 | 40 | 60 | 100 | 0 |

(a)The mandatory non – credit courses AdditionalMathematics I and II prescribed for III and IV semesters respectively, to thelateral entry Diploma holders admittedto III semester of BE/B. Tech programs, shall attend the classes duringthe respective semesters to complete all the formalities of the course and appear forthe University examination.Incase,any student failstoregisterforthesaidcourse/failstosecurethe minimum 40%of theprescribedCIEmarks,he/sheshall bedeemedtohave securedF

grade.Insuchacase,thestudentshavetofulfilltherequirementsduringsubsequentsemester/stoappearforSEE.
(b)TheseCoursesshallnotbeconsideredforverticalprogression,butcompletionofthecoursesshallbemandatoryfortheawardofdegree.

CoursesprescribedtolateralentryB.ScdegreeholdersadmittedtoIIIsemesterofEngineeringprograms

LateralentrantstudentsfromB.Sc.Stream,shallclearthenon-creditcoursesEngineeringGraphicsandElementsofCivilEngineeringandMechanicsoftheFirstYear EngineeringProgramme.TheseCoursesshallnotbeconsideredforverticalprogression,butcompletionofthecoursesshallbemandatoryfortheawardofdegree.

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 Activity Point Programme.Students transferred from other Universitiesto fifth semesterare required to earn 50 ActivityPointsfromthe yearofentryto VTU. The ActivityPointsearned shallbereflected on thestudent'seighth semester Grade Card.
The activities can be can be spread over the years, anytime duringthe semester weekends andholidays, as per the likingand convenience ofthe studentfromthe year ofentryto the programme. However, minimumhours' requirement should be fulfilled.Activity Points (non-credit) have no effect on SGPA/CGPAand shall not be considered for vertical progression.
In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points.Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2019 – 20
Outcome Based Education(OBE) and Choice Based Credit System (CBCS) (Effective from the academic year 2019 – 20)

Programme: MECHATRONICS ENGINEERING

IV SEMESTER

Sl. No	CourseandCourse code		CourseTitle	TeachingDepartment	TeachingHours/Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/Drawing	Durationin hours	CIEMarks	SEEMarks	TotalMarks	
					L	T	P					
1	BSC	18MAT41	ComplexAnalysis,ProbabilityAndStatisticalMethods	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18MT42	Fluid mechanics and machines	MTEEngg.	3	2	--	03	40	60	100	4
3	PCC	18 MT 4	Microcontroller	MTEEngg.	3	0	--	03	40	60	100	3
4	PCC	18 MT 44	Manufacturing technology	MTEEngg.	3	0	--	03	40	60	100	3
5	PCC	18 MT 45	Theory of Machines	MTEEngg.		0	--	03	40	60	100	3
6	PCC	18 MT 46	Instrumentation and measurements	MTEEngg.	3	0	--	03	40	60	100	3
7	PCC	18 MT L47	FM and pneumatic – Laboratory	MTEEngg.		2	2	03	40	60	100	2
8	PCC	18 MT L48	Microcontroller – Laboratory(BV	MTEEngg.		2	2	03	40	60	100	2
9	HSMC	18KVK39/49	VyavaharikaKannada(KannadaforCommunication)/ OR	HSMC	--	2	--	--	100	--	100	1
		18KAK39/49	AadalithaKannada(KannadaforAdministration) OR									
		18CPC39/49	ConstitutionofIndia,ProfessionalEthicsandCyberLaw		1	--	--	02	40	60		
					Examinationisbyobjectivetypequestions							
				TOTAL	17 OR 18	08 OR 10	04	24 OR 26	420 OR 360	480 OR 540	900	24

Note:BSC:BasicScience,PCC:ProfessionalCore,HSMC:HumanityandSocialScience,NCMC:Non-creditmandatorycourse.

18KVK39/49VyavaharikaKannada(Kannadaforcommunication)isfornon-Kannadaspeaking,readingandwritingstudentsand18KAK39/49AadalithaKannada(KannadaforAdministration)isfor studentswhospeak,readandwriteKannada.

CoursesprescribedtolateralentryDiplomaholdersadmittedtoIIIsemesterofEngineeringprograms

| 10 | NCMC | 18MATDIP41 | AdditionalMathematics-II | Mathematics | 02 | 01 | -- | 03 | 40 | 60 | 100 | 0 |

(a)The mandatory non – credit courses AdditionalMathematics I and II prescribedfor III and IV semesters respectively,to thelateral entry Diploma holders admittedto III semester of BE/B.Tech programs,shallattendtheclasses duringthe respectivesemesterstocompletealltheformalitiesofthecourseandappearfortheUniversityexamination.In case,anystudentfailstoregisterforthesaid course/fails tosecure the minimum 40% of theprescribedCIE marks,he/she shallbe deemedtohave securedFgrade.Insucha case,the students have tofulfillthe requirements during subsequent semester/s to appear for SEE.
(b)TheseCoursesshallnotbeconsideredforverticalprogression,butcompletionofthecoursesshallbemandatoryfortheawardofdegree.

CoursesprescribedtolateralentryB.ScdegreeholdersadmittedtoIIIsemesterofEngineeringprograms

LateralentrantstudentsfromB.Sc.Stream,shallclearthenon-creditcoursesEngineeringGraphicsand ElementsofCivilEngineeringand MechanicsoftheFirstYearEngineering Programme. TheseCoursesshall notbeconsideredforverticalprogression,butcompletionofthecoursesshallbemandatoryfortheawardofdegree.

AICTEactivityPoints: In casestudentsfailtoearn the prescribedactivityPoints, EighthsemesterGradeCard shall beissuedonlyafterearningtherequiredactivityPoints.Studentsshall be admitted fortheawardofdegreeonlyafter thereleaseoftheEighthsemesterGradeCard.

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Scheme of Teaching and Examination 2019–20
Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2019– 20)

Programme: MECHATRONICS ENGINEERING

V SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours/Week			Examination					Credits
					Theory Lecture	Tutorial	Practical/Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks		
					L	T	P						
1	HSMC	18MT51	Technological Innovation Management And Entrepreneurship	MteEngg	2	2	--	03	40	60	100		3
2	PCC	18 MT52	Design and analysis of Machine Elements	MteEngg	3	2	--	03	40	60	100		4
3	PCC	18 MT53	Virtual Instrumentation	MteEngg	3	2	--	03	40	60	100		4
4	PCC	18 MT54	Hydraulics and Pneumatics	MteEngg	3	--	--	03	40	60	100		3
5	PCC	18 MT55	Micro and Smart Systems Technology	MteEngg	3	--	--	03	40	60	100		3
6	PCC	18 MT56	Wireless Networks &Communication	MteEngg	3	--	--	03	40	60	100		3
7	PCC	18 MTL57	Virtual Instrumentation Laboratory	MteEngg	--	2	2	03	40	60	100		2
8	PCC	18 MTL58	MSST –Laboratory	MteEngg	--	2	2	03	40	60	100		2
9	HSMC	18CIV59	Environmental Studies	Civil/Environmental [Papersetting Board: Civil Engineering]	1	--	--	02	40	60	100		1
				TOTAL	18	10	04	26	360	540	900		25

Note: PCC: Professional Core, HSMC: Humanity and Social Science.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CIVIL ENGINEERING
Scheme of Teaching and Examination 2019–20
Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2019– 20)

VI SEMESTER

Sl. No	Course and Coursecode		Course Title	Teaching Department	Teaching Hours/Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18MT61	PLC & SCADA	MTE Engg	3	2	--	03	40	60	100	4
2	PCC	18MT62	Power Electronics	MTE Engg	3	2	--	03	40	60	100	4
3	PCC	18MT63	Computer Aided Machine Drawing	MTE Engg	3	2	--	03	40	60	100	4
4	PEC	18MT642	Professional Elective-1	MTE Engg	3	--	--	03	40	60	100	3
5	OEC	18MT653	Open Elective-A	MTE Engg	3	--	--	03	40	60	100	3
6	PCC	18MTL66	PLC and SCADA-Laboratory	MTE Engg	--	2	2	03	40	60	100	2
7	PCC	18MTL67	Power electronics - Laboratory	MTE Engg	--	2	2	03	40	60	100	2

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8	MP	18MTEP68	Mini-project	MTE Engg.	--	2	2	03	40	60	100	2
9	Internship	--	Internship	Tobecarriedoutduringthevacation/sofVIandVIIsemestersand/orVIIand VIIIsemesters.								
				TOTAL	15	12	06	24	320	480	800	24

Note:PCC:Professionalcore,PEC:ProfessionalElective,OE:OpenElective,MP:Mini-project.

ProfessionalElective-1	
Coursecodeunder18MT64X	
18 MT641	Modeling And Simulatio

18 MT642	Rapid Prototyping
18 MT643	Artificial neural network
18 MT644	Satellite Communication
18 MT645	Computer Integrated Manufacturing
OpenElective-A	
Coursecodeunder18MT65X	
18 MT651	Robotics and Automation,
18 MT652	Process Instrumentation

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (Please refer to the list of open electives under 18XX65X).
Selectionofanopenelectiveshallnotbeallowed if,
- Thecandidatehasstudiedthesamecourseduringtheprevioussemestersoftheprogramme.
- ThesyllabuscontentofopenelectiveissimilartothatoftheDepartmentalcorecoursesorprofessionalelectives.
- Asimilarcourse,underanycategory,isprescribedinthehighersemestersoftheprogramme.

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 theprescribedcreditshallbeincludedin VIIIsemester.Internship shallbe consideredasaheadofpassing and shallbeconsideredfor 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.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earningtherequiredactivityPoints.StudentsshallbeadmittedfortheawardofdegreeonlyaftertherereleaseoftheEighthsemester GradeCard.

VIISEMESTER

Sl. No	CourseandCourse code		CourseTitle	TeachingDepar tment	TeachingHours/Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/D rawing	Durationin hours	CIEMarks	SEE Marks	TotalMarks	
					L	T	P					
1	PCC	18MT71	Industrial Ribotics	MTE Engg	3	--	--	03	40	60	100	3
2	PCC	18MT72	Thermal Engineering	MTE Engg	3	--	--	03	40	60	100	3
3	PEC	18MT733	Professional Elective – 2	MTE Engg	3	--	--	03	40	60	100	3
4	PEC	18MT743	Professional Elective – 3	MTE Engg	3	--	--	03	40	60	100	3
5	OEC	18MT753	Open Elective –B	MTE Engg	3	--	--	03	40	60	100	3
6	PCC	18MTL76	Robotics Lab	MTE Engg	--	2	2	03	40	60	100	2
7	PCC	18MTL77	Thermal –Laboratory	MTE Engg	--	2	2	03	40	60	100	2
8	Project	18MTP78	ProjectWorkPhase-1	MTE Engg	--	--	2	--	100	--	100	1
9	Internship	--	Internship	(IfnotcompletedduringthevacationofVIandVIIsemesters,itshallbecarriedoutduringthe vacationofVIIandVIIIsemesters)								
				TOTAL	15	04	06	21	380	420	00	20

Note:PCC:Professionalcore,PEC:ProfessionalElective.

ProfessionalElective-2	
Coursecodeunder18CV73X	CourseTitle
18MT731	Automation In Process Control
18MT732	Signal Process
18MT733	Real Time Systems
18MT734	OOPS using C++
18MT735	Analytical Instrumentation
ProfessionalElectives-3	
Coursecodeunder18CV74X	CourseTitle

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18MT741	Finite element analysis.
18MT742	Machine Learning
18MT743	Artificial Intelligence

18MT744	Digital Image Processing
18MT745	Mechanical vibration
OpenElective-B	
Coursecodeunder18CV75X	**CourseTitle**
18MT751	Biomedical Signal Processing
18MT752	Mechatronics system design

StudentscanselectanyoneoftheopenelectivesofferedbyotherDepartmentsexpectthosethatareofferedbytheparentDepartment(Pleaserefertothelistofopenelectivesunder 18XX75X).
Selectionofanopenelectiveshallnotbeallowedif,
- Thecandidatehasstudiedthesamecourseduringtheprevioussemestersofthe programme.
- Thesyllabuscontentofopenelectiveissimilarto thatoftheDepartmentalcorecoursesorprofessionalelectives.
- Asimilarcourse,underanycategory,isprescribedinthehighersemestersoftheprogramme.
RegistrationtoelectivesshallbedocumentedundertheguidanceofProgrammeCoordinator/Advisor/Mentor.

Projectwork:
Based on the ability/abilitiesofthestudent/sand recommendationsofthementor,asingledisciplineora multidisciplinaryprojectcan beassigned to an individualstudentorto agroup having not more than 4 students. In extraordinary cases, like the funded projects requiring students from different disciplines, the project student strength can be 5 or 6.
CIEprocedureforProjectWorkPhase-1:
(vii)   **Singleddiscipline:**TheCIE marksshallbeawarded byacommitteeconsistingoftheHeadoftheconcerned Departmentandtwo seniorfacultymembersoftheDepartment, oneofwhom shall be the Guide.
TheCIEmarksawardedfortheprojectworkphase-1,shallbebased ontheevaluationoftheprojectworkphase -1 Report (coveringLiteratureSurvey,Problemidentification,Objectivesand Methodology), 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.
(viii)   **Interdisciplinary:**ContinuousInternalEvaluationshall begroupwiseatthecollegelevelwiththeparticipationof allguides of thecollege.Participationof externalguide/s,if any,is desirable.
The CIEmarks awarded for the project work phase-1, shall be based on the evaluation of project work phase-1 Report (covering Literature Survey, Problem identification, Objectives andMethodology), 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.
Internship: AllthestudentsadmittedtoIIIyearofBE/B.Techshallhavetoundergomandatoryinternshipof4weeksduringthevacationofVIandVIIsemestersand/orVIIandVIII semesters.AUniversity examinationshallbeconductedduringVIIIsemesterandtheprescribedcreditsshallbeincludedinVIIIsemester.Internshipshallbeconsideredasaheadofpassing
and shallbeconsidered fortheaward ofdegree. Those, who do nottake-up/completetheinternship shallbedeclared failand shall haveto completeduringsubsequentUniversityexamination after satisfying the internship requirements.

VIIISEMESTER

Sl. No	CourseandCourse code		CourseTitle	TeachingDepartment	TeachingHours/Week			Examination				
					Theory Lecture	Tutorial	Practical/Drawing	Durationin hours	CIEMarks	SEE Marks	TotalMarks	Credits
					L	T	P					
1	PCC	18MT81	Automotive Electronics & Hybrid Vehicles	MTEEngg.	3	--	--	03	40	60	100	3
2	PEC	18MT82X	ProfessionalElective-4	MTEEngg	3	--	--	03	40	60	100	3
3	Project	18MTP83	ProjectWorkPhase-2	MTEEngg	--	--	16	03	40	60	100	8
4	Seminar	18MTS84	TechnicalSeminar	MTEEngg	--	--	2	03	100	--	100	1
5	Internship	18MTI85	Internship	Completedduringthe vacation/sofVIandVII semestersand/orVIIandVIIIsemesters.)				03	40	60	100	3
			TOTAL		06	--	18	15	260	240	500	18

Note:PCC:ProfessionalCore,PEC:ProfessionalElective.

ProfessionalElectives-4	
Coursecodeunder18MT82X	CourseTitle
18MT821	Operation Research.
18MT822	Communication system
18MT823	Digital Control System
18MT824	Management Information Systems
18MT825	Radar Engineering

ProjectWork
CIEprocedureforProjectWorkPhase-2:
(vii)   **Singlediscipline:**TheCIE marksshallbe awarded byacommitteeconsistingoftheHeadoftheconcerned Departmentandtwo seniorfacultymembersoftheDepartment, oneofwhomshallbe the Guide.
TheCIEmarksawardedfor theprojectworkphase-2,shallbebasedontheevaluationofprojectworkphase -2Report,projectpresentationskilland questionand answersessionintheratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.
(viii)   **Interdisciplinary:** ContinuousInternalEvaluationshallbegroupwiseatthecollegelevelwiththeparticipationofallguidesofthecollege.Participation ofexternalguide/s,ifany,isdesirable. The CIE marks awarded for the 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.Themarksawardedfortheprojectreportshallbethesameforallthebatchmates.
SEEforProject WorkPhase-2:

2020-21

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2020 – 21
Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2020– 21)

Programme: Mechatronics Engineering

III SEMESTER

Sl. No	Course and Course Code		Course Title	Teaching Department	Teaching Hours/Week Theory Lecture L	Tutorial T	Practical/Drawing P	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	BSC	18MAT31	Transform Calculus, Fourier Series and Numerical Techniques	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18MT32	Material science and Technology	MTE Engg	3	2	--	03	40	60	100	4
3	PCC	18MT33	Mechanics of materials	MTE Engg	3	0	--	03	40	60	100	3
4	PCC	18MT34	Control Systems	MTE Engg	3	0	--	03	40	60	100	3
5	PCC	18MT35	Analog and Digital Electronics	MTE Engg		0	--	03	40	60	100	3
6	PCC	18MT36	Computer Organization	MTE Engg		0	--	03	40	60	100	3
7	PCC	18MTL37	Machine shop and material Testing lab	MTE Engg	--	2	2	03	40	60	100	2
8	PCC	18MTL38	Analog and digital electronics lab	MTE Engg	--	2	2	03	40	60	100	2
		18KVK39	Vyavaharika Kannada (Kannada for communication)/									
			OR		--	2	--	--	100	--		
9	HSMC	18KAK39	Aadalitha Kannada (Kannada for Administration)	HSMC							100	1
			OR									
		18CPC39	Constitution of India, Professional Ethics and Cyber Law		1	--	--	02	40	60		
					Examination is by objective type questions							
				TOTAL	17 OR 18	08 OR 10	04	24 OR 26	420 OR 360	480 OR 540	900	24

Note: BSC: Basic Science, PCC: Professional Core, HSMC: Humanity and Social Science, NCMC: Non-credit mandatory course.

