CHILDREN'S EDUCATION SOCIETY (Regd.)
Administrative Office:
1st Phase, JP Nagar, Bengaluru – 560 078
✆: 080-61754501 – 502 Fax: 080-2654 8658

THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,
Approved by A.I.C.T.E. New Delhi&Recognized by UGC Under Section 2(f),
Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24&Diamond Rating by QS I Guage)
Bommanahalli, Hosur Road, Bangalore –560068. ✆: 080 -61754601/602
E-mail: engprincipal@theoxford.edu Web: www.theoxfordengg.org

Details of Activities Conducted that Inculcate Values Necessary to Render Students into Responsible Citizens

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Summary on the Sensitization of students and employees of the Institution to the constitutional obligations: values, rights, duties and responsibilities of citizens

The institution organises a range of programs for training and educating the students and staff about their rights, responsibilities, and values as members of constitutional duties.

I. **Respect to the National Flag**: Hoisting the national flag by students and staff on Independence Day and **Republic Day.**

II. **Service before Self:** The College conducts NSS camps. It undertakes several social outreach programs to educate the student citizens about issues of concern to society. Blood donation and health camps are planned for the welfare of the general public. From the humanist point of view, the students get the training to make them aware as responsible citizens.

III. **Environmental Preservation**- The college's motto is "Let's keep our campus clean and go green." Additionally, Swachh Bharat Abhiyan initiatives are organised for students to foster an environmental consciousness and foster sustainable growth. Solar power generation is another campus endeavour aimed at partially offsetting the college's electricity use.

IV. **Cultural Harmony** – Students at the college come from a variety of cultural backgrounds, and the administration encourages the institution to celebrate a number of religious and cultural holidays. Students' overall development and tolerance for different religions reach its zenith when they take part in each other's celebrations.

V. **Rights to equality and freedom**– A grievance redressal cell and an anti-ragging commission are just two of the numerous programmes the college has created to address issues and assist students in internalizing the highest standards of morality. To educate students, gender sensitization events are held. Students serve in the IQAC, Students Council, and other committees. It has given students a good platform to bring up any grievances with the administration for prompt resolution.

VI. **Cleanliness Initiatives**- Plastic and tobacco products are prohibited on our campus. The campus uses extremely little plastic, and when it comes to limiting environmental contamination, biodegradable

plastic is used. The government's Swachh Bharat initiatives are supported by ongoing awareness efforts that emphasise the necessity of removing all plastic from campuses. Paper usage is minimal. Email is employed in the communication process.

VII. **Expert Talks**- Eminent people are invited to render talks so as to enable students be responsive towards constitutional obligations and inculcate human values, to be socially responsible citizens.

VIII. **Constitutional Obligations**- many activities pertaining to Swachh Bharat Abhiyan, Jal Shakthi Abhiyan, Jaljatiya Gaurav Diwas, International Yoga Day, International Women's Day, world Health Day & world Heritage Day are conducted with reference to constitutional obligations by students and staff in the college.

Indian Constitution, Syllabus - 2023-24

The Oxford College of Engineering, Bangalore has prioritizes a comprehensive education that seamlessly integrates crosscutting issues into its curriculum, ensuring a well-rounded and socially responsible learning experience. Professional ethics are focal point, with dedicated modules designed to instill an understanding and adherence to ethical standards in various fields. The inclusion of gender perspectives raises awareness of equality challenges and fosters inclusivity. The curriculum places strong emphasis on human values, nurturing qualities like empathy and integrity deemed essential for navigating complex professional landscapes. Environmental considerations are seamlessly woven into coursework, fostering an understanding of ecological footprint associated with diverse professions. Sustainability principles are integrated, encouraging students to evaluate the long-term impacts of their decisions across economic, social, and environmental dimensions. The institution promotes a collaborative and inclusive learning environment through group projects and team-based activities, facilitating engagement with peers from diverse backgrounds. This collaborative ethos mirrors the professional world, enhancing cultural competence and interpersonal skills crucial for success in any field. This holistic approach ensures that graduates not only possess technical expertise but also grasp the broader societal and environmental implications of their work, shaping conscientious professionals capable of navigating the intricate interplay between their careers and the world around them.