18KVK39 Vyavaharika Kannada (Kannada for communication) is for non-Kannada speaking, reading and writing students and 18KAK39 Aadalitha Kannada (Kannada for Administration) is for students who speak, read and write Kannada.

Course prescribed to lateral entry Diploma holders admitted to III semester of Engineering programs

| 10 | NCMC | 18MATDIP31 | Additional Mathematics-I | Mathematics | 02 | 01 | -- | 03 | 40 | 60 | 100 | 0 |

(a) The mandatory non – credit courses Additional Mathematics I and II prescribed for III and IV semesters respectively, to the lateral entry Diploma holders admitted to III semester of BE/B. Tech programs, shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the University examination. 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 F grade. In such a case, the students have to fulfill the requirements during subsequent semester/s to appear for SEE.

(b) These Courses shall not be considered for vertical progression, but completion of the courses shall be mandatory for the award of degree.

Courses prescribed to lateral entry B.Sc degree holders admitted to III semester of Engineering programs

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, but completion of the courses shall be mandatory for the award of degree.

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 Activity 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 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, minimum hours' requirement should be fulfilled. Activity Points (non-credit) have no effect on SGPA/CGPA and shall not be considered for vertical progression.

In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

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IV SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours/Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	BSC	18MAT41	Complex Analysis, Probability And Statistical Methods	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18MT42	Fluid mechanics and machines	MTEEngg.	3	2	--	03	40	60	100	4
3	PCC	18 MT 4	Microcontroller	MTEEngg.	3	0	--	03	40	60	100	3
4	PCC	18 MT 44	Manufacturing technology	MTEEngg.	3	0	--	03	40	60	100	3
5	PCC	18 MT 45	Theory of Machines	MTEEngg.		0	--	03	40	60	100	3
6	PCC	18 MT 46	Instrumentation and measurements	MTEEngg.	3	0	--	03	40	60	100	3
7	PCC	18 MT L47	FM and pneumatic – Laboratory	MTEEngg.		2	2	03	40	60	100	2
8	PCC	18 MT L48	Microcontroller – Laboratory(BV	MTEEngg.		2	2	03	40	60	100	2
9	HSMC	18KVK39/49	VyavaharikaKannada(KannadaforCommunication)/ OR	HSMC	--	2	--	--	100	--	100	1
		18KAK39/49	AadalithaKannada(KannadaforAdministration) OR									
		18CPC39/49	ConstitutionofIndia,ProfessionalEthicsandCyberLaw		1	--	--	02	40	60		
					Examinationisbyobjectivetypequestions							
				TOTAL	17 OR 18	08 OR 10	04	24 OR 26	420 OR 360	480 OR 540	900	24

Note:BSC:BasicScience,PCC:ProfessionalCore,HSMC:HumanityandSocialScience,NCMC:Non-creditmandatorycourse.

18KVK39/49VyavaharikaKannada(Kannadaforcommunication)isfornon-Kannadaspeaking,readingandwritingstudentsand18KAK39/49AadalithaKannada(KannadaforAdministration)isfor studentswhospeak,readandwriteKannada.

CourseprescribedtolateralentryDiplomaholdersadmittedtoIIIsemesterofEngineeringprograms

| 10 | NCMC | 18MATDIP41 | AdditionalMathematics-II | Mathematics | 02 | 01 | -- | 03 | 40 | 60 | 100 | 0 |

(a)The mandatory non – credit courses AdditionalMathematics I and II prescribedfor III and IV semesters respectively,to thelateral entry Diploma holders admittedto III semester of BE/B.Tech programs,shallattendtheclasses duringthe respectivesemesterstocompletealltheformalitiesofthecourseandappearfortheUniversityexamination.In case,anystudentfailstoregisterforthesaid course/fails tosecure the minimum 40% of theprescribedCIE marks,he/she shallbe deemedtohave securedFgrade.Insucha case,the students have tofulfillthe requirements during subsequent semester/s to appear for SEE.

(b)TheseCoursesshallnotbeconsideredforverticalprogression,butcompletionofthecoursesshallbemandatoryfortheawardofdegree.

CoursesprescribedtolateralentryB.ScdegreeholdersadmittedtoIIIsemesterofEngineeringprograms

LateralentrantstudentsfromB.Sc.Stream,shallclearthenon-creditcoursesEngineeringGraphicsand ElementsofCivilEngineeringand MechanicsoftheFirstYearEngineering Programme. TheseCoursesshall notbeconsideredforverticalprogression,butcompletionofthecoursesshallbemandatoryfortheawardofdegree.

AICTEactivityPoints: In casestudentsfailtoearn the prescribedactivityPoints, EighthsemesterGradeCard shall beissuedonlyafterearningtherequiredactivityPoints,Studentsshall be admitted fortheawardofdegreeonlyafter thereleaseoftheEighthsemesterGradeCard.

V SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours/Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	HSMC	18MT51	Technological Innovation Management And Entrepreneurship	MteEngg	2	2	--	03	40	60	100	3
2	PCC	18 MT52	Design and analysis of Machine Elements	MteEngg	3	2	--	03	40	60	100	4
3	PCC	18 MT53	Virtual Instrumentation	MteEngg	3	2	--	03	40	60	100	4
4	PCC	18 MT54	Hydraulics and Pneumatics	MteEngg	3	--	--	03	40	60	100	3
5	PCC	18 MT55	Micro and Smart Systems Technology	MteEngg	3	--	--	03	40	60	100	3
6	PCC	18 MT56	Wireless Networks &Communication	MteEngg	3	--	--	03	40	60	100	3
7	PCC	18 MTL57	Virtual Instrumentation Laboratory	MteEngg	--	2	2	03	40	60	100	2
8	PCC	18 MTL58	MSST –Laboratory	MteEngg	--	2	2	03	40	60	100	2
9	HSMC	18CIV59	EnvironmentalStudies	Civil/Environmental [PapersettingBoard: CivilEngineering]	1	--	--	02	40	60	100	1
				TOTAL	18	10	04	26	360	540	900	25

Note:PCC:ProfessionalCore,HSMC:HumanityandSocialScience.

AICTEactivityPoints: In casestudentsfailtoearn the prescribedactivityPoints, EighthsemesterGradeCard shall beissuedonlyafterearningtherequiredactivityPoints,Studentsshall be admitted fortheawardofdegreeonlyafter thereleaseoftheEighthsemesterGradeCard.

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VI SEMESTER

Sl. No	Course and Coursecode		CourseTitle	Teaching Department	Teaching Hours/Week			Examination					
					Theory Lecture L	Tutorial T	Practical/Drawing P	Duration in hours	CIEMarks	SEEMarks	Total Marks	Credits	
1	PCC	18MT61	PLC & SCADA	MTE Engg	--	3	2	--	03	40	60	100	4
2	PCC	18MT62	Power Electronics	MTE Engg	--	3	2	--	03	40	60	100	4
3	PCC	18MT63	Computer Aided Machine Drawing	MTE Engg	--	3	2	--	03	40	60	100	4
4	PEC	18MT642	ProfessionalElective-1	MTE Engg	--	3	--	--	03	40	60	100	3
5	OEC	18MT653	OpenElective-A	MTE Engg	--	3	--	--	03	40	60	100	3
6	PCC	18MTL66	PLC and SCADA-Laboratory	MTE Engg	--	--	2	2	03	40	60	100	2
7	PCC	18MTL67	Power electronics -Laboratory	MTE Engg	--	--	2	2	03	40	60	100	2
8	MP	18MTEP68	Mini-project	MTE Engg.	--	--	2	2	03	40	60	100	2
9	Internship	--	Internship	Tobecarriedoutduringthevacation/sofVIandVIIsemestersand/orVIIand VIIIsemesters.									
				TOTAL	15	12	06	24	320	480	800	24	

ProfessionalElective-1	
Coursecodeunder18MT64X	
18 MT641	Modeling And Simulatio

18 MT642	Rapid Prototyping
18 MT643	Artificial neural network
18 MT644	Satellite Communication
18 MT645	Computer Integrated Manufacturing
OpenElective-A	
Coursecodeunder18MT65X	
18 MT651	Robotics and Automation,
18 MT652	Process Instrumentation

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (Please refer to the list of open electives under 18XX65X).
Selectionofanopenelectiveshallnotbeallowed if,
- Thecandidatehasstudiedthesamecourseduringthepprevioussemestersoftheprogramme.
- ThesyllabuscontentofopenelectiveissimilartothatoftheDepartmentalcorecoursesorprofessionalelectives.
- Asimilarcourse,underanycategory,isprescribedinthehighersemestersoftheprogramme.
RegistrationtoelectivesshallbedocumentedundertheguidanceofProgrammeCoordinator/Advisor/Mentor.

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 theprescribedcreditshallbeincludedin VIIIsemester.Internship shallbe consideredasaheadofpassing and shallbeconsideredfor 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.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earningtherequiredactivityPoints.StudentsshallbeadmittedfortheawardofdegreeonlyafterthereleaseoftheEighthsemester GradeCard.

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Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours/Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/Drawing	Durationin hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18MT71	Industrial Robotics	MTE Engg	3	--	--	03	40	60	100	3
2	PCC	18MT72	Thermal Engineering	MTE Engg	3	--	--	03	40	60	100	3
3	PEC	18MT733	Professional Elective – 2	MTE Engg	3	--	--	03	40	60	100	3
4	PEC	18MT743	Professional Elective – 3	MTE Engg	3	--	--	03	40	60	100	3
5	OEC	18MT753	Open Elective –B	MTE Engg	3	--	--	03	40	60	100	3
6	PCC	18MTL76	Robotics Lab	MTE Engg	--	2	2	03	40	60	100	2
7	PCC	18MTL77	Thermal –Laboratory	MTE Engg	--	2	2	03	40	60	100	2
8	Project	18MTP78	Project Work Phase-1	MTE Engg	--	--	2	--	100	--	100	1
9	Internship	--	Internship	(If not completed during the vacation of VI and VII semesters, it shall be carried out during the vacation of VII and VIII semesters)								
			TOTAL		15	04	06	21	380	420	00	20

Note: PCC: Professional core, PEC: Professional Elective.

Professional Elective-2	
Course code under 18CV73X	CourseTitle
18MT731	Automation In Process Control
18MT732	Signal Process
18MT733	Real Time Systems
18MT734	OOPS using C++
18MT735	Analytical Instrumentation
Professional Electives-3	
Course code under 18CV74X	CourseTitle
18MT741	Finite element analysis.
18MT744	Digital Image Processing
18MT745	Mechanical vibration
Open Elective-B	
Course code under 18CV75X	CourseTitle
18MT751	Biomedical Signal Processing
18MT752	Mechatronics system design

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (Please refer to the list of open electives under 18XX75X).
Selection of an open elective shall not be allowed if.
• The candidate has studied the same course during the previous semesters of the programme.
• The syllabus content of open elective is similar to that of the Departmental core courses or professional electives.
• A similar course, under any category, is prescribed in the higher semesters of the programme.
Registration to electives shall be documented under the guidance of Programme Coordinator/Advisor/Mentor.

Project work:
Based on the ability/abilities of the student/sand recommendations of the mentor, a single discipline or a multidisciplinary project can be assigned to an individual student or to a group having not more than 4 students. In extraordinary cases, like the funded projects requiring students from different disciplines, the project student strength can be 5 or 6.
CIE procedure for Project Work Phase-1:
(i) **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 phase-1, shall be based on the evaluation of the project work phase -1 Report (covering Literature Survey, Problem identification, Objectives and Methodology), 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) **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 phase-1, shall be based on the evaluation of project work phase-1 Report (covering Literature Survey, Problem identification, Objectives and Methodology), 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.
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 in VIII semester. Internship shall be considered as ahead 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.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Cards shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

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VIII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours/Week			Examination				
					Theory Lecture	Tutorial	Practical/Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
					L	T	P					
1	PCC	18MT81	Automotive Electronics & Hybrid Vehicles	MTE Engg.	3	--	--	03	40	60	100	3
2	PEC	18MT82X	Professional Elective-4	MTE Engg.	3	--	--	03	40	60	100	3
3	Project	18MTP83	Project Work Phase-2	MTE Engg.	--	--	16	03	40	60	100	8
4	Seminar	18MTS84	Technical Seminar	MTE Engg.	--	--	2	03	100	--	100	1
5	Internship	18MTI85	Internship	Completed during the vacation/s of VI and VII semesters and/or VII and VIII semesters.)				03	40	60	100	3
				TOTAL	06	--	18	15	260	240	500	18

Note: PCC: Professional Core, PEC: Professional Elective.

Professional Electives-4	
Course code under 18MT82X	Course Title
18MT821	Operation Research.
18MT822	Communication system
18MT823	Digital Control System
18MT824	Management Information Systems
18MT825	Radar Engineering

Project Work

CIE procedure for Project Work Phase-2:

(i) **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 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.

(ii) **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 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.

SEE for Project Work Phase-2:

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PG MTECH

2016-17 PG-MTECH-EEE

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SCHEME OF TEACHING AND EXAMINATION - 2016-17
M.Tech POWER EECRTONICS (EPE)
CHOICE BASED CREDIT SYSTEM (CBCS)
(Total number of credits prescribed for the programme - 85)

I SEMESTER

SL No	Course Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Field work/ Assignment	Duration in hours	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	16EEE11	Applied Mathematics	04	--	03	20	80	100	4
2	16EPE12	Power Semiconductor Devices and Components	04	--	03	20	80	100	4
3	16EPE13	Power Electronic Converters	04	--	03	20	80	100	4
4	16EPE14	Modelling and Design of Controllers	04	--	03	20	80	100	4
5	16EPE15X	Elective -1	03	--	03	20	80	100	3
6	16EPEL16	Power Electronics Laboratory - 1	-	3	03	20	80	100	2
7	16EPE17	Seminar	-	3	-	100	-	100	1
		TOTAL	19	06	18	220	480	700	22

Number of credits completed at the end of I semester: 22

Elective - 1	
Course Code under 16EPE15X	**Title**
16EPE151	Embedded Systems
16EPE152	Power System Harmonics
16EPE153	Advanced Control Systems
16EPE154	EMC in Power Electronics

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M.Tech POWER EECRTONICS (EPE)
CHOICE BASED CREDIT SYSTEM (CBCS)
(Total number of credits prescribed for the programme - 85)

II SEMESTER

Sl. No	Course Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Field work/ Assignment	Duration in hours	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	16EPE21	Electric Drives	04	--	03	20	80	100	4
2	16EPE22	Switched - Mode Power Supplies	04	--	03	20	80	100	4
3	16EPE23	Modelling and Analysis of Electrical Machines	04	--	03	20	80	100	4
4	16EPE24	FACTS Controllers	04	--	03	20	80	100	4
5	16EPE25X	Elective - 2	03	--	03	20	80	100	3
6	16EPEL26	Power Electronics Laboratory - 2	-	3	03	20	80	100	2
7	16EPE27	Seminar	-	3	-	100	-	100	1
		TOTAL	19	06	18	220	480	700	22

Number of credits completed at the end of II semester: 22+ 22 = 44

Elective - 2

Course Code under 16EPE25X	Title
16EPE251	Converters for Solar and Wind Power Systems
16EPE252	Uninterruptible Power Supply
16EPE253	Power Quality Problems and Mitigation
16EPE254	Hybrid Electric Vehicles

Note: Project Phase-1: 6-week duration shall be carried out between 2nd and 3rd Semester vacation. Candidates in consultation with the guide shall carry out literature survey/ visit industries to finalize the topic of Project.

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M.Tech POWER EECRTONICS (EPE)
CHOICE BASED CREDIT SYSTEM (CBCS)
(Total number of credits prescribed for the programme - 85)

IV SEMESTER

Sl No	Course Code	Title	Teaching Hours /Week		Examination					Credits
			Theory	Practical/ Field work/ Assignment	Duration in hours	I.A. Marks	Theory/ Practical Marks	Total Marks		
1	16EPE41	HVDC power Transmission	04	--	03	20	80	100		4
2	16EPE42X	Elective - 3	03	--	03	20	80	100		3
3	16EPE43	Evaluation of Project phase - 2	--	--	--	50	-	50		3
4	16EPE44	Evaluation of Project and Viva-Voce	--	--	--	--	100 + 100	200		10
		TOTAL	07	--	06	90	360	450		20

Number of credits completed at the end of IV semester: 22+ 22 + 21 + 20 = 85

Elective - 3

Course Code under 16EPE42X	Title
16EPE421	Digital Power Electronics
16EPE422	MPPT in Solar Systems
16EPE423	Multi-Terminal DC Grids
16EPE424	Multilevel Converters for Industrial Applications

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2017-18 PG-MTECH-EEE

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SCHEME OF TEACHING AND EXAMINATION - 2016-17
M.Tech POWER EECRTONICS (EPE)
CHOICE BASED CREDIT SYSTEM (CBCS)
(Total number of credits prescribed for the programme - 85)

I SEMESTER

SL No	Course Code	Title	Teaching Hours /Week		Examination					Credits
			Theory	Practical/ Field work/ Assignment	Duration in hours	I.A. Marks	Theory/ Practical Marks	Total Marks		
1	16EEE11	Applied Mathematics	04	--	03	20	80	100		4
2	16EPE12	Power Semiconductor Devices and Components	04	--	03	20	80	100		4
3	16EPE13	Power Electronic Converters	04	--	03	20	80	100		4
4	16EPE14	Modelling and Design of Controllers	04	--	03	20	80	100		4
5	16EPE15X	Elective -1	03	--	03	20	80	100		3
6	16EPEL16	Power Electronics Laboratory - 1	-	3	03	20	80	100		2
7	16EPE17	Seminar	-	3	-	100	-	100		1
		TOTAL	19	06	18	220	480	700		22

Number of credits completed at the end of I semester: 22

Elective - 1

Course Code under 16EPE15X	Title
16EPE151	Embedded Systems
16EPE152	Power System Harmonics
16EPE153	Advanced Control Systems
16EPE154	EMC in Power Electronics

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M.Tech POWER EECRTONICS (EPE)
CHOICE BASED CREDIT SYSTEM (CBCS)
(Total number of credits prescribed for the programme - 85)

II SEMESTER

| Sl. No | Course Code | Title | Teaching Hours /Week | | Examination | | | | Credits |
			Theory	Practical/ Field work/ Assignment	Duration in hours	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	16EPE21	Electric Drives	04	--	03	20	80	100	4
2	16EPE22	Switched - Mode Power Supplies	04	--	03	20	80	100	4
3	16EPE23	Modelling and Analysis of Electrical Machines	04	--	03	20	80	100	4
4	16EPE24	FACTS Controllers	04	--	03	20	80	100	4
5	16EPE25X	Elective - 2	03	--	03	20	80	100	3
6	16EPEL26	Power Electronics Laboratory - 2	-	3	03	20	80	100	2
7	16EPE27	Seminar	-	3	-	100	-	100	1
		TOTAL	19	06	18	220	480	700	22

Number of credits completed at the end of II semester: 22+ 22 = 44

Elective - 2

Course Code under 16EPE25X	Title
16EPE251	Converters for Solar and Wind Power Systems
16EPE252	Uninterruptible Power Supply
16EPE253	Power Quality Problems and Mitigation
16EPE254	Hybrid Electric Vehicles

Note: Project Phase-1: 6-week duration shall be carried out between 2nd and 3rd Semester vacation. Candidates in consultation with the guide shall carry out literature survey/ visit industries to finalize the topic of Project.

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M.Tech POWER EECRTONICS (EPE)
CHOICE BASED CREDIT SYSTEM (CBCS)
(Total number of credits prescribed for the programme - 85)

IV SEMESTER

Sl. No	Course Code	Title	Teaching Hours /Week		Examination					Credits
			Theory	Practical/ Field work/ Assignment	Duration in hours	I.A. Marks	Theory/ Practical Marks	Total Marks		
1	16EPE41	HVDC power Transmission	04	--	03	20	80	100		4
2	16EPE42X	Elective - 3	03	--	03	20	80	100		3
3	16EPE43	Evaluation of Project phase - 2	--	--	--	50	-	50		3
4	16EPE44	Evaluation of Project and Viva-Voce	--	--	--	--	100 + 100	200		10
		TOTAL	07	--	06	90	360	450		20

Number of credits completed at the end of IV semester: 22+ 22 + 21 + 20 = 85

Elective - 3

Course Code under 16EPE42X	Title
16EPE421	Digital Power Electronics
16EPE422	MPPT in Solar Systems
16EPE423	Multi-Terminal DC Grids
16EPE424	Multilevel Converters for Industrial Applications

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2018-19 PG-MTECH-EEE

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M.Tech POWER EECRTONICS (EPE)
CHOICE BASED CREDIT SYSTEM (CBCS)
(Total number of credits prescribed for the programme - 85)

I SEMESTER

SL No	Course Code	Title	Teaching Hours /Week		Examination					Credits
			Theory	Practical/ Field work/ Assignment	Duration in hours	I.A. Marks	Theory/ Practical Marks	Total Marks		
1	16EEE11	Applied Mathematics	04	--	03	20	80	100		4
2	16EPE12	Power Semiconductor Devices and Components	04	--	03	20	80	100		4
3	16EPE13	Power Electronic Converters	04	--	03	20	80	100		4
4	16EPE14	Modelling and Design of Controllers	04	--	03	20	80	100		4
5	16EPE15X	Elective -1	03	--	03	20	80	100		3
6	16EPEL16	Power Electronics Laboratory - 1	-	3	03	20	80	100		2
7	16EPE17	Seminar	-	3	-	100	-	100		1
		TOTAL	19	06	18	220	480	700		22

Number of credits completed at the end of I semester: 22

Elective - 1

Course Code under 16EPE15X	Title
16EPE151	Embedded Systems
16EPE152	Power System Harmonics
16EPE153	Advanced Control Systems
16EPE154	EMC in Power Electronics

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M.Tech POWER EECRTONICS (EPE)
CHOICE BASED CREDIT SYSTEM (CBCS)
(Total number of credits prescribed for the programme - 85)

II SEMESTER

Sl. No	Course Code	Title	Teaching Hours /Week		Examination					Credits
			Theory	Practical/ Field work/ Assignment	Duration in hours	I.A. Marks	Theory/ Practical Marks	Total Marks		
1	16EPE21	Electric Drives	04	--	03	20	80	100		4
2	16EPE22	Switched - Mode Power Supplies	04	--	03	20	80	100		4
3	16EPE23	Modelling and Analysis of Electrical Machines	04	--	03	20	80	100		4
4	16EPE24	FACTS Controllers	04	--	03	20	80	100		4
5	16EPE25X	Elective - 2	03	--	03	20	80	100		3
6	16EPEL26	Power Electronics Laboratory - 2	-	3	03	20	80	100		2
7	16EPE27	Seminar	-	3	-	100	-	100		1
		TOTAL	19	06	18	220	480	700		22

Number of credits completed at the end of II semester: 22+ 22 = 44

Elective - 2	
Course Code under 16EPE25X	**Title**
16EPE251	Converters for Solar and Wind Power Systems
16EPE252	Uninterruptible Power Supply
16EPE253	Power Quality Problems and Mitigation
16EPE254	Hybrid Electric Vehicles

Note: Project Phase-1: 6-week duration shall be carried out between 2nd and 3rd Semester vacation. Candidates in consultation with the guide shall carry out literature survey/ visit industries to finalize the topic of Project.

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM
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SCHEME OF TEACHING AND EXAMINATION 2016-2017

M.Tech.- Structural Engineering

I SEMESTER

Sl. No.	Subject Code	Title	Teaching Hours /Week		Examination				Credit
			Theory	Practical/ Field Work/ Assignment	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	16CSE11	Computational Structural Mechanics	4	-	3	20	80	100	4
2	16CSE12	Advanced Design of RC Structures	4	-	3	20	80	100	4
3	16CSE13	Mechanics of Deformable Bodies	4	-	3	20	80	100	4
4	16CSE14	Structural Dynamics	4	-	3	20	80	100	4
5	16 CSE15X	Elective-I	3	-	3	20	80	100	3
6	16CSEL16	Structural Engineering Lab-1		3	3	20	80	100	2
7	16CSE17	Seminar	-	3	-	100	-	100	1
		TOTAL	**19**	**6**	**18**	**220**	**480**	**700**	**22**

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2016-2017

M.Tech.- Structural Engineering

I I SEMESTER

Sl. No.	Subject Code	Title	Teaching Hours /Week		Examination				Credit
			Theory	Practical/ Field Work/ Assignment	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	16CSE21	Advanced Design of Steel Structures	4	-	3	20	80	100	4
2	16CSE22	Earthquake Resistance Structures	4	-	3	20	80	100	4
3	16CSE23	Finite Elements Method of Analysis	4	-	3	20	80	100	4
4	16CSE24	Design Concepts of Substructures	4	-	3	20	80	100	4
5	16CSE25X	Elective-II	3	-	3	20	80	100	3
6	16CSEL26	Structural Engineering Lab-2		3	3	20	80	100	2
7	16CSE27	Seminar	-	3	-	100	-	100	1
		TOTAL	**19**	**6**	**18**	**220**	**480**	**700**	**22**

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CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2016-2017

M.Tech.- Structural Engineering

III SEMESTER: Internship

Sl. No.	Subject Code	Title	Teaching Hours /Week		Examination				Credit
			Theory	Practical/Field Work/ Assignment	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	16CSE31	Seminar / Presentation on Internship (After 8 weeks from the date of commencement)	-	-	-	25	-	25	20
2	16CSE32	Report on Internship	-	-	-	25	-	25	
3	16CSE33	Evaluation and Viva-Voce of Internship	-	-	-	-	50	50	
4	16CSE34	Project Phase -1	-	-	-	50	-	50	1
		TOTAL	**-**	**-**	**-**	**100**	**50**	**150**	**21**

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2016-2017

M.Tech.- Structural Engineering

IV SEMESTER

Sl. No.	Subject Code	Title	Teaching Hours /Week		Examination				Credit
			Theory	Practical/ Field Work/ Assignment	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	16CSE41	Design of Concrete Bridges	4	-	3	20	80	100	4
2	16CSE42X	Elective-3	3	-	3	20	80	100	3
3	16CSE43	Project phase -2	-	-	-	50	-	50	3
4	16CSE44	Evaluation of Project and Viva-Voce	-	-	3	-	100+100	200	10
		TOTAL	**-**	**-**	**6**	**90**	**360**	**450**	**20**

2017-18

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SCHEME OF TEACHING AND EXAMINATION 2016-2017

M.Tech.- Structural Engineering

I SEMESTER

Sl. No.	Subject Code	Title	Teaching Hours /Week		Examination				Credit
			Theory	Practical/ Field Work/ Assignment	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	16CSE11	Computational Structural Mechanics	4	-	3	20	80	100	4
2	16CSE12	Advanced Design of RC Structures	4	-	3	20	80	100	4
3	16CSE13	Mechanics of Deformable Bodies	4	-	3	20	80	100	4
4	16CSE14	Structural Dynamics	4	-	3	20	80	100	4
5	16 CSE15X	Elective-I	3	-	3	20	80	100	3
6	16CSEL16	Structural Engineering Lab-1		3	3	20	80	100	2
7	16CSE17	Seminar	-	3	-	100	-	100	1
		TOTAL	19	6	18	220	480	700	22

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2016-2017

M.Tech.- Structural Engineering

I I SEMESTER

Sl. No.	Subject Code	Title	Teaching Hours /Week		Examination				Credit
			Theory	Practical/ Field Work/ Assignment	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	16CSE21	Advanced Design of Steel Structures	4	-	3	20	80	100	4
2	16CSE22	Earthquake Resistance Structures	4	-	3	20	80	100	4
3	16CSE23	Finite Elements Method of Analysis	4	-	3	20	80	100	4
4	16CSE24	Design Concepts of Substructures	4	-	3	20	80	100	4
5	16CSE25X	Elective-II	3	-	3	20	80	100	3
6	16CSEL26	Structural Engineering Lab-2		3	3	20	80	100	2
7	16CSE27	Seminar	-	3	-	100	-	100	1
		TOTAL	19	6	18	220	480	700	22

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SCHEME OF TEACHING AND EXAMINATION 2016-2017

M.Tech.- Structural Engineering

III SEMESTER: Internship

Sl. No.	Subject Code	Title	Theory	Practical/Field Work/Assignment	Duration	I.A. Marks	Theory/Practical Marks	Total Marks	Credit
1	16CSE31	Seminar / Presentation on Internship (After 8 weeks from the date of commencement)	-	-	-	25	-	25	20
2	16CSE32	Report on Internship	-	-	-	25	-	25	
3	16CSE33	Evaluation and Viva-Voce of Internship	-	-	-	-	50	50	
4	16CSE34	Project Phase -1	-	-	-	50	-	50	1
		TOTAL	**-**	**-**	**-**	**100**	**50**	**150**	**21**

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2016-2017

M.Tech.- Structural Engineering

IV SEMESTER

Sl. No.	Subject Code	Title	Theory	Practical/Field Work/Assignment	Duration	I.A. Marks	Theory/Practical Marks	Total Marks	Credit
1	16CSE41	Design of Concrete Bridges	4	-	3	20	80	100	4
2	16CSE42X	Elective-3	3	-	3	20	80	100	3
3	16CSE43	Project phase -2	-	-	-	50	-	50	3
4	16CSE44	Evaluation of Project and Viva-Voce	-	-	3	-	100+100	200	10
		TOTAL	**-**	**-**	**6**	**90**	**360**	**450**	**20**

2018-19

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination – 2018 - 19
M.Tech Name of the programme (CSE)
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

I SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Hours /Week Theory	Practical/ Field work/ Assignment	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	PCC	18CSE11	Computational Structural Mechanics	04	--	03	40	60	100	4
2	PCC	18CSE12	Advanced Design of RC Structures	04	--	03	40	60	100	4
3	PCC	18CSE13	Mechanics of Deformable Bodies	04	--	03	40	60	100	4
4	PCC	18CSE14	Structural Dynamics	04	--	03	40	60	100	4
5	PCC	18CSE15	Special Concrete	04	--	03	40	60	100	4
6	PCC	18CSEL16	Structural Engineering Lab-1	-	04	03	40	60	100	2
7	PCC	18RMI17	Research Methodology and IPR	02	--	03	40	60	100	2
			TOTAL	**22**	**04**	**21**	**280**	**420**	**700**	**24**

Note: PCC: Professional core, PEC: Professional Elective.

Internship: All the students have to undergo mandatory internship of 6 weeks during the vacation of I and II semesters and /or II and III semesters. A University examination shall be conducted during III semester and the prescribed credit shall be counted for the same 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 have to complete during the subsequent University examination after satisfying the internship requirements.

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M.Tech Name of the programme (CSE)
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

II SEMESTER

Sl. No	Course	Course Code	Course Title	Theory	Practical/ Field work/ Assignment	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	PCC	18CSE21	Advanced Design of Steel Structures	04	--	03	40	60	100	4
2	PCC	18CSE22	Finite Element Method of Analysis	04	--	03	40	60	100	4
3	PCC	18CSE23	Earthquake Resistance Structures	04	--	03	40	60	100	4
4	PEC	18CSE24X	Professional elective 1	04	--	03	40	60	100	4
5	PEC	18CSE25X	Professional elective 2	04	--	03	40	60	100	4
6	PCC	18CSEL26	Structural Engineering Lab-2	--	04	03	40	60	100	2
7	PCC	18CSE27	Technical Seminar	--	02	--	100	--	100	2
			TOTAL	20	06	18	340	360	700	24

Note: PCC: Professional core, PEC: Professional Elective.