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INTEGRATION OF RELEVANT PROFESSIONAL ETHICS, GENDER, HUMAN VALUES, ENVIRONMENT AND SUSTAINABILITY INTO THE CURRICULUM

S.No	Year /Semester	Name of the Program	Name of the Course	Course Code	Cross Cutting issues
1	2nd Year/ 3rd sem	Department of Biotechnology	Bio-Lab Management and Risk Assessment	BBT358A	Professional Ethics
2	1st Year/ 1st sem	Department of Biotechnology	Indian Constitution	BICOK107-207	Professional Ethics
3	3rd Year/ 6th sem	Department of Biotechnology	Stem Cell Technology	21BT644	Professional Ethics
4	4th Year/ 8th sem	Department of Biotechnology	Bioethics, Biosafety & IPR	18BT741	Professional Ethics
5	2nd Year/ 4th sem	Department of Information Science & Engineering	Physical Education (PE) (Sports and Athletics)	BPEK459	Professional Ethics
6	1st Year/ 1st sem	Department of Information Science & Engineering	Indian Constitution	BICOK107-207	Professional Ethics
7	2nd Year/3rd and 4th sem	Department of Information Science & Engineering	Research Methodology & Intellectual Property Rights	21RMI56	Professional Ethics
8	1st Year/ 1st sem	Department of Mechanical Engineering	Indian Constitution	BICOK107-207	Professional Ethics
9	2nd Year/ 4th sem	Department of Mechanical Engineering	Physical Education (PE) (Sports and Athletics)	BPEK459	Professional Ethics
10	2nd Year/ 4th sem	Department of Mechanical Engineering	Research Methodology & Intellectual Property Rights	21RMI56	Professional Ethics
11	2nd Year/ 4th sem	Department of Computer Science & Engineering	Physical Education (PE) (Sports and Athletics)	BPEK459	Professional Ethics
12	1st Year/ 1st sem	Department of Computer Science & Engineering	Indian Constitution	BICOK107-207	Professional Ethics
13	1st Year/ 1st sem	Department of Electrical and Communication Engineering	Indian Constitution	BICOK107-207	Professional Ethics
14	1st Year/ 1st sem	Department of Artificial Intelligence and Machine Learning	Indian Constitution	BICOK107-207	Professional Ethics
15	2rd Year/ 4th sem	Department of Artificial Intelligence and Machine Learning	Research Methodology & Intellectual Property Rights	21RMI56	Professional Ethics
16	1st Year/ 1st sem	Department of Mechatronics	Indian Constitution	BICOK107-207	Professional Ethics
17	3rd Year/ 4th sem	Department of Mechatronics	Research Methodology & Intellectual Property Rights	21RMI56	Professional Ethics
18	2rd Year/ 4th sem	Department of Civil Engineering	Building Materials Testing Laboratory	BCVL404	Professional Ethics
19	3rd Year/ 5th sem	Department of Civil Engineering	Design of RC Structural Elements	21CV53	Professional Ethics