Professional Elective 1		**Professional Elective 2**	
Course Code under 18CSE24X	**Course title**	**Course Code under 18CSE25X**	**Course title**
18CSE241	Advanced Design of Pre-stressed Concrete Structures	18CSE251	Advanced Structural Analysis
18CSE242	Stability of Structures	18CSE252	Design of High Rise Structures
18CSE243	Design of Precast & Composite Structures	18CSE253	Design of Industrial Structures

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M.Tech Name of the programme (CSE)
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

III SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Hours /Week Theory	Practical/ Field work/ Assignment	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	PCC	18CSE31	Design of Concrete Bridges	04	--	03	40	60	100	4
2	PEC	18CSE32X	Professional elective 3	04	--	03	40	60	100	4
3	PEC	18CSE33X	Professional elective 4	04	--	03	40	60	100	4
4	Project	18CSE34	Evaluation of Project phase -1	--	02	--	100	--	100	2
5	INT	18CSEI35	Internship	(Completed during the intervening vacation of I and II semesters and /or II and III semesters.)		03	40	60	100	6
			TOTAL	12	02	12	260	240	500	20

Note: PCC: Professional core, PEC: Professional Elective.

Professional elective 3		Professional elective 4	
Course Code under 18CSE32X	Course title	Course Code under 18CSE33X	Course title
18CSE321	Design Concepts of Substructures	18CSE331	Fracture Mechanics applied to concrete
18CSE322	Repair and Rehabilitation of Structures	18CSE332	Design of Masonry Structures
18CSE323	Theory of Plates and Shells	18CSE333	Design of Formwork
18CSE324	Optimization Techniques	18CSE334	Composite materials

Note:

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Scheme of Teaching and Examination – 2018 - 19
M.Tech Name of the programme (CSE)
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

IV SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Hours /Week Theory	Practical/ Field work/ Assignment	Duration in hours	CIE Marks	SEE Marks Viva voce	Total Marks	Credits
1	Project	18CSE41	Project work phase -2	--	04	03	40	60	100	20
			TOTAL	--	04	03	40	60	100	20

Note:
1. Project Phase-2:
CIE marks shall be awarded by a committee comprising of HoD as Chairman, Guide/co-guide, if any, and a Senior faculty of the department. The CIE marks awarded for project work phase -2, shall be based on the evaluation of Project Report subjected to plagiarism check, Project Presentation skill and Question and Answer session in the ratio 50:25:25.
SEE shall be at the end of IV semester. Project work evaluation and Viva-Voce examination (SEE), after satisfying the plagiarism check, shall be as per the University norms.

2019-20

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Scheme of Teaching and Examination – 2018 - 19
M.Tech Name of the programme (CSE)
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

I SEMESTER

Sl. No	Course	Course Code	Course Title	Theory	Practical/ Field work/ Assignment	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
				Teaching Hours /Week		Examination				
1	PCC	18CSE11	Computational Structural Mechanics	04	--	03	40	60	100	4
2	PCC	18CSE12	Advanced Design of RC Structures	04	--	03	40	60	100	4
3	PCC	18CSE13	Mechanics of Deformable Bodies	04	--	03	40	60	100	4
4	PCC	18CSE14	Structural Dynamics	04	--	03	40	60	100	4
5	PCC	18CSE15	Special Concrete	04	--	03	40	60	100	4
6	PCC	18CSEL16	Structural Engineering Lab-1	-	04	03	40	60	100	2
7	PCC	18RMI17	Research Methodology and IPR	02	--	03	40	60	100	2
			TOTAL	**22**	**04**	**21**	**280**	**420**	**700**	**24**

Note: PCC: Professional core, PEC: Professional Elective.

Internship: All the students have to undergo mandatory internship of 6 weeks during the vacation of I and II semesters and /or II and III semesters. A University examination shall be conducted during III semester and the prescribed credit shall be counted for the same 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 have to complete during the subsequent University examination after satisfying the internship requirements.

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M.Tech Name of the programme (CSE)
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

II SEMESTER

Sl. No	Course	Course Code	Course Title	Theory	Practical/ Field work/ Assignment	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	PCC	18CSE21	Advanced Design of Steel Structures	04	--	03	40	60	100	4
2	PCC	18CSE22	Finite Element Method of Analysis	04	--	03	40	60	100	4
3	PCC	18CSE23	Earthquake Resistance Structures	04	--	03	40	60	100	4
4	PEC	18CSE24X	Professional elective 1	04	--	03	40	60	100	4
5	PEC	18CSE25X	Professional elective 2	04	--	03	40	60	100	4
6	PCC	18CSEL26	Structural Engineering Lab-2	--	04	03	40	60	100	2
7	PCC	18CSE27	Technical Seminar	--	02	--	100	--	100	2
			TOTAL	20	06	18	340	360	700	24

Note: PCC: Professional core, PEC: Professional Elective.

Professional Elective 1		Professional Elective 2	
Course Code under 18CSE24X	**Course title**	**Course Code under 18CSE25X**	**Course title**
18CSE241	Advanced Design of Pre-stressed Concrete Structures	18CSE251	Advanced Structural Analysis
18CSE242	Stability of Structures	18CSE252	Design of High Rise Structures
18CSE243	Design of Precast & Composite Structures	18CSE253	Design of Industrial Structures

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M.Tech Name of the programme (CSE)
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III SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Hours /Week Theory	Teaching Hours /Week Practical/ Field work/ Assignment	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	PCC	18CSE31	Design of Concrete Bridges	04	--	03	40	60	100	4
2	PEC	18CSE32X	Professional elective 3	04	--	03	40	60	100	4
3	PEC	18CSE33X	Professional elective 4	04	--	03	40	60	100	4
4	Project	18CSE34	Evaluation of Project phase -1	--	02	--	100	--	100	2
5	INT	18CSEI35	Internship	(Completed during the intervening vacation of I and II semesters and /or II and III semesters.)		03	40	60	100	6
			TOTAL	12	02	12	260	240	500	20

Note: PCC: Professional core, PEC: Professional Elective.

Professional elective 3		Professional elective 4	
Course Code under 18CSE32X	Course title	Course Code under 18CSE33X	Course title
18CSE321	Design Concepts of Substructures	18CSE331	Fracture Mechanics applied to concrete
18CSE322	Repair and Rehabilitation of Structures	18CSE332	Design of Masonry Structures
18CSE323	Theory of Plates and Shells	18CSE333	Design of Formwork
18CSE324	Optimization Techniques	18CSE334	Composite materials

Note:

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination – 2018 - 19
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IV SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Hours /Week Theory	Teaching Hours /Week Practical/ Field work/ Assignment	Duration in hours	CIE Marks	SEE Marks Viva voce	Total Marks	Credits
1	Project	18CSE41	Project work phase -2	--	04	03	40	60	100	20
			TOTAL	--	04	03	40	60	100	20

Note:
1. Project Phase-2:
CIE marks shall be awarded by a committee comprising of HoD as Chairman, Guide/co-guide, if any, and a Senior faculty of the department. The CIE marks awarded for project work phase -2, shall be based on the evaluation of Project Report subjected to plagiarism check, Project Presentation skill and Question and Answer session in the ratio 50:25:25.
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2020-21

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Scheme of Teaching and Examination – 2018 - 19
M.Tech Name of the programme (CSE)
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

I SEMESTER

| Sl. No | Course | Course Code | Course Title | Teaching Hours /Week | | Examination | | | | |
				Theory	Practical/ Field work/ Assignment	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	PCC	18CSE11	Computational Structural Mechanics	04	--	03	40	60	100	4
2	PCC	18CSE12	Advanced Design of RC Structures	04	--	03	40	60	100	4
3	PCC	18CSE13	Mechanics of Deformable Bodies	04	--	03	40	60	100	4
4	PCC	18CSE14	Structural Dynamics	04	--	03	40	60	100	4
5	PCC	18CSE15	Special Concrete	04	--	03	40	60	100	4
6	PCC	18CSEL16	Structural Engineering Lab-1	-	04	03	40	60	100	2
7	PCC	18RMI17	Research Methodology and IPR	02	--	03	40	60	100	2
			TOTAL	22	04	21	280	420	700	24

Note: PCC: Professional core, PEC: Professional Elective.

Internship: All the students have to undergo mandatory internship of 6 weeks during the vacation of I and II semesters and /or II and III semesters. A University examination shall be conducted during III semester and the prescribed credit shall be counted for the same 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 have to complete during the subsequent University examination after satisfying the internship requirements.

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Scheme of Teaching and Examination – 2018 - 19
M.Tech Name of the programme (CSE)
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

II SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Hours /Week Theory	Teaching Hours /Week Practical/ Field work/ Assignment	Examination Duration in hours	Examination CIE Marks	Examination SEE Marks	Total Marks	Credits
1	PCC	18CSE21	Advanced Design of Steel Structures	04	--	03	40	60	100	4
2	PCC	18CSE22	Finite Element Method of Analysis	04	--	03	40	60	100	4
3	PCC	18CSE23	Earthquake Resistance Structures	04	--	03	40	60	100	4
4	PEC	18CSE24X	Professional elective 1	04	--	03	40	60	100	4
5	PEC	18CSE25X	Professional elective 2	04	--	03	40	60	100	4
6	PCC	18CSEL26	Structural Engineering Lab-2	--	04	03	40	60	100	2
7	PCC	18CSE27	Technical Seminar	--	02	--	100	--	100	2
			TOTAL	20	06	18	340	360	700	24

Note: PCC: Professional core, PEC: Professional Elective.

Professional Elective 1		Professional Elective 2	
Course Code under 18CSE24X	Course title	Course Code under 18CSE25X	Course title
18CSE241	Advanced Design of Pre-stressed Concrete Structures	18CSE251	Advanced Structural Analysis
18CSE242	Stability of Structures	18CSE252	Design of High Rise Structures
18CSE243	Design of Precast & Composite Structures	18CSE253	Design of Industrial Structures

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III SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Hours /Week Theory	Teaching Hours /Week Practical/ Field work/ Assignment	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	PCC	18CSE31	Design of Concrete Bridges	04	--	03	40	60	100	4
2	PEC	18CSE32X	Professional elective 3	04	--	03	40	60	100	4
3	PEC	18CSE33X	Professional elective 4	04	--	03	40	60	100	4
4	Project	18CSE34	Evaluation of Project phase -1	--	02	--	100	--	100	2
5	INT	18CSEI35	Internship	(Completed during the intervening vacation of I and II semesters and /or II and III semesters.)		03	40	60	100	6
		TOTAL		12	02	12	260	240	500	20

Note: PCC: Professional core, PEC: Professional Elective.

Professional elective 3		Professional elective 4	
Course Code under 18CSE32X	**Course title**	**Course Code under 18CSE33X**	**Course title**
18CSE321	Design Concepts of Substructures	18CSE331	Fracture Mechanics applied to concrete
18CSE322	Repair and Rehabilitation of Structures	18CSE332	Design of Masonry Structures
18CSE323	Theory of Plates and Shells	18CSE333	Design of Formwork
18CSE324	Optimization Techniques	18CSE334	Composite materials

Note:

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination – 2018 - 19
M.Tech Name of the programme (CSE)
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

IV SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Hours /Week Theory	Teaching Hours /Week Practical/ Field work/ Assignment	Duration in hours	CIE Marks	SEE Marks Viva voce	Total Marks	Credits
1	Project	18CSE41	Project work phase -2	--	04	03	40	60	100	20
			TOTAL	--	04	03	40	60	100	20

Note:
1. Project Phase-2:
CIE marks shall be awarded by a committee comprising of HoD as Chairman, Guide/co-guide, if any, and a Senior faculty of the department. The CIE marks awarded for project work phase -2, shall be based on the evaluation of Project Report subjected to plagiarism check, Project Presentation skill and Question and Answer session in the ratio 50:25:25.
SEE shall be at the end of IV semester. Project work evaluation and Viva-Voce examination (SEE), after satisfying the plagiarism check, shall be as per the University norms.

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MBA

2016 – 2017

SCHEME OF TEACHING AND EXAMINATION
MASTER OF BUSINESS ADMINISTRATION

I SEMESTER

Subject Code	Title of the Subject	Category	Teaching hours / week			Duration of Exam (Hours)	Marks for		Total Marks	Credits
			Lecture	Practical / Field Work / Assignment *	Total		IA	Exam		
16MBA11	Management & Organizational Behaviour	Core Course	3	2	5	3	20	80	100	4
16MBA12	Managerial Economics	Core Course	3	2	5	3	20	80	100	4
16MBA13	Accounting for Managers	Core Course	3	2	5	3	20	80	100	4
16MBA14	Quantitative Methods	Core Course	3	2	5	3	20	80	100	4
16MBA15	Marketing Management	Core Course	3	2	5	3	20	80	100	4
16MBA16	Managerial Communications	Core Course	3	2	5	3	20	80	100	4
	Total		18	12	30		120	480	600	24

* Practical /Field Work / Assignment is a part of contact hours for the faculty and must be considered in the workload.

II SEMESTER

Subject Code	Title of the Subject	Category	Teaching hours / week			Duration of Exam (Hours)	Marks for		Total Marks	Credits
			Lecture	Practical / Field Work / Assignment *	Total		IA	Exam		
16MBA21	Human Resource Management	Core Course	3	2	5	3	20	80	100	4
16MBA22	Financial Management	Core Course	3	2	5	3	20	80	100	4
16MBA23	Research Methods	Core Course	3	2	5	3	20	80	100	4
16MBA24	Business Law and Policy	Core Course	3	2	5	3	20	80	100	4
16MBA25	Strategic Management	Core Course	3	2	5	3	20	80	100	4
16MBA26	Entrepreneurship Development	Core Course	3	2	5	3	20	80	100	4
	Total		18	12	30		120	480	600	24

* Practical /Field Work / Assignment is a part of contact hours for the faculty and must be considered in the workload.

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III SEMESTER
(Core Specialisation)

| Subject Code | | | Category | Teaching hours / week | | | Duration of Exam (Hours) | Marks for | | Total Marks | Credits |
Marketing	Finance	Human Resource		Lecture	Practical / Field Work / Assignment **	Total		IA	Exam		
16MBAMM301	16MBAFM301	16MBAHR301	Foundation Course	3	2	5	3	20	80	100	3
16MBAMM302	16MBAFM302	16MBAHR302	Foundation Elective	3	2	5	3	20	80	100	3
16MBAMM303	16MBAFM303	16MBAHR303	Elective	3	2	5	3	20	80	100	3
16MBAMM304	16MBAFM304	16MBAHR304	Foundation Course	3	2	5	3	20	80	100	3
16MBAMM305	16MBAFM305	16MBAHR305	Foundation Elective	3	2	5	3	20	80	100	3
16MBAMM306	16MBAFM306	16MBAHR306	Elective	3	2	5	3	20	80	100	3
16MBAIN307			Internship *	0	8	8	-	50	50	100	4
			Industrial Visit	0	0	0	0	0	00	00	0
				18	12	30		120	480	700	22

* Internship will be carried out by students after second semester during vacation and the report submitted by the students will be assessed internally during the third semester.   Total number of teaching hours per week is excluding internship workload.

** Practical /Field Work / Assignment is a part of contact hours for the faculty and must be considered in the workload.
Industrial visit is a mandatory activity with zero credits

III SEMESTER
(Core Specialisation Subjects)

Marketing Specialisation		Finance Specialisation		Human Resource Specialisation	
Subject Code	Title of the Subject	Subject Code	Title of the Subject	Subject Code	Title of the Subject
16MBAMM301	Consumer Behavior	16MBAFM301	Principles & Practices of Banking	16MBAHR301	Industrial Relations & Legislations
16MBAMM302	Retail Management	16MBAFM302	Investment Banking & Financial Services	16MBAHR302	Recruitment & Selection
16MBAMM303	Services Marketing	16MBAFM303	Investment Management	16MBAHR303	Compensation & Benefits
16MBAMM304	Marketing Research	16MBAFM304	Advanced Financial Management	16MBAHR304	Learning & Development
16MBAMM305	Business Marketing	16MBAFM305	Cost Management	16MBAHR305	Knowledge Management
16MBAMM306	Supply Chain Management	16MBAFM306	Strategic Credit Management	16MBAHR306	Conflict & Negotiation Management

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IV SEMESTER
(Core Specialisation)

Subject Code			Category	Teaching hours / week			Duration of Exam (Hours)	Marks for		Total Marks	Credits
Marketing	Finance	Human Resource		Lecture	Practical / Field Work / Assignment **	Total		IA	Exam		
16MBAMM401	16MBAFM401	16MBAHR401	Foundation Course	3	2	5	3	20	80	100	3
16MBAMM402	16MBAFM402	16MBAHR402	Foundation Elective	3	2	5	3	20	80	100	3
16MBAMM403	16MBAFM403	16MBAHR403	Elective	3	2	5	3	20	80	100	3
16MBAMM404	16MBAFM404	16MBAHR404	Foundation Course	3	2	5	3	20	80	100	3
16MBAMM405	16MBAFM405	16MBAHR405	Foundation Elective	3	2	5	3	20	80	100	3
16MBAMM406	16MBAFM406	16MBAHR406	Elective	3	2	5	3	20	80	100	3
16MBAPR407			Project Work *	0	8	8	---	50	150	200	12
										800	30

* Project work will be carried out after third semester and shall be evaluated during fourth semester. The internal assessment will be made for 50 marks. In the examination, the total marks of 150 shall be allotted as follows: 50 marks each for report evaluation by internal and external examiners respectively and remaining 50 marks for the viva voce examination, jointly assessed by internal and external examiners.

** Practical /Field Work / Assignment is a part of contact hours for the faculty and must be considered in the workload.

IV SEMESTER
(Core Specialisation Subjects)

Marketing Specialisation		Financial Specialisation		Human Resource Specialisation	
Subject Code	Title of the Subject	Subject Code	Title of the Subject	Subject Code	Title of the Subject
16MBAMM401	Sales Management	16MBAFM401	Mergers, Acquisitions & Corporate Restructuring	16MBAHR401	Public relations
16MBAMM402	Integrated Marketing Communication	16MBAFM402	Risk Management and Insurance	16MBAHR402	Workplace Ethics & Value Systems
16MBAMM403	E-Marketing	16MBAFM403	Tax Management	16MBAHR403	International Human Resource Management
16MBAMM404	Strategic Brand Management	16MBAFM404	International Financial Management	16MBAHR404	Organisation Change and Development
16MBAMM405	Rural Marketing	16MBAFM405	Financial Derivatives	16MBAHR405	Strategic Talent Management
16MBAMM406	International Marketing Management	16MBAFM406	Corporate Valuation	16MBAHR406	Personal Growth & Interpersonal Effectiveness

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2017 -2018

SCHEME OF TEACHING AND EXAMINATION
MASTER OF BUSINESS ADMINISTRATION

I SEMESTER

Subject Code	Title of the Subject	Category	Teaching hours / week			Duration of Exam (Hours)	Marks for		Total Marks	Credits
			Lecture	Practical / Field Work / Assignment *	Total		IA	Exam		
16MBA11	Management & Organizational Behaviour	Core Course	3	2	5	3	20	80	100	4
16MBA12	Managerial Economics	Core Course	3	2	5	3	20	80	100	4
16MBA13	Accounting for Managers	Core Course	3	2	5	3	20	80	100	4
16MBA14	Quantitative Methods	Core Course	3	2	5	3	20	80	100	4
16MBA15	Marketing Management	Core Course	3	2	5	3	20	80	100	4
16MBA16	Managerial Communications	Core Course	3	2	5	3	20	80	100	4
	Total		18	12	30		120	480	600	24

* Practical /Field Work / Assignment is a part of contact hours for the faculty and must be considered in the workload.

II SEMESTER

Subject Code	Title of the Subject	Category	Teaching hours / week			Duration of Exam (Hours)	Marks for		Total Marks	Credits
			Lecture	Practical / Field Work / Assignment *	Total		IA	Exam		
16MBA21	Human Resource Management	Core Course	3	2	5	3	20	80	100	4
16MBA22	Financial Management	Core Course	3	2	5	3	20	80	100	4
16MBA23	Research Methods	Core Course	3	2	5	3	20	80	100	4
16MBA24	Business Law and Policy	Core Course	3	2	5	3	20	80	100	4
16MBA25	Strategic Management	Core Course	3	2	5	3	20	80	100	4
16MBA26	Entrepreneurship Development	Core Course	3	2	5	3	20	80	100	4
	Total		18	12	30		120	480	600	24

* Practical /Field Work / Assignment is a part of contact hours for the faculty and must be considered in the workload.

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III SEMESTER
(Core Specialisation)

| Subject Code | | | Category | Teaching hours / week | | | Duration of Exam (Hours) | Marks for | | Total Marks | Credits |
Marketing	Finance	Human Resource		Lecture	Practical / Field Work / Assignment **	Total		IA	Exam		
16MBAMM301	16MBAFM301	16MBAHR301	Foundation Course	3	2	5	3	20	80	100	3
16MBAMM302	16MBAFM302	16MBAHR302	Foundation Elective	3	2	5	3	20	80	100	3
16MBAMM303	16MBAFM303	16MBAHR303	Elective	3	2	5	3	20	80	100	3
16MBAMM304	16MBAFM304	16MBAHR304	Foundation Course	3	2	5	3	20	80	100	3
16MBAMM305	16MBAFM305	16MBAHR305	Foundation Elective	3	2	5	3	20	80	100	3
16MBAMM306	16MBAFM306	16MBAHR306	Elective	3	2	5	3	20	80	100	3
16MBAIN307			Internship *	0	8	8	-	50	50	100	4
			Industrial Visit	0	0	0	0	0	00	00	0
				18	12	30		120	480	700	22

* Internship will be carried out by students after second semester during vacation and the report submitted by the students will be assessed internally during the third semester.   Total number of teaching hours per week is excluding internship workload.

** Practical /Field Work / Assignment is a part of contact hours for the faculty and must be considered in the workload.
Industrial visit is a mandatory activity with zero credits

III SEMESTER
(Core Specialisation Subjects)

| Marketing Specialisation | | Finance Specialisation | | Human Resource Specialisation | |
Subject Code	Title of the Subject	Subject Code	Title of the Subject	Subject Code	Title of the Subject
16MBAMM301	Consumer Behavior	16MBAFM301	Principles & Practices of Banking	16MBAHR301	Industrial Relations & Legislations
16MBAMM302	Retail Management	16MBAFM302	Investment Banking & Financial Services	16MBAHR302	Recruitment & Selection
16MBAMM303	Services Marketing	16MBAFM303	Investment Management	16MBAHR303	Compensation & Benefits
16MBAMM304	Marketing Research	16MBAFM304	Advanced Financial Management	16MBAHR304	Learning & Development
16MBAMM305	Business Marketing	16MBAFM305	Cost Management	16MBAHR305	Knowledge Management
16MBAMM306	Supply Chain Management	16MBAFM306	Strategic Credit Management	16MBAHR306	Conflict & Negotiation Management

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IV SEMESTER
(Core Specialisation)

| Subject Code | | | Category | Teaching hours / week | | | Duration of Exam (Hours) | Marks for | | Total Marks | Credits |
Marketing	Finance	Human Resource		Lecture	Practical / Field Work / Assignment **	Total		IA	Exam		
16MBAMM401	16MBAFM401	16MBAHR401	Foundation Course	3	2	5	3	20	80	100	3
16MBAMM402	16MBAFM402	16MBAHR402	Foundation Elective	3	2	5	3	20	80	100	3
16MBAMM403	16MBAFM403	16MBAHR403	Elective	3	2	5	3	20	80	100	3
16MBAMM404	16MBAFM404	16MBAHR404	Foundation Course	3	2	5	3	20	80	100	3
16MBAMM405	16MBAFM405	16MBAHR405	Foundation Elective	3	2	5	3	20	80	100	3
16MBAMM406	16MBAFM406	16MBAHR406	Elective	3	2	5	3	20	80	100	3
16MBAPR407			Project Work *	0	8	8	---	50	150	200	12
										800	30

* Project work will be carried out after third semester and shall be evaluated during fourth semester. The internal assessment will be made for 50 marks. In the examination, the total marks of 150 shall be allotted as follows: 50 marks each for report evaluation by internal and external examiners respectively and remaining 50 marks for the viva voce examination, jointly assessed by internal and external examiners.

** Practical /Field Work / Assignment is a part of contact hours for the faculty and must be considered in the workload.

IV SEMESTER
(Core Specialisation Subjects)

| Marketing Specialisation | | Financial Specialisation | | Human Resource Specialisation | |
Subject Code	Title of the Subject	Subject Code	Title of the Subject	Subject Code	Title of the Subject
16MBAMM401	Sales Management	16MBAFM401	Mergers, Acquisitions & Corporate Restructuring	16MBAHR401	Public relations
16MBAMM402	Integrated Marketing Communication	16MBAFM402	Risk Management and Insurance	16MBAHR402	Workplace Ethics & Value Systems
16MBAMM403	E-Marketing	16MBAFM403	Tax Management	16MBAHR403	International Human Resource Management
16MBAMM404	Strategic Brand Management	16MBAFM404	International Financial Management	16MBAHR404	Organisation Change and Development
16MBAMM405	Rural Marketing	16MBAFM405	Financial Derivatives	16MBAHR405	Strategic Talent Management
16MBAMM406	International Marketing Management	16MBAFM406	Corporate Valuation	16MBAHR406	Personal Growth & Interpersonal Effectiveness

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2018 – 2019

I SEMESTER

Subject Code	Title of the Subject	Category	Teaching hours / week			Duration of Exam (Hours)	Marks for		Total Marks	Credits
			Lecture	Practical Component	Total Hours		CIE	SEE		
18MBA11	Management & Organizational Behavior	Core Course	4	-	4	3	40	60	100	4
18MBA12	Managerial Economics	Core Course	4	-	4	3	40	60	100	4
18MBA13	Accounting for Managers	Core Course	4	-	4	3	40	60	100	4
18MBA14	Business Statistics & Analytics	Core Course	4	-	4	3	40	60	100	4
18MBA15	Marketing Management	Core Course	4	-	4	3	40	60	100	4
18MBA16	Managerial Communications	Core Course	4	-	4	3	40	60	100	4
	Total		**24**	**-**	**24**	**-**	**240**	**360**	**600**	**24**

Note:
1. Each course content has indicative case studies which can be dealt in the class by the course instructor. In addition to this the course instructor may use an extra case from Harvard/Case Centre. The student cannot assume the same cases will be part of the question paper.
2. One Industrial Visit per Semester is Mandatory. The Department shall insist on report submission by each student and shall maintain this as a documentary proof. The format of the report shall be prescribed by the department.
3. Course instructors are free to set the Course outcome and map with the Programme Outcome, subsequently attainment level may be calculated.

SCHEME OF TEACHING AND EXAMINATION
MASTER OF BUSINESS ADMINISTRATION

II SEMESTER

Subject Code	Title of the Subject	Category	Teaching hours / week			Duration of Exam Hours	Marks for		Total Marks	Credits
			Lecture	Practical Component	Total		CIE	SEE		
18MBA21	Human Resource Management	Core Course	4	-	4	3	40	60	100	4
18MBA22	Financial Management	Core Course	4	-	4	3	40	60	100	4
18MBA23	Research Methodology	Core Course	4	-	4	3	40	60	100	4
18MBA24	Legal and Business Environment	Core Course	4	-	4	3	40	60	100	4
18MBA25	Strategic Management	Core Course	4	-	4	3	40	60	100	4
18MBA26	Entrepreneurship Development	Core Course	4	-	4	3	40	60	100	4
	Total		**24**	**-**	**24**	**-**	**240**	**360**	**600**	**24**

Note:
1. Each course content has indicative case studies which can be dealt in the class by the course instructor. In addition to this the course instructor may use an extra case from Harvard/Case Centre. The student cannot assume the same cases will be part of the question paper.
2. One Industrial Visit per Semester is Mandatory. The Department shall insist on report submission by each student and shall maintain this as a documentary proof. The format of the report shall be prescribed by the department.
3. Course instructors are free to set the Course outcome and map with the Programme Outcome, subsequently attainment level may be calculated.

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III SEMESTER

Subject Code			Category	Teaching hours / week			Duration of Exam Hours	Marks for		Total Marks	Credits
Marketing	Finance	Human Resource		Lecture	Practical Component	Total		CIE	SEE		
18MBAMM301	18MBAFM301	18MBAHR301	Elective Course	3	2	5	3	40	60	100	4
18MBAMM302	18MBAFM302	18MBAHR302	Elective Course	3	2	5	3	40	60	100	4
18MBAMM303	18MBAFM303	18MBAHR303	Elective Course	3	2	5	3	40	60	100	4
18MBAMM304	18MBAFM304	18MBAHR304	Elective Course	3	2	5	3	40	60	100	4
18MBAMM305	18MBAFM305	18MBAHR305	Elective Course	3	2	5	3	40	60	100	4
18MBAMM306	18MBAFM306	18MBAHR306	Elective Course	3	2	5	3	40	60	100	4
18MBAOS307			Organization Study	0	8	8	---	50	50	100	4
			Industrial Visit	-	-	-	-	-	-	-	-
				18	20	38	-	290	410	700	28

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attainment level may be calculated.

III SEMESTER

(Core Specialization Subjects)

Marketing Specialization		Finance Specialization		Human Resource Specialization	
Subject Code	Title of the Subject	Subject Code	Title of the Subject	Subject Code	Title of the Subject
18MBAMM301	Consumer Behavior	18MBAFM301	Banking and Financial Services	18MBAHR301	Recruitment & Selection
18MBAMM302	Retail Management	18MBAFM302	Investment Management	18MBAHR302	HR Analytics
18MBAMM303	Services Marketing	18MBAFM303	Direct Taxation	18MBAHR303	Compensation & Reward System
18MBAMM304	Marketing Research & Analytics	18MBAFM304	Advanced Financial Management	18MBAHR304	Learning & Development
18MBAMM305	Business Marketing	18MBAFM305	Cost Management	18MBAHR305	Industrial Relations & Legislations
18MBAMM306	Supply Chain Management	18MBAFM306	Project Appraisal Planning & Control	18MBAHR306	Conflict & Negotiation Management

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IV SEMESTER
(Core Specialisation)

Subject Code			Category	Teaching hours / week			Duration of Exam Hours	Marks for		Total Marks	Credits
Marketing	Finance	Human Resource		Lecture	Practical Component	Total		CIE	SEE		
18MBAMM401	18MBAFM401	18MBAHR401	Elective Course	3	-	3	3	40	60	100	3
18MBAMM402	18MBAFM402	18MBAHR402	Elective Course	3	-	3	3	40	60	100	3
18MBAMM403	18MBAFM403	18MBAHR403	Elective Course	3	-	3	3	40	60	100	3
18MBAMM404	18MBAFM404	18MBAHR404	Elective Course	3	-	3	3	40	60	100	3
18MBAMM405	18MBAFM405	18MBAHR405	Elective Course	3	-	3	3	40	60	100	3
18MBAMM406	18MBAFM406	18MBAHR406	Elective Course	3	-	3	3	40	60	100	3
18MBAPR407			Project Work *	-	-	12	-	50	150	200	6
			Industrial Visit	-	-	-	-	-	-	-	-
				18	0	30	-	290	510	800	24

Note: Course instructors are free to set the Course outcome and map with the Programme Outcome, subsequently attainment level may be calculated.

Project work(Six Weeks) will be carried out after third semester and shall be evaluated during fourth semester.

IV SEMESTER
(Core Specialization Subjects)

Marketing Specialization		Financial Specialization		Human Resource Specialization	
Subject Code	Title of the Subject	Subject Code	Title of the Subject	Subject Code	Title of the Subject
18MBAMM401	Sales Management	18MBAFM401	Mergers, Acquisitions & Corporate Restructuring	18MBAHR401	Public Relations
18MBAMM402	Integrated Marketing Communication	18MBAFM402	Risk Management and Insurance	18MBAHR402	Organizational Leadership
18MBAMM403	Digital and Social Media Marketing	18MBAFM403	Indirect Taxation	18MBAHR403	International Human Resource Management
18MBAMM404	Strategic Brand Management	18MBAFM404	International Financial Management	18MBAHR404	Organization Change and Development
18MBAMM405	Rural Marketing	18MBAFM405	Financial Derivatives	18MBAHR405	Strategic Talent Management
18MBAMM406	International Marketing Management	18MBAFM406	Corporate Valuation	18MBAHR406	Personal Growth & Interpersonal Effectiveness

IV SEMESTER

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I SEMESTER

Subject Code	Title of the Subject	Category	Teaching hours / week			Duration of Exam (Hours)	Marks for		Total Marks	Credits
			Lecture	Practical Component	Total Hours		CIE	SEE		
18MBA11	Management & Organizational Behavior	Core Course	4	-	4	3	40	60	100	4
18MBA12	Managerial Economics	Core Course	4	-	4	3	40	60	100	4
18MBA13	Accounting for Managers	Core Course	4	-	4	3	40	60	100	4
18MBA14	Business Statistics & Analytics	Core Course	4	-	4	3	40	60	100	4
18MBA15	Marketing Management	Core Course	4	-	4	3	40	60	100	4
18MBA16	Managerial Communications	Core Course	4	-	4	3	40	60	100	4
	Total		**24**	-	**24**	-	**240**	**360**	**600**	**24**

Note:
1. Each course content has indicative case studies which can be dealt in the class by the course instructor. In addition to this the course instructor may use an extra case from Harvard/Case Centre. The student cannot assume the same cases will be part of the question paper.
2. One Industrial Visit per Semester is Mandatory. The Department shall insist on report submission by each student and shall maintain this as a documentary proof. The format of the report shall be prescribed by the department.
3. Course instructors are free to set the Course outcome and map with the Programme Outcome, subsequently attainment level may be calculated.