20	4th Year/ 8th sem	Department of Civil Engineering	Technical Seminar	18CVS84	Professional Ethics
21	1st Year/ 2nd Sem	Department of Civil Engineering	Indian Constitution	BICOK207	Professional Ethics
22	2rd Year/ 3rd sem	Department of Electrical & Electronics Engineering	Social Connect and Responsibility	BSCK307	Professional Ethics
23	1st Year/ 2nd Sem	Department of Electrical & Electronics Engineering	Indian Constitution	BICOK207	Professional Ethics
24	2nd Year/ 4th sem	Department of Electrical & Electronics Engineering	Physical Education (PE) (Sports and Athletics)	BPEK459	Professional Ethics
25	3rd Year/ 4th sem	Department of Electrical & Electronics Engineering	Research Methodology & Intellectual Property Rights	21RMI56	Professional Ethics
26	4th Year/ 8th sem	Department of Electrical & Electronics Engineering	Technical Seminar	18CVS84	Professional Ethics
27	1st Year/ 1st Sem	Department of Business Administration	Entrepreneurship Development	22MBA12	Professional Ethics
28	1st Year/ 2nd Sem	Department of Business Administration	Research Methodology and IPR	22MBA23	Professional Ethics
29	1st Year/ 2nd Sem	Department of Business Administration	Managerial Economics	22MBA26	Professional Ethics
30	2nd Year/ 3rd Sem	Department of Business Administration	Recruitment And Selection	22MBAHR303	Professional Ethics
31	2nd Year/ 4th Sem	Department of Business Administration	International Business	22MBA401	Professional Ethics
32	2nd Year/ 4th Sem	Department of Business Administration	Integrated Marketing Communications	22MBAMM404	Professional Ethics
33	1st Year/ 1st Sem	Master of Computer Applications	Research Methodology	22RMI18	Professional Ethics
34	1st Year/ 1st Sem	Master of Computer Applications	Software Engineering	22MCA23	Professional Ethics
35	1st Year/ 2nd Sem	Master of Computer Applications	User Interface Design	22MCA254	Professional Ethics
36	1st Year/ 1st sem	Department of Biotechnology	Indian Constitution	BICOK107-207	Gender
37	1st Year/ 1st sem	Department of Information Science & Engineering	Indian Constitution	BICOK107-207	Gender
38	1st Year/ 1st sem	Department of Mechanical Engineering	Indian Constitution	BICOK107-207	Gender
39	1st Year/ 1st sem	Department of Computer Science & Engineering	Indian Constitution	BICOK107-207	Gender
40	1st Year/ 1st sem	Department of Electrical and Communication Engineering	Indian Constitution	BICOK107-207	Gender

41	1st Year/ 1st sem	Department of Artificial Intelligence and Machine Learning	Indian Constitution	BICOK107-207	Gender
42	1st Year/ 1st sem	Department of Mechatronics	Indian Constitution	BICOK107-207	Gender
43	1st Year/ 2nd Sem	Department of Civil Engineering	Indian Constitution	BICOK207	Gender
44	3rd Year/ 6th sem	Department of Electrical & Electronics Engineering	Management and Entrepreneurship	21EE61	Gender
45	1st Year/ 2nd Sem	Department of Electrical & Electronics Engineering	Indian Constitution	BICOK207	Gender
46	2nd Year/ 3rd Sem	Department of Business Administration	Recruitment And Selection	22MBAHR303	Gender
47	2nd Year/ 4th Sem	Department of Business Administration	Conflict & Negotiation Management	22MBAHR403	Gender
48	1st Year/ 1st sem	Department of Biotechnology	Scientific Foundations of Health	BSFHK158/258	Human Values
49	2nd Year/ 4th sem	Department of Biotechnology	Universal Human Values	BUHK408	Human Values
50	2nd Year/ 3rd sem	Department of Information Science & Engineering	Social Connect & Responsibility	BSCK307	Human Values
51	2nd Year/ 4th sem	Department of Information Science & Engineering	Universal Human Values	BUHK408	Human Values
52	2nd Year/ 4th sem	Department of Information Science & Engineering	Physical Education (PE) (Sports and Athletics)	BPEK459	Human Values
53	1st Year/ 1st sem	Department of Information Science & Engineering	Scientific Foundations of Health	BSFHK158/258	Human Values
54	2nd Year/ 3rd sem	Department of Mechanical Engineering	Universal Human Values	BUHK408	Human Values
55	2nd Year/ 4th sem	Department of Mechanical Engineering	Physical Education (PE) (Sports and Athletics)	BPEK459	Human Values
56	1st Year/ 1st sem	Department of Mechanical Engineering	Scientific Foundations of Health	BSFHK158/258	Human Values
57	2nd Year/ 3rd sem	Department of Computer Science & Engineering	Social Connect & Responsibility	BSCK307	Human Values
58	2nd Year/ 4th sem	Department of Computer Science & Engineering	Universal Human Values	BUHK408	Human Values
59	2nd Year/ 4th sem	Department of Computer Science & Engineering	Physical Education (PE) (Sports and Athletics)	BPEK459	Human Values
60	1st Year/ 1st sem	Department of Computer Science & Engineering	Scientific Foundations of Health	BSFHK158/258	Human Values
61	2nd Year/ 3rd sem	Department of Electrical and Communication Engineering	Social Connect & Responsibility	BSCK307	Human Values
62	2nd Year/ 4th sem	Department of Electrical and Communication Engineering	Universal Human Values	BUHK408	Human Values