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SCHEME OF TEACHING AND EXAMINATION
MASTER OF BUSINESS ADMINISTRATION

II SEMESTER

Subject Code	Title of the Subject	Category	Teaching hours / week			Duration of Exam Hours	Marks for		Total Marks	Credits
			Lecture	Practical Component	Total		CIE	SEE		
18MBA21	Human Resource Management	Core Course	4	-	4	3	40	60	100	4
18MBA22	Financial Management	Core Course	4	-	4	3	40	60	100	4
18MBA23	Research Methodology	Core Course	4	-	4	3	40	60	100	4
18MBA24	Legal and Business Environment	Core Course	4	-	4	3	40	60	100	4
18MBA25	Strategic Management	Core Course	4	-	4	3	40	60	100	4
18MBA26	Entrepreneurship Development	Core Course	4	-	4	3	40	60	100	4
	Total		24	-	24	-	240	360	600	24

Note:
1. Each course content has indicative case studies which can be dealt in the class by the course instructor. In addition to this the course instructor may use an extra case from Harvard/Case Centre. The student cannot assume the same cases will be part of the question paper.
2. One Industrial Visit per Semester is Mandatory. The Department shall insist on report submission by each student and shall maintain this as a documentary proof. The format of the report shall be prescribed by the department.
3. Course instructors are free to set the Course outcome and map with the Programme Outcome, subsequently attainment level may be calculated.

III SEMESTER

Subject Code			Category	Teaching hours / week			Duration of Exam Hours	Marks for		Total Marks	Credits
Marketing	Finance	Human Resource		Lecture	Practical Component	Total		CIE	SEE		
18MBAMM301	18MBAFM301	18MBAHR301	Elective Course	3	2	5	3	40	60	100	4
18MBAMM302	18MBAFM302	18MBAHR302	Elective Course	3	2	5	3	40	60	100	4
18MBAMM303	18MBAFM303	18MBAHR303	Elective Course	3	2	5	3	40	60	100	4
18MBAMM304	18MBAFM304	18MBAHR304	Elective Course	3	2	5	3	40	60	100	4
18MBAMM305	18MBAFM305	18MBAHR305	Elective Course	3	2	5	3	40	60	100	4
18MBAMM306	18MBAFM306	18MBAHR306	Elective Course	3	2	5	3	40	60	100	4
18MBAOS307			Organization Study	0	8	8	---	50	50	100	4
			Industrial Visit	-	-	-	-	-	-	-	-
				18	20	38	-	290	410	700	28

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attainment level may be calculated.

III SEMESTER

(Core Specialization Subjects)

Marketing Specialization		Finance Specialization		Human Resource Specialization	
Subject Code	**Title of the Subject**	**Subject Code**	**Title of the Subject**	**Subject Code**	**Title of the Subject**
18MBAMM301	Consumer Behavior	18MBAFM301	Banking and Financial Services	18MBAHR301	Recruitment & Selection
18MBAMM302	Retail Management	18MBAFM302	Investment Management	18MBAHR302	HR Analytics
18MBAMM303	Services Marketing	18MBAFM303	Direct Taxation	18MBAHR303	Compensation & Reward System
18MBAMM304	Marketing Research & Analytics	18MBAFM304	Advanced Financial Management	18MBAHR304	Learning & Development
18MBAMM305	Business Marketing	18MBAFM305	Cost Management	18MBAHR305	Industrial Relations & Legislations
18MBAMM306	Supply Chain Management	18MBAFM306	Project Appraisal Planning & Control	18MBAHR306	Conflict & Negotiation Management

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IV SEMESTER
(Core Specialisation)

Subject Code			Category	Teaching hours / week			Duration of Exam Hours	Marks for		Total Marks	Credits
Marketing	Finance	Human Resource		Lecture	Practical Component	Total		CIE	SEE		
18MBAMM401	18MBAFM401	18MBAHR401	Elective Course	3	-	3	3	40	60	100	3
18MBAMM402	18MBAFM402	18MBAHR402	Elective Course	3	-	3	3	40	60	100	3
18MBAMM403	18MBAFM403	18MBAHR403	Elective Course	3	-	3	3	40	60	100	3
18MBAMM404	18MBAFM404	18MBAHR404	Elective Course	3	-	3	3	40	60	100	3
18MBAMM405	18MBAFM405	18MBAHR405	Elective Course	3	-	3	3	40	60	100	3
18MBAMM406	18MBAFM406	18MBAHR406	Elective Course	3	-	3	3	40	60	100	3
18MBAPR407			Project Work *	-	-	12	-	50	150	200	6
			Industrial Visit	-	-	-	-	-	-	-	-
				18	0	30	-	290	510	800	24

Note: Course instructors are free to set the Course outcome and map with the Programme Outcome, subsequently attainment level may be calculated.

Project work(Six Weeks) will be carried out after third semester and shall be evaluated during fourth semester.

IV SEMESTER
(Core Specialization Subjects)

Marketing Specialization		Financial Specialization		Human Resource Specialization	
Subject Code	Title of the Subject	Subject Code	Title of the Subject	Subject Code	Title of the Subject
18MBAMM401	Sales Management	18MBAFM401	Mergers, Acquisitions & Corporate Restructuring	18MBAHR401	Public Relations
18MBAMM402	Integrated Marketing Communication	18MBAFM402	Risk Management and Insurance	18MBAHR402	Organizational Leadership
18MBAMM403	Digital and Social Media Marketing	18MBAFM403	Indirect Taxation	18MBAHR403	International Human Resource Management
18MBAMM404	Strategic Brand Management	18MBAFM404	International Financial Management	18MBAHR404	Organization Change and Development
18MBAMM405	Rural Marketing	18MBAFM405	Financial Derivatives	18MBAHR405	Strategic Talent Management
18MBAMM406	International Marketing Management	18MBAFM406	Corporate Valuation	18MBAHR406	Personal Growth & Interpersonal Effectiveness

IV SEMESTER

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2020 – 2021

SCHEME OF TEACHING AND EXAMINATION

				Teaching Hours /Week		**Examination**				
VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI										
Scheme of Teaching and Examinations – 2020 - 21										
MASTER OF BUSINESS ADMINISTRATION										
Choice Based Credit System (CBCS) and Outcome Based Education(OBE)										
I SEMESTER										
Sl. No	Course	Course Code	Course Title	Theory	Practical component	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	PCC	20MBA11	Management & Organizational Behavior	03	02	03	40	60	100	4
2	PCC	20MBA12	Managerial Economics	03	02	03	40	60	100	4
3	PCC	20MBA13	Accounting for Managers	03	02	03	40	60	100	4
4	PCC	20MBA14	Business Statistics	03	02	03	40	60	100	4
5	PCC	20MBA15	Marketing Management	03	02	03	40	60	100	4
6	PCC	20MBA16	Managerial Communication	03	02	03	40	60	100	4
			TOTAL	18	12	18	240	360	600	24

Note:

PCC: Professional Core Course

Practical /Field Work / Assignment are part of contact hours for the faculty and must be considered in the workload.

Four credit courses are designed for 50 hours Teaching – Learning process.

Note:
1. Each course has a theory component of 3hrs (3credits) and a practical component of 2hrs (1credit). The time-table allotment for each course should be 5hrs (3+2). For the practical component it is mandatory to maintain a record.
2. 20% of marks should be allocated for application oriented questions in the **Semester End Examination (SEE)** question paper based on practical component.
3. Each course content has indicative case studies which can be dealt in the class by the course instructor. In addition to this the course instructor may use an extra case from Harvard/Case Centre. The student cannot assume the same cases will be part of the SEE question paper.
4. One industrial visit per semester is mandatory. The department shall insist on report submission by each student and shall maintain this as a documentary proof. The format of the report shall be prescribed by the department.
5. Students and course instructor/s to involve either individually or in groups to interact together to enhance the learning and application skills.
6. **Practical component:**
   Students should interact with industry (small, medium and large) to understand their problems or foresee what can be undertaken for study in the form of research/ testing / projects and for creative and innovative methods for guidance and to solve the identified problem.
7. **The students shall**
   (a) Gain confidence in modeling of management systems.

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examinations – 2020 - 21
MASTER OF BUSINESS ADMINISTRATION
Choice Based Credit System (CBCS) and Outcome Based Education(OBE)
II SEMESTER

| Sl. No | Course | Course Code | Course Title | Teaching Hours /Week | | Examination | | | | Credits |
				Theory	Practical Component	Duration in hours	CIE Marks	SEE Marks	Total Marks	
1	PCC	20MBA21	Human Resource Management	03	02	03	40	60	100	4
2	PCC	20MBA22	Financial Management	03	02	03	40	60	100	4
3	PCC	20MBA23	Research Methodology	03	02	03	40	60	100	4
4	PCC	20MBA24	Operations Research	03	02	03	40	60	100	4
5	PCC	20MBA25	Strategic Management	03	02	03	40	60	100	4
6	PCC	20MBA26	Entrepreneurship & Legal Aspects	03	02	03	40	60	100	4
			TOTAL	18	12	18	240	360	600	24

Note:
PCC: Professional Core Course
Practical /Field Work / Assignment are part of contact hours for the faculty and must be considered in the workload.
Four credit courses are designed for 50 hours Teaching – Learning process.

Note:
1. Each course has a theory component of 3hrs (3credits) and a practical component of 2hrs (1credit). The time-table allotment for each course should be 5hrs (3+2). For the practical component it is mandatory to maintain a practical record.
2. 20% of marks should be allocated for application oriented questions in the SEE Question Paper, based on practical component.
3. Each course content has indicative case studies which can be dealt in the class by the course instructor. In addition to this the course instructor may use an extra case from Harvard/Case Centre. The student cannot assume the same cases will be part of the question paper.
4. One industrial visit per semester is mandatory. The department shall insist on report submission by each student and shall maintain this as a documentary proof. The format of the report shall be prescribed by the department.
5. Internship (four weeks) to be carried out by students after second semester during vacation and the report submitted by the students be assessed internally during the third semester.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examinations – 2020 - 21
MASTER OF BUSINESS ADMINISTRATION
Choice Based Credit System (CBCS) and Outcome Based Education(OBE)
III SEMESTER(Core Courses and Specialisation Courses)

| Sl. No | Course | Course Code | | | Teaching Hours /Week | | Examination | | | | Credits |
		Marketing	Finance	Human Resource	Theory	Practical Component	Duration in hours	CIE Marks	SEE Marks	Total Marks	
1	PCC	20MBA301*	20MBA301*	20MBA301*	03	02	03	40	60	100	4
2	PCC	20MBA302*	20MBA302*	20MBA302*	03	02	03	40	60	100	4
3	PEC	20MBAMM303	20MBAFM303	20MBAHR303	03	02	03	40	60	100	4
4	PEC	20MBAMM304	20MBAFM304	20MBAHR304	03	02	03	40	60	100	4
5	PEC	20MBAMM305	20MBAFM305	20MBAHR305	03	02	03	40	60	100	4
6	PEC	20MBAMM306	20MBAFM306	20MBAHR306	03	02	03	40	60	100	4
7	PCC	20MBA IN 307	20MBA IN 307	20MBA IN 307	-	08	-	40	60	100	4
	TOTAL				18	20	18	280	420	700	28

Note:
PCC: Professional Core Course, PEC: Professional Elective Course.
Practical /Field Work / Assignment are part of contact hours for the faculty and must be considered in the workload.
Four credit courses are designed for 50 hours Teaching – Learning process.
* Interdisciplinary Core Courses may be taught by engineering faculty/subject expert.

Note:
1. Each course has a theory component of 3hrs (3credits) and a Practical component of 2hrs (1credit). The time-table allotment for each course should be 5hrs (3+2). For the practical component it is mandatory to maintain a practical record.
2. 20% of marks should be allocated for application oriented questions in the SEE Question Paper, based on practical component.
3. One industrial visit per Semester is mandatory. The Department shall insist on report submission by each student and shall maintain this as a documentary proof. The format of the report shall be prescribed by the department.
4. Each course content has indicative case studies which can be dealt in the class by the course instructor. In addition to this the course instructor may use an extra case from Harvard/Case Centre. The student cannot assume the same cases will be part of the question paper.
5. Project (six weeks) to be carried out by students after third semester and the report submitted by the students during the fourth semester.

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Scheme of Teaching and Examinations – 2020 - 21
MASTER OF BUSINESS ADMINISTRATION
Choice Based Credit System (CBCS) and Outcome Based Education(OBE)
III SEMESTER
Core Courses

Subject Code	Title of the Subject	Subject Code	Title of the Subject	Subject Code	Title of the Subject
20MBA301	Emerging Exponential Technologies	20MBA301	Emerging Exponential Technologies	20MBA301	Emerging Exponential Technologies
20MBA302	Technology & Operational Strategy	20MBA302	Technology & Operational Strategy	20MBA302	Technology & Operational Strategy

Specialisation Courses

Marketing Professional Elective Courses		Finance Professional Elective Courses		Human Professional Elective Courses	
Subject Code	Title of the Subject	Subject Code	Title of the Subject	Subject Code	Title of the Subject
20MBAMM303	Services Marketing	20MBAFM 303	Investment Management	20MBAHR303	Recruitment & Selection
20MBAMM304	Marketing Research & Analytics	20MBAFM304	Direct Taxation	20MBAHR304	Human Resource Analytics
20MBAMM305	Consumer Behaviour	20MBAFM305	Banking and Financial Services	20MBAHR305	Industrial Relations and Labour Laws
20MBAMM306	Retail Management	20MBAFM306	Advanced Financial Management	20MBAHR306	Compensation & Reward System
20MBAIN307	Internship	20MBAIN307	Internship	20MBAIN307	Internship

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examinations – 2020 - 21
MASTER OF BUSINESS ADMINISTRATION
Choice Based Credit System (CBCS) and Outcome Based Education(OBE)

IV SEMESTER (Specialisation Courses)

Sl. No	Course	Specialisation Courses			Teaching Hours /Week		Examination				Credits
		Marketing	Finance	Human Resource	Theory	Practical Component	Duration in hours	CIE Marks	SEE Marks	Total Marks	
1	PEC	20MBAMM401	20MBAFM401	20MBAHR401	03	-	03	40	60	100	3
2	PEC	20MBAMM402	20MBAFM402	20MBAHR402	03	-	03	40	60	100	3
3	PEC	20MBAMM403	20MBAFM403	20MBAHR403	03	-	03	40	60	100	3
4	PEC	20MBAMM404	20MBAFM404	20MBAHR404	03	-	03	40	60	100	3
5	PEC	20MBAMM405	20MBAFM405	20MBAHR405	03	-	03	40	60	100	3
6	PEC	20MBAMM406	20MBAFM406	20MBAHR406	03	-	03	40	60	100	3
7	PCC	20MBAPR407	20MBAPR407	20MBAPR407	-	12	-	40	60	100	6
	TOTAL				18	12	18	280	420	700	24

Note:

PEC: Professional Elective Course.

Practical /Field Work / Assignment are part of contact hours for the faculty and must be considered in the workload.
Three credit courses are designed for 40 hours Teaching – Learning process.

Note:

1. Each Course has a theory component of 3hrs (3credits). The Time-Table allotment for each course should be 3hrs.
2. 20% of marks should be allocated for application oriented questions in the SEE Question Paper, based on practical component.

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Scheme of Teaching and Examinations – 2020 – 21
MASTER OF BUSINESS ADMINISTRATION
Choice Based Credit System (CBCS) and Outcome Based Education(OBE)

IV SEMESTER (Specialisation Courses)

Marketing Specialization		Financial Specialization		Human Resource Specialization	
Subject Code	Title of the Subject	Subject Code	Title of the Subject	Subject Code	Title of the Subject
20MBAMM401	B2B Marketing Management	20MBAFM401	Risk Management and Insurance	20MBAHR401	Organizational Leadership
20MBAMM402	Logistics and Supply Chain Management	20MBAFM402	Financial Derivatives	20MBAHR402	Personal Growth & Interpersonal Effectiveness
20MBAMM403	Digital Marketing Management	20MBAFM403	Indirect Taxation	20MBAHR403	International Human Resource Management
20MBAMM404	Strategic Brand Management	20MBAFM404	Mergers, Acquisitions & Corporate Restructuring	20MBAHR404	Organization Change and Development
20MBAMM405	Agri Business Marketing	20MBAFM405	Corporate Valuation	20MBAHR405	Human Recourse Audit
20MBAMM406	International Marketing Management	20MBAFM406	International Financial Management	20MBAHR406	Management Consulting for Business Excellence
20MBAPR407	Project Report	20MBAPR407	Project Report	20MBAPR407	Project Report

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MCA

I SEMESTER

S. No.	Subject Code	Title	Teaching Hrs / Week Theory	Practical	Duration	IA	Exam	Total
1	13MCA11	Problem Solving using C	04	-	03	50	100	150
2	13MCA12	Discrete Mathematics Structure	04	-	03	50	100	150
3	13MCA13	Fundamentals of Computer Organization	04	-	03	50	100	150
4	13MCA14	Introduction to Unix	04	-	03	50	100	150
5	13MCA15	Introduction to Web Technologies	04		03	50	100	150
6	13MCA16	C Programming Laboratory	-	03	03	50	50	100
7	13MCA17	Unix Programming Laboratory	-	03	03	50	50	100
8	13MCA18	Web Programming Laboratory	-	03	03	50	50	100
		Total	**20**	**09**		**400**	**650**	**1050**

II SEMESTER

S. No.	Subject Code	Title	Teaching Hrs / Theory	Practical	Duration	IA	Exam	Total
1	13MCA21	Data Structures Using C	04	-	03	50	100	150
2	13MCA22	Object Oriented Programming using C++	04	-	03	50	100	150
3	13MCA23	Operating Systems	04	-	03	50	100	150
4	13MCA24	System Programming	04	-	03	50	100	150
5	13MCA25	Database Management Systems	04	-	03	50	100	150
6	13MCA26	Data Structures Using C Lab	-	03	03	50	50	100
7	13MCA27	Database Laboratory	-	03	03	50	50	100
8	13MCA28	OOP Using C++ Laboratory	-	03	03	50	50	100
		Total	**20**	**09**		**400**	**650**	**1050**

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III SEMESTER

S. No.	Subject Code	Title	Teaching Hrs / Theory	Teaching Hrs / Practical	Examination Duration	Mar IA	Mar Exam	Mar Total
1	13MCA31	Computer Networks	04	-	03	50	100	150
2	13MCA32	Programming using Java	04	-	03	50	100	150
3	13MCA33	Software Engineering	04	-	03	50	100	150
4	13MCA34	Computer Graphics	04	-	03	50	100	150
5	13MCA35	Elective-I	04	-	03	50	100	150
6	13MCA36	Java Programming Lab	-	03	03	50	50	100
7	13MCA37	Computer Graphics Lab	-	03	03	50	50	100
8	13MCA38	Computer Networks Lab	-	03	03	50	50	100
	TOTAL		20	09		40	650	1050

Elective-1	
13MCA351	UNIX system Programming
13MCA352	Advanced Topics in DBMS
13MCA353	Basics of MIS & E-Commerce
13MCA354	Operations Research
13MCA355	Principles of User Interface Design
13MCA356	Probability Statistics & Numerical Methods

IV SEMESTER

S. No.	Subject Code	Title	Teaching Hrs / Theory	Teaching Hrs / Practical	Examination Duration	Mar IA	Mar Exam	Mar Total
1	13MCA41	Analysis & Design of	04	-	03	50	100	150
2	13MCA42	Advanced Java Programming	04	-	03	50	100	150
3	13MCA43	Advanced Web Programming	04	-	03	50	100	150
4	13MCA44	Elective-2	04	-	03	50	100	150
5	13MCA45	Elective-3	04	-	03	50	100	150
6	13MCA46	Algorithms Lab	-	03	03	50	50	100
7	13MCA47	Advanced Java Lab	-	03	03	50	50	100
8	13MCA48	Mini Project-I	-	03	03	50	50	100
	TOTAL		20	09		400	650	1050

Elective-2		Elective 3	
13MCA441	Advanced Computer Networks	13MCA451	Cryptography & Network Security
13MCA442	Data Warehousing & Data Mining	13MCA452	Network Management
13MCA443	Mobile Computing and Wireless Communications	13MCA453	NOSQL
13MCA444	Software Testing and Practices	13MCA454	Software Architectures
13MCA445	Theory of Computation (FAFL)	13MCA455	Enterprise Resource Planning (ERP)
13MCA446	Digital Image Processing	13MCA456	Mobile Applications

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V SEMESTER

S. No.	Subject Code	Title	Teaching Hrs / Theory	Practical	Duration	IA	Exam	Total
1	13MCA51	Object-Oriented Modeling and Design Patterns	04	-	03	50	100	150
2	13MCA52	System Simulation and Modeling	04	-	03	50	100	150
	13MCA53	Programming using C#.& .NET	04	-	03	50	100	150
4	13MCA54	Elective-4	04	-	03	50	100	150
5	13MCA55	Elective-5	04	-	03	50	100	150
6	13MCA56	Software Design Laboratory	-	03	03	50	50	100
7	13MCA57	.Net Laboratory	-	03	03	50	50	100
8	13MCA58	Mini Project -II	-	03	03	50	50	100
		Tota	**20**	**09**		**400**	**650**	**1050**

	Elective-4		Elective-5
13MCA541	Mobile and Adhoc Sensor Networks	13MCA551	Cloud Computing
13MCA542	Parallel Computing	13MCA552	Web2.0 and Rich Internet Applications
13MCA543	Multimedia systems	13MCA553	Information Retrieval & Search Engines
13MCA544	Pattern Recognition	13MCA554	Soft Computing
13MCA545	Services Oriented Architecture	13MCA555	Storage Area Network
13MCA546	Compiler Design	13MCA556	Software Project Management

VI SEMESTER

S. No.	Subject Code	Title	Theory	Practical	Duration	IA	Dissertation	Viva	Total
1	13MCA61	Project	-	03	03	50	125	75	250

2017-18

I SEMESTER

S. No.	Subject Code	Title	Theory	Practical	Duration	IA	Exam	Total
1	13MCA11	Problem Solving using C	04	-	03	50	100	150
2	13MCA12	Discrete Mathematics Structure	04	-	03	50	100	150
3	13MCA13	Fundamentals of Computer Organization	04	-	03	50	100	150
4	13MCA14	Introduction to Unix	04	-	03	50	100	150
5	13MCA15	Introduction to Web Technologies	04		03	50	100	150
6	13MCA16	C Programming Laboratory	-	03	03	50	50	100
7	13MCA17	Unix Programming Laboratory	-	03	03	50	50	100
8	13MCA18	Web Programming Laboratory	-	03	03	50	50	100
		Total	**20**	**09**		**400**	**650**	**1050**

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II SEMESTER

S. No.	Subject Code	Title	Teaching Hrs / Theory	Teaching Hrs / Practical	Duration	IA	Exam	Total
1	13MCA21	Data Structures Using C	04	-	03	50	100	150
2	13MCA22	Object Oriented Programming using C++	04	-	03	50	100	150
3	13MCA23	Operating Systems	04	-	03	50	100	150
4	13MCA24	System Programming	04	-	03	50	100	150
5	13MCA25	Database Management Systems	04	-	03	50	100	150
6	13MCA26	Data Structures Using C Lab	-	03	03	50	50	100
7	13MCA27	Database Laboratory	-	03	03	50	50	100
8	13MCA28	OOP Using C++ Laboratory	-	03	03	50	50	100
	Total		**20**	**09**		**400**	**650**	**1050**

III SEMESTER

S. No.	Subject Code	Title	Teaching Hrs / Theory	Teaching Hrs / Practical	Duration	IA	Exam	Total
1	13MCA31	Computer Networks	04	-	03	50	100	150
2	13MCA32	Programming using Java	04	-	03	50	100	150
3	13MCA33	Software Engineering	04	-	03	50	100	150
4	13MCA34	Computer Graphics	04	-	03	50	100	150
5	13MCA35	Elective-I	04	-	03	50	100	150
6	13MCA36	Java Programming Lab	-	03	03	50	50	100
7	13MCA37	Computer Graphics Lab	-	03	03	50	50	100
8	13MCA38	Computer Networks Lab	-	03	03	50	50	100
	TOTAL		**20**	**09**		**40**	**650**	**1050**

Elective-1	
13MCA351	UNIX system Programming
13MCA352	Advanced Topics in DBMS
13MCA353	Basics of MIS & E-Commerce
13MCA354	Operations Research
13MCA355	Principles of User Interface Design
13MCA356	Probability Statistics & Numerical Methods

IV SEMESTER

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S. No.	Subject Code	Title	Teaching Hrs /		Examinati			
			Theory	Practical	Duration	IA	Exam	Total
1	13MCA41	Analysis & Design of	04	-	03	50	100	150
2	13MCA42	Advanced Java Programming	04	-	03	50	100	150
3	13MCA43	Advanced Web Programming	04	-	03	50	100	150
4	13MCA44	Elective-2	04	-	03	50	100	150
5	13MCA45	Elective-3	04	-	03	50	100	150
6	13MCA46	Algorithms Lab	-	03	03	50	50	100
7	13MCA47	Advanced Java Lab	-	03	03	50	50	100
8	13MCA48	Mini Project-I	-	03	03	50	50	100
	TOTAL		**20**	**09**		**400**	**650**	**1050**

Elective-2		Elective 3	
13MCA441	Advanced Computer Networks	13MCA451	Cryptography & Network Security
13MCA442	Data Warehousing & Data Mining	13MCA452	Network Management
13MCA443	Mobile Computing and Wireless Communications	13MCA453	NOSQL
13MCA444	Software Testing and Practices	13MCA454	Software Architectures
13MCA445	Theory of Computation (FAFL)	13MCA455	Enterprise Resource Planning (ERP)
13MCA446	Digital Image Processing	13MCA456	Mobile Applications

V SEMESTER

S. No.	Subject Code	Title	Teaching Hrs /		Examinatio			
			Theory	Practical	Duration	IA	Exam	Total
1	13MCA51	Object-Oriented Modeling and Design Patterns	04	-	03	50	100	150
2	13MCA52	System Simulation and Modeling	04	-	03	50	100	150
	13MCA53	Programming using C#.& .NET	04	-	03	50	100	150
4	13MCA54	Elective-4	04	-	03	50	100	150
5	13MCA55	Elective-5	04	-	03	50	100	150
6	13MCA56	Software Design Laboratory	-	03	03	50	50	100
7	13MCA57	.Net Laboratory	-	03	03	50	50	100
8	13MCA58	Mini Project -II	-	03	03	50	50	100
	Tota		**20**	**09**		**400**	**650**	**1050**

Elective-4		Elective-5	
13MCA541	Mobile and Adhoc Sensor Networks	13MCA551	Cloud Computing
13MCA542	Parallel Computing	13MCA552	Web2.0 and Rich Internet Applications
13MCA543	Multimedia systems	13MCA553	Information Retrieval & Search Engines
13MCA544	Pattern Recognition	13MCA554	Soft Computing
13MCA545	Services Oriented Architecture	13MCA555	Storage Area Network
13MCA546	Compiler Design	13MCA556	Software Project Management

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VI SEMESTER

S. No.	Subject Code	Title	Teaching Hrs/Week		Examination				
			Theory	Practical	Duration	Marks			
						IA	Dissertation	Viva	Total
1	13MCA61	Project	-	03	03	50	125	75	250

2018-19

I Semester								CREDIT BASED
Subject Code	Name of the Subject	Teaching hours/week		Duration of Exam in Hours	Marks for		Total Mark s	CREDIT S
		Lecture	Practical / Assignment		CIE	SEE		
16MCA11	Data structures using C	4	--	3	20	80	100	4
16MCA12	Unix Programming	4	--	3	20	80	100	4
16MCA13	Web Technologies	4	--	3	20	80	100	4
16MCA14	Computer Organization	4	--	3	20	80	100	4
16MCA15	Discrete Mathematical Structures	4	--	3	20	80	100	4
16MCA16	Data structures using CLaboratory	--	3(2 hrs lab+ 1 hr instruction)	3	20	80	100	2
16MCA17	UnixProgramming Laboratory	--	3(2 hrs lab+ 1 hr instruction)	3	20	80	100	2
16MCA18	Web ProgrammingLaboratory	--	3(2 hrs lab+ 1 hr instruction)	3	20	80	100	2
	Total	20	09	24	160	640	800	26

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II Semester   **CREDIT BASED**

Subject Code	Name of the Subject	Teaching hours/week		Duration of Exam in Hours	Marks for		Total Marks	CREDITS
		Lecture	Practical / Assignment		CIE	SEE		
16MCA21	Python Programming	4	--	3	20	80	100	4
16MCA22	Object oriented programming using C++	4	--	3	20	80	100	4
16MCA23	Database Management Systems	4	--	3	20	80	100	4
16MCA24	OperatingSystems	4	--	3	20	80	100	4
16MCA25	System Software	4	--	3	20	80	100	4
16MCA26	Python Programming Laboratory	--	3(2 hrs lab+ 1 hr instruction)	3	20	80	100	2
16MCA27	Object oriented programming using C++ laboratory	--	3(2 hrs lab+ 1 hr instruction)	3	20	80	100	2
16MCA28	DBMSLaboratory	--	3(2 hrs lab+ 1 hr instruction)	3	20	80	100	2
	Total	20	09	24	160	640	800	26

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III Semester   **CREDIT BASED**

Subject Code	Name of the Subject	Teaching hours/week		Duration of Exam in Hours	Marks for		Total Marks	CREDITS
		Lecture	Practical / Assignment		CIE	SEE		
16MCA31	Computer Networks	4	--	3	20	80	100	4
16MCA32	Java Programming	4	--	3	20	80	100	4
16MCA33	Analysis and Design of Algorithms	4	--	3	20	80	100	4
16MCA34	Software Engineering	4	--	3	20	80	100	4
16MCA35	Elective 1	3	--	3	20	80	100	3
16MCA36	Computer Networks Laboratory	--	3(2 hrs lab+ 1 hr instruction)	3	20	80	100	2
16MCA37	Java Programming Laboratory	--	3(2 hrs lab+ 1 hr instruction)	3	20	80	100	2
16MCA38	Analysis and Design of Algorithms Laboratory	--	3(2 hrs lab+ 1 hr instruction)	3	20	80	100	2
	Total	19	09	24	160	640	800	25

Elective- 1	
16MCA351	Intellectual Property Rights
16MCA352	Enterprise Resource Planning(ERP)
16MCA353	MIS & E-Commerce
16MCA354	Cyber Security

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IV Semester — **CREDIT BASED**

Subject Code	Name of the Subject	Teaching hours/week		Duration of Exam in Hours	Marks for		Total Marks	CREDITS
		Lecture	Practical / Assignment		CIE	SEE		
16MCA41	Advanced Java Programming	4	--	3	20	80	100	4
16MCA42	Advanced Web Programming	4	--	3	20	80	100	4
16MCA43	Software Testing and Practices	4	--	3	20	80	100	4
16MCA44	Elective-2	3	--	3	20	80	100	3
16MCA45	Elective-3	3	--	3	20	80	100	3
16MCA46	Advanced Java Programming Laboratory	--	3(2 hrs lab+ 1 hr instruction)	3	20	80	100	2
16MCA47	Advanced Web ProgrammingLaboratory	--	3(2 hrs lab+ 1 hr instruction)	3	20	80	100	2
16MCA48	Software Testing Laboratory	--	3(2 hrs lab+ 1 hr instruction)	3	20	80	100	2

Subject Code	Name of the Subject	Lecture	Practical / Assignment	Duration of Exam in Hours	CIE	SEE	Total Marks	CREDITS
16MCA49	Seminar	--	2	--	50	--	50	1
	Total	18	11	24	210	640	850	25

Elective -2		Elective-3	
16MCA441	Advanced Computer Networks	16MCA451	Wireless Communication and Mobile Technologies
16MCA442	Data Warehousing and Data Mining	16MCA452	Big Data Analytics
16MCA443	Software Architecture	16MCA453	Software Quality

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V Semester									CREDIT BASED
Subject Code	Name of the Subject	Teaching hours/week		Duration of Exam in Hours	Marks for		Total Marks	CREDITS	
		Lecture	Practical / Assignment		CIE	SEE			
16MCA51	Object-Oriented Modeling and Design Patterns	4	--	3	20	80	100	4	
16MCA52	Programming Using C# & .NET	4	--	3	20	80	100	4	
16MCA53	Mobile Applications	4	--	3	20	80	100	4	
16MCA54	Elective-4	3	--	3	20	80	100	3	
16MCA55	Elective-5	3	--	3	20	80	100	3	
16MCA56	Software Design Laboratory	--	3(2 hrs lab+ 1 hr instruction)	3	20	80	100	2	
16MCA57	.Net Laboratory	--	3(2 hrs lab+ 1 hr instruction)	3	20	80	100	2	
16MCA58	Mini Project : Mobile Applications Development using Android/iOS/Windows etc.	--	4(2 hrs lab+ 1 hr instruction+ 1 hr contact)	3	20	80	100	3	
16MCA59	Seminar	--	2	--	50	--	50	1	
	Total	18	12	24	210	640	850	26	

Elective-4			Elective-5	
16MCA541	Web2.0 and Rich Internet Applications		16MCA551	Software Defined Networks
16MCA542	Cloud Computing		16MCA552	Internet of Things(IoT)
16MCA543	Artificial Intelligence		16MCA553	Service Oriented Architecture
16MCA544	Storage Area Networks		16MCA554	Software Project Management

16MCA49 and 16MCA59: Seminar

VI Semester							CREDIT BASED
Subject Code	Name of the Subject	Evaluation				Total	Credits
		Internal		External			
		Presentation	Report Evaluation	Dissertation Evaluation	Viva		
16MCA61	Internship	50	50	-	-	100	02
16MCA62	Project Work	75		125	100	300	20
Total		175		125	100	400	22
Grand Total (I to VI Semesters): 4500 Marks : 150 Credits							

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Guidelines:

16MCA61: Internship

- The students shall undergo internship for 6 weeks during the vacation immediately after the 5th semester examination.
- The internship shall be carried out in industry/R&D labs or institutions.
- Internship should be presented along with the report by the end of 6 weeks and shall be evaluated by the internal panel for 50 marks each.