63	1st Year/ 1st sem	Department of Electrical and Communication Engineering	Scientific Foundations of Health	BSFHK158/258	Human Values
64	2nd Year/ 3rd sem	Department of Artificial Intelligence and Machine Learning	Social Connect & Responsibility	BSCK307	Human Values
65	2nd Year/ 4th sem	Department of Artificial Intelligence and Machine Learning	Universal Human Values	BUHK408	Human Values
66	1st Year/ 1st sem	Department of Artificial Intelligence and Machine Learning	Scientific Foundations of Health	BSFHK158/258	Human Values
67	2nd Year/ 3rd sem	Department of Mechatronics	Social Connect & Responsibility	BSCK307	Human Values
68	2nd Year/ 4th sem	Department of Mechatronics	Universal Human Values	BUHK408	Human Values
69	1st Year/ 1st sem	Department of Mechatronics	Scientific Foundations of Health	BSFHK158/258	Human Values
70	1st Year/ 1st sem	Department of Civil Engineering	Scientific Foundations of Health	BSFHK158/258	Human Values
71	2nd Year/ 3rd sem	Department of Civil Engineering	Social Connect & Responsibility	BSCK307	Human Values
72	2nd Year/ 3rd sem	Department of Electrical & Electronics Engineering	Social Connect & Responsibility	BSCK307	Human Values
73	1st Year/ 1st sem	Department of Electrical & Electronics Engineering	Scientific Foundations of Health	BSFHK158/258	Human Values
74	1st Year/ 1st Sem	Department of Business Administration	Principles of Management &Organisational Behaviour	22MBA11	Human Values
75	1st Year/ 1st Sem	Department of Business Administration	Business Communication	22MBA16	Human Values
76	1st Year/ 2nd Sem	Department of Business Administration	Human Resource Management	22MBA21	Human Values
77	2nd Year/ 4th Sem	Department of Business Administration	Innovation And Design Thinking	22MBA402	Human Values
78	1st Year/ 2nd Sem	Master of Computer Applications	Software Engineering	22MCA23	Human Values
79	2nd Year/ 4th Sem	Master of Computer Applications	Software Project Management	22MCA414	Human Values
80	1st Year/ 1st or 2nd Sem	Department of Biotechnology	Engineering Chemistry	22CHE12/22	Environment & Sustainability
81	2nd Year/ 3rd Sem	Department of Biotechnology	Microbiology	BBT304	Environment & Sustainability
82	2nd Year/ 3rd Sem	Department of Biotechnology	Plant Physiology and Phytohormones	BBT306D	Environment & Sustainability
83	2nd Year/ 4th Sem	Department of Biotechnology	Biopesticides and Biofertilizers	BBT456D	Environment & Sustainability