16MCA62: Project Work

Synopsis

- Synopsis of the project must be submitted before the end of the first month of 6th semester
- The synopsis of the project must include:
  a) Problem formulation and literature survey.
  b) Details of the required tools and technologies for the development of project.
  c) Write up shall not exceed 15 pages.
- Internal assessment for synopsis presentation and evaluation of the synopsis by the internal examiner/guide is for 20 marks.

Dissertation

- The project shall be carried out in the same institution or in industry/R&D labs based on software tools and technologies learnt in MCA course/internship for minimum period of 16 weeks.
- Internal assessment shall be evaluated by the internal panel/guide for 55 marks.
  a) For continuous evaluation of project work by the internal examiner/guide with progress reports is for 10 marks each. (3 progress reports x 10 marks= 30)
  b) Final presentation for the entire project is evaluated for 25 marks.
- The internal examiners (Project Guide with at least 2 years experience) and the external examiners shall be appointed by the University for the final evaluation of the project.
- Internal and external examiners shall carry out the evaluation of Dissertation report for 125 marks individually. The average of the marks allotted by the internal and external examiners shall be the final marks for the project Dissertation report evaluation.
- The project presentation and Viva-voce shall be evaluated jointly by both the internal and external examiners for 100 marks.
- The student should be encouraged to present/publish the part/outcome of the project as an article in the conferences/journals.

2019-20

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I Semester — CREDIT BASED

Subject Code	Name of the Subject	Teaching hours/week Lecture	Teaching hours/week Practical / Assignment	Duration of Exam in Hours	Marks for CIE	Marks for SEE	Total Marks	CREDITS
16MCA11	Data structures using C	4	--	3	20	80	100	4
16MCA12	Unix Programming	4	--	3	20	80	100	4
16MCA13	Web Technologies	4	--	3	20	80	100	4
16MCA14	Computer Organization	4	--	3	20	80	100	4
16MCA15	Discrete Mathematical Structures	4	--	3	20	80	100	4
16MCA16	Data structures using C Laboratory	--	3(2 hrs lab+ 1 hr instruction)	3	20	80	100	2
16MCA17	UnixProgramming Laboratory	--	3(2 hrs lab+ 1 hr instruction)	3	20	80	100	2
16MCA18	Web ProgrammingLaboratory	--	3(2 hrs lab+ 1 hr instruction)	3	20	80	100	2
	Total	20	09	24	160	640	800	26

II Semester — CREDIT BASED

Subject Code	Name of the Subject	Teaching hours/week Lecture	Teaching hours/week Practical / Assignment	Duration of Exam in Hours	Marks for CIE	Marks for SEE	Total Marks	CREDITS
16MCA21	Python Programming	4	--	3	20	80	100	4
16MCA22	Object oriented programming using C++	4	--	3	20	80	100	4
16MCA23	Database Management Systems	4	--	3	20	80	100	4
16MCA24	OperatingSystems	4	--	3	20	80	100	4
16MCA25	System Software	4	--	3	20	80	100	4
16MCA26	Python Programming Laboratory	--	3(2 hrs lab+ 1 hr instruction)	3	20	80	100	2
16MCA27	Object oriented programming using C++ laboratory	--	3(2 hrs lab+ 1 hr instruction)	3	20	80	100	2
16MCA28	DBMSLaboratory	--	3(2 hrs lab+ 1 hr instruction)	3	20	80	100	2
	Total	20	09	24	160	640	800	26

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III Semester   **CREDIT BASED**

Subject Code	Name of the Subject	Teaching hours/week		Duration of Exam in Hours	Marks for		Total Marks	CREDITS
		Lecture	Practical / Assignment		CIE	SEE		
16MCA31	Computer Networks	4	--	3	20	80	100	4
16MCA32	Java Programming	4	--	3	20	80	100	4
16MCA33	Analysis and Design of Algorithms	4	--	3	20	80	100	4
16MCA34	Software Engineering	4	--	3	20	80	100	4
16MCA35	Elective 1	3	--	3	20	80	100	3
16MCA36	Computer Networks Laboratory	--	3(2 hrs lab+ 1 hr instruction)	3	20	80	100	2
16MCA37	Java Programming Laboratory	--	3(2 hrs lab+ 1 hr instruction)	3	20	80	100	2
16MCA38	Analysis and Design of Algorithms Laboratory	--	3(2 hrs lab+ 1 hr instruction)	3	20	80	100	2
	Total	19	09	24	160	640	800	25

Elective- 1		
16MCA351	Intellectual Property Rights	
16MCA352	Enterprise Resource Planning(ERP)	
16MCA353	MIS & E-Commerce	
16MCA354	Cyber Security	

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IV Semester   CREDIT BASED

Subject Code	Name of the Subject	Teaching hours/week		Duration of Exam in Hours	Marks for		Total Marks	CREDITS
		Lecture	Practical / Assignment		CIE	SEE		
16MCA41	Advanced Java Programming	4	--	3	20	80	100	4
16MCA42	Advanced Web Programming	4	--	3	20	80	100	4
16MCA43	Software Testing and Practices	4	--	3	20	80	100	4
16MCA44	Elective-2	3	--	3	20	80	100	3
16MCA45	Elective-3	3	--	3	20	80	100	3
16MCA46	Advanced Java Programming Laboratory	--	3(2 hrs lab+ 1 hr instruction)	3	20	80	100	2
16MCA47	Advanced Web ProgrammingLaboratory	--	3(2 hrs lab+ 1 hr instruction)	3	20	80	100	2
16MCA48	Software Testing Laboratory	--	3(2 hrs lab+ 1 hr instruction)	3	20	80	100	2

16MCA49	Seminar	--	2	--	50	--	50	1
	Total	18	11	24	210	640	850	25

Elective -2		Elective-3	
16MCA441	Advanced Computer Networks	16MCA451	Wireless Communication and Mobile Technologies
16MCA442	Data Warehousing and Data Mining	16MCA452	Big Data Analytics
16MCA443	Software Architecture	16MCA453	Software Quality

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V Semester   CREDIT BASED

Subject Code	Name of the Subject	Teaching hours/week		Duration of Exam in Hours	Marks for		Total Marks	CREDITS
		Lecture	Practical / Assignment		CIE	SEE		
16MCA51	Object-Oriented Modeling and Design Patterns	4	--	3	20	80	100	4
16MCA52	Programming Using C# & .NET	4	--	3	20	80	100	4
16MCA53	Mobile Applications	4	--	3	20	80	100	4
16MCA54	Elective-4	3	--	3	20	80	100	3
16MCA55	Elective-5	3	--	3	20	80	100	3
16MCA56	Software Design Laboratory	--	3(2 hrs lab+ 1 hr instruction)	3	20	80	100	2
16MCA57	.Net Laboratory	--	3(2 hrs lab+ 1 hr instruction)	3	20	80	100	2
16MCA58	Mini Project : Mobile Applications Development using Android/iOS/Windows etc.	--	4(2 hrs lab+ 1 hr instruction+ 1 hr contact)	3	20	80	100	3
16MCA59	Seminar	--	2	--	50	--	50	1
	Total	18	12	24	210	640	850	26

Elective-4		Elective-5	
16MCA541	Web2.0 and Rich Internet Applications	16MCA551	Software Defined Networks
16MCA542	Cloud Computing	16MCA552	Internet of Things(IoT)
16MCA543	Artificial Intelligence	16MCA553	Service Oriented Architecture
16MCA544	Storage Area Networks	16MCA554	Software Project Management

16MCA49 and 16MCA59: Seminar

VI Semester   CREDIT BASED

Subject Code	Name of the Subject	Evaluation				Total	Credits
		Internal		External			
		Presentation	Report Evaluation	Dissertation Evaluation	Viva		
16MCA61	Internship	50	50	-	-	100	02
16MCA62	Project Work	75		125	100	300	20
Total		175		125	100	400	22
Grand Total (I to VI Semesters): 4500 Marks : 150 Credits							

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Estd. 1974

Guidelines:

16MCA61: Internship

- The students shall undergo internship for 6 weeks during the vacation immediately after the 5th semester examination.
- The internship shall be carried out in industry/R&D labs or institutions.
- Internship should be presented along with the report by the end of 6 weeks and shall be evaluated by the internal panel for 50 marks each.

16MCA62: Project Work

Synopsis

- Synopsis of the project must be submitted before the end of the first month of 6th semester
- The synopsis of the project must include:
    - a) Problem formulation and literature survey.
    - b) Details of the required tools and technologies for the development of project.
    - c) Write up shall not exceed 15 pages.
- Internal assessment for synopsis presentation and evaluation of the synopsis by the internal examiner/guide is for 20 marks.

Dissertation

- The project shall be carried out in the same institution or in industry/R&D labs based on software tools and technologies learnt in MCA course/internship for minimum period of 16 weeks.
- Internal assessment shall be evaluated by the internal panel/guide for 55 marks.
    - a) For continuous evaluation of project work by the internal examiner/guide with progress reports is for 10 marks each. (3 progress reports x 10 marks= 30)
    - b) Final presentation for the entire project is evaluated for 25 marks.
- The internal examiners (Project Guide with at least 2 years experience) and the external examiners shall be appointed by the University for the final evaluation of the project.
- Internal and external examiners shall carry out the evaluation of Dissertation report for 125 marks individually. The average of the marks allotted by the internal and external examiners shall be the final marks for the project Dissertation report evaluation.
- The project presentation and Viva-voce shall be evaluated jointly by both the internal and external examiners for 100 marks.
- The student should be encouraged to present/publish the part/outcome of the project as an article in the conferences/journals.

2020-2021

I SEMESTER

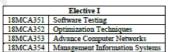| Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week			Examination				Credits
				Theory (L)	Practical (P)	Tutorial (T)	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	18MCA11	Object Oriented Programming with C++	MCA	03	-	-	03	60	40	100	03
2	18MCA12	Unix and Shell Programming	MCA	03	-	-	03	60	40	100	03
3	18MCA13	Web Technologies	MCA	03	-	-	03	60	40	100	03
4	18MCA14	Software Engineering	MCA	03	-	-	03	60	40	100	03
5	18MCA15	Computer Organization	MCA	03	-	-	03	60	40	100	03
6	18MCA16	C++ Programming Lab	MCA	-	03	01	03	60	40	100	02
7	18MCA17	Unix and Shell Programming Lab	MCA	-	03	01	03	60	40	100	02
8	18MCA18	Web Technologies Lab	MCA	-	03	01	03	60	40	100	02
		TOTAL		Theory: 15hours Practical: 09 hours Tutorial/Instruction: 03hours				480	320	800	21

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II SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week			Examination				Credits
				Theory (L)	Practical (P)	Tutorial (T)	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	18MCA21	Programming using Java	MCA	03	-	-	03	60	40	100	03
2	18MCA22	Data Structures using C++	MCA	03	-	-	03	60	40	100	03
3	18MCA23	Discrete Mathematical Structures and Statistics	MCA/ Mathematics	03	-	-	03	60	40	100	03
4	18MCA24	Computer Networks	MCA	03	-	-	03	60	40	100	03
5	18MCA25	Operating Systems	MCA	03	-	-	03	60	40	100	03
6	18MCA26	Java Programming Lab	MCA	-	03	01	03	60	40	100	02
7	18MCA27	Data Structures Lab	MCA	-	03	01	03	60	40	100	02
8	18MCA28	Computer Networks Lab	MCA	-	03	01	03	60	40	100	02
9	18MCA29	Mini Project	MCA	-	02	02	03	60	40	100	02
		TOTAL		Theory: 15hours Practical: 11 hours Tutorial/Instruction: 05hours				540	360	900	23

III SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week			Examination				Credits
				Theory (L)	Practical (P)	Tutorial (T)	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	18MCA31	Database Management System	MCA	03	-	-	03	60	40	100	03
2	18MCA32	Programming using Python	MCA	03	-	-	03	60	40	100	03
3	18MCA33	Design and Analysis of Algorithms	MCA	03	-	-	03	60	40	100	03
4	18MCA34	System Software	MCA	03	-	-	03	60	40	100	03
5	18MCA35X	Elective 1	MCA	03	-	-	03	60	40	100	03
6	18MCA36	DBMS Lab	MCA	-	03	01	03	60	40	100	02
7	18MCA37	Python Programming Lab	MCA	-	03	01	03	60	40	100	02
8	18MCA38	Algorithms Lab	MCA	-	03	01	03	60	40	100	02
		TOTAL		Theory: 15hours Practical: 09 hours Tutorial/Instruction: 03hours				480	320	800	21

Elective I	
18MCA351	Software Testing
18MCA352	Optimization Techniques
18MCA353	Advance Computer Networks
18MCA354	Management Information Systems

IV SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week			Examination				Credits
				Theory (L)	Practical (P)	Tutorial (T)	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	18MCA41	Advanced Java Programming	MCA	03	-	-	03	60	40	100	03
2	18MCA42	Advanced Web Programming	MCA	03	-	-	03	60	40	100	03
3	18MCA43	Object Oriented Modeling and Design	MCA	03	-	-	03	60	40	100	03
4	18MCA44X	Elective II	MCA	03	-	-	03	60	40	100	03
5	18MCA45X	Elective III	MCA	03	-	-	03	60	40	100	03
6	18MCA46	Professional Communication & Report Writing	MCA	02	-	-	03	60	40	100	02
7	18MCA47	Advanced Java Programming Lab	MCA	-	03	01	03	60	40	100	02
8	18MCA48	Advanced Web Programming Lab	MCA	-	03	01	03	60	40	100	02
9	18MCA49	Object Oriented Modeling and Design Lab	MCA	-	03	01	03	60	40	100	02
		TOTAL		Theory: 17hours Practical: 09 hours Tutorial/Instruction: 03hours				540	360	900	23

Elective II		Elective III	
18MCA441	Wireless Communication and Mobile Technologies	18MCA451	Enterprise Resource Planning (ERP)
18MCA442	Cyber Security	18MCA452	Data Warehousing and Data Mining
18MCA443	Internet of Things(IoT)	18MCA453	Advanced Database Management Systems
18MCA444	Cloud Computing	18MCA454	Big Data Analytics

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V SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week			Examination				Credits
				Theory (L)	Practical (P)	Tutorial (T)	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	18MCA51	Programming using C#.net	MCA	03	-		03	60	40	100	03
2	18MCA52	Mobile Applications	MCA	03	-		03	60	40	100	03
3	18MCA53	Machine Learning	MCA	03	-	-	03	60	40	100	03
4	18MCA54X	Elective IV	MCA	03	-	-	03	60	40	100	03
5	18MCA55X	Elective V	MCA	03	-	-	03	60	40	100	03
6	18MCA56	C#.net Lab	MCA	-	03	01	03	60	40	100	02
7	18MCA57	Mobile Applications Lab	MCA	-	03	01	03	60	40	100	02
8	18MCA58	Mini Project	MCA	-	04	02	03	60	40	100	03
	TOTAL			Theory: 15hours Practical: 10 hours Tutorial/Instruction: 04hours				480	320	800	22

Elective IV		Elective V	
18MCA541	Multimedia Systems	18MCA551	System Simulation and Modeling
18MCA542	Computer Graphics	18MCA552	Principles of User Interface Design
18MCA543	Image Processing	18MCA553	Software Architecture
18MCA544	Parallel Computing	18MCA554	Storage Area Networks

VI SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week			Examination			Credits
				Theory	Practical	Tutorial	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	18MCA61	Internship	MCA	-	-	-	-	-	100	100	4
2	18MCA62	Seminar	MCA	-	-	-	-	-	100	100	2
3	18MCA63	Major Project	MCA	-	-	-	03	60	40	100	16
	TOTAL							60	240	300	22

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