84	2nd Year/ 4th Sem	Department of Biotechnology	Biology For Engineers	BBOK407	Environment & Sustainability
85	4th Year/ 7th sem	Department of Biotechnology	Bioethics, Biosafety & IPR	18BT741	Environment & Sustainability
86	4th Year/ 7th sem	Department of Biotechnology	Energy and Environment	18ME751	Environment & Sustainability
87	4th Year/ 8th sem	Department of Biotechnology	Industrial Microbiology	18BT822	Environment & Sustainability
88	3rd Year/ 5th sem	Department of Information Science & Engineering	Environmental Studies	21CIV57	Environment & Sustainability
89	3rd Year/ 5th sem	Department of Information Science & Engineering	Conservation of natural Resources	21cv654	Environment & Sustainability
90	4th Year/ 7th sem	Department of Information Science & Engineering	Disaster Management Plan	18EE753	Environment & Sustainability
91	1st Year/ 1st or 2nd Sem	Department of Information Science & Engineering	Engineering Chemistry	22CHE12/22	Environment & Sustainability
92	2nd Year/ 3rd Sem	Department of Mechanical Engineering	Electric and Hybrid Vehicle Technology	BME306A	Environment & Sustainability
93	3rd Year/ 5th sem	Department of Mechanical Engineering	Environmental Studies	21CIV57	Environment & Sustainability
94	3rd Year/ 6th Sem	Department of Mechanical Engineering	Renewable Energy Power Plants	21ME652	Environment & Sustainability
95	4th Year/ 8th sem	Department of Mechanical Engineering	Energy Engineering	18ME81	Environment & Sustainability
96	1st Year/ 1st or 2nd Sem	Department of Mechanical Engineering	Engineering Chemistry	22CHE12/22	Environment & Sustainability
97	3rd Year/ 5th Sem	Department of Computer Science & Engineering	Environmental Studies	21CIV57	Environment & Sustainability
98	4th Year/ 7th sem	Department of Computer Science & Engineering	Disaster Management Plan	18EE753	Environment & Sustainability
99	1st Year/ 1st or 2nd Sem	Department of Computer Science & Engineering	Engineering Chemistry	22CHE12/22	Environment & Sustainability
100	2nd Year /4th Sem	Department of Electrical and Communication Engineering	National Service Scheme (NSS)	BNSK459	Environment & Sustainability
101	3rd Year/ 5th Sem	Department of Electrical and Communication Engineering	Environmental Studies	21CIV57	Environment & Sustainability
102	3rd Year/ 5th sem	Department of Mechatronics	Environmental Studies	21CIV57	Environment & Sustainability
103	1st Year/ 1st or 2nd Sem	Department of Mechatronics	Engineering Chemistry	22CHE12/22	Environment & Sustainability

104	2nd Year/ 3rd Sem	Department of Civil Engineering	Water Supply And Wastewater Engineering	BCV304	Environment & Sustainability
105	3rd Year/ 5th Sem	Department of Civil Engineering	Environmental Studies	21CIV57	Environment & Sustainability
106	3rd Year/ 6th Sem	Department of Civil Engineering	Alternate Building Materials	21CV646	Environment & Sustainability
107	1st Year/ 1st or 2nd Sem	Department of Civil Engineering	Engineering Chemistry	22CHE12/22	Environment & Sustainability
108	3rd Year/ 5th sem	Department of Electrical & Electronics Engineering	Environmental Studies	21CIV57	Environment & Sustainability
109	3rd Year/ 6th sem	Department of Electrical & Electronics Engineering	Renewable Energy Power Plants	21ME652	Environment & Sustainability
110	1st Year/ 1st or 2nd Sem	Department of Electrical & Electronics Engineering	Engineering Chemistry	22CHE12/22	Environment & Sustainability

Professional Ethics

Department of Biotechnology

BIO-LAB MANAGEMENT AND RISK ASSESSMENT		Semester	III
Course Code	**BBT358A**	CIE Marks	50
Teaching Hours/Week (L: T:P: S)	1:0:0:0	SEE Marks	50
Total Hours of Pedagogy	15	Total Marks	100
Credits	01	Exam Hours	1
Examination type (SEE)	Theory		

Course objectives:

- To enable the students to develop an understanding biolab management and risk and its assessment.
- To enable the students to learn the methods to minimize and mitigate the risks at various steps of lab processes.
- To enable the students to perform the risk-benefit analysis in biotechnological processes.

Teaching-Learning Process (General Instructions)

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

- Explanation via real life problem, situation modelling, and deliberation of solutions, hands-on sessions, reflective and questioning /inquiry-based teaching.
- Instructions with interactions in classroom lectures (physical/hybrid).
- Use of ICT tools, including YouTube videos, related MOOCs, AR/VR/MR tools.
- Flipped classroom sessions (~10% of the classes).
- Industrial visits, Guests talks and competitions for learning beyond the syllabus.
- Students' participation through audio-video based content creation for the syllabus (as assignments).
- Use of gamification tools (in both physical/hybrid classes) for creative learning outcomes.
- Students' seminars (in solo or group) /oral presentations.

Module-1 (3 Hours)
BIO LABORATORY MANAGEMENT: Essentials of lab management- Designing the lab, spacing, inventory organization and its management, automation via use of technology, documentation, safety requirements, bio-safety levels, planning experiments, storage space, waste generation and its disposal. Case studies.
Module-2 (3 Hours)
INTRODUCTION TO RISK ASSESSMENT: Definition and meaning of Risk. Difference between risk and hazard. Probability of occurrence of risk. Risk assessment, risk control, risk review, risk management tools, HACCP, risk ranking and filtering. Case studies.
Module-3 (3 Hours)
BASICS OF BIOSAFETY: Biosafety- meaning, levels of biosafety- BSL 1, BSL2, BSL 3 and BSL 4, examples, applications of each and hazards involved there in for products derived out of biotechnology. International protocols and Case studies.
Module-4 (3 Hours)
BIOSAFETY AND RISK ASSESSMENT: Principles of safety assessment (for infectious organisms, agents, microbes- genetically altered/ metabolically engineered, transgenic plants, GMOs /LMOs used in food, pharma, bioremediation etc., Sequential steps in risk assessment; concepts of familiarity and substantial equivalence; environmental risk assessment and food and feed safety assessment. Case studies.
Module-5 (3 Hours)
RISK MINIMIZATION AND/OR RISK MITIGATION: Risk assessment through omics approach. Ethical, legal, and social implications of health privacy and policy
laws for mitigation/minimization (Indian and Global contexts). Risk characterization and development of analysis plan. Case studies.
Course outcome (Course Skill Set) **At the end of the course the student will be able to:** 1. **Apply principles of biology to understand risk and its assessment.** 2. **Deduce methods to minimize and mitigate the risks.** 3. **Evaluate risk-benefit analysis of different genetic engineering interventions based upon case studies.** 4. **Correlate laws pertaining to biological risk to the sustainable use of GMOs in different applications.**

Course Title:	**Indian Constitution**		
Course Code:	BICOK107-207	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01
Total Hours of Pedagogy	15 hours	Credits	01

Course objectives :

The course **INDIAN CONSTITUTION (22ICO17 / 27)** will enable the students,

1. To know about the basic structure of Indian Constitution.
2. To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
3. To know about our Union Government, political structure & codes, procedures.
4. To know the State Executive & Elections system of India.
5. To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.

Teaching-Learning Process

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes andmake Teaching –Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

(i) Direct instructional method (Low/Old Technology),
(ii) (ii) Flipped classrooms (High/advanced Technological tools),
(i i i) Blended learning (Combination of both),
(iv) Enquiry and evaluation based learning,
(iv) Personalizedlearning,
(v) Problems based learning through discussion.
(vi) Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

Module-1 (03 hours of pedagogy)

Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to theIndian constitution, Making of the Constitution, Role of the Constituent Assembly.

Module-2 (03 hours of pedagogy)

Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. FundamentalRights (FR's) and its Restriction and limitations in different Complex Situations. building.

Module-3 (03 hours of pedagogy)

Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.

Module-4 (03 hours of pedagogy)

Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India,Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.

Module-5 (03 hours of pedagogy)

State Executive and Governer, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.

Course outcome (Course Skill Set)

At the end of the course 22ICO17/27 the student will be able to:

CO1	Analyse the basic structure of Indian Constitution.
CO2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
CO3	know about our Union Government, political structure & codes, procedures.
CO4	Understand our State Executive & Elections system of India.
CO5	Remember the Amendments and Emergency Provisions, other important provisions given by the constitution.

Course Title:	**STEM CELL TECHNOLOGY**		
Course Code	21BT644	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	3:0:0:1	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	03

Course objectives:

- To provide a broad overview of stem cells, reviewing the different types and how they are cultured.
- To familiarize the students with stem cell technology and its bioengineering applications.
- To understand the potential of Stem cells towards treatment of human diseases.

Teaching-Learning Process (General Instructions)
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

- ✓ **Explanation via real life problem, situation modelling, and deliberation of solutions, hands-on sessions, reflective and questioning /inquiry-based teaching.**
- ✓ **Instructions with interactions in classroom lectures (physical/hybrid).**
- ✓ **Use of ICT tools, including YouTube videos, related MOOCs, AR/VR/MR tools.**
- ✓ **Flipped classroom sessions (~10% of the classes).**
- ✓ **Industrial visits, Guests talks and competitions for learning beyond the syllabus.**
- ✓ **Students' participation through audio-video based content creation for the syllabus (as assignments).**
- ✓ **Use of gamification tools (in both physical/hybrid classes) for creative learning outcomes.**
- ✓ **Students' seminars (in solo or group) /oral presentations.**

Module-1 (8 Hours)

STEM CELLS AND TYPES:
Stem cells: Definition, Classification, Sources and Properties –Types of stem cells: methods of isolation, study of stem cells and their viability IPSC, embryonic stem cells, cancer stem cells. Preservations of Stem cell. Embryonic stem cell: Isolation, Culturing, Differentiation, Properties – Adult stem cell: Isolation, Culturing, Differentiation, Trans-
differentiation, Plasticity, and Properties, Molecular mechanisms. fate mapping, application.

Module-2 (8 Hours)

STEM CELL MEDIA ANDREGENERATION:
Cell Culture Media, Cell culture methods, Cell isolation, selection, maintenance of primary and early passage cultures. Clinical potential of stem cells: Organ and tissue regeneration. Germ cells, hematopoietic organs, and kidney, cord blood transplantation, donor selection, HLA matching, patient selection, peripheral blood and Hematopoietic Stem Cell Disorders and bone marrow transplantation, Stem cell Techniques: fluorescence activated cell sorting (FACS), time lapse video, green fluorescent protein tagging.

Module-3 (8 Hours)

STEM CELLS IN PLANTS AND ANIMALS: **Stem cell and founder zones in plants–particulary their roots– stem cells of shoot meristems of higher plants. Skeletal** **muscle stem cell – Mammary stem cells – intestinal stem cells – keratinocyte stem cells of cornea – skin and hair follicles –tumour stem cells.**
Module-4 (8 Hours)
STEM CELL IN DRUG DISCOVERY AND TISSUE ENGINEERING: **Target identification, Manipulating differentiation pathways, stem cell therapy Vs cell protection, stem cell in cellular assays for screening – stem cell based drug discovery, drug screening and toxicology. Tissue engineering application – production of complete organ - kidney – eyes - heart – brain.**
Module-5 (8 Hours)
APPLICATIONS AND ETHICAL ISSUES : **Gene therapy – genetically engineered stem cells – stem cells and Animal cloning – transgenic animals and stem cells – Therapeutic applications – Cardiovascular treatment, Cell deficiency therapy, treatment of brain related defects. Neurological disorder (AD,PD),limb amputation, heart disease - spinal cord injuries – diabetes –burns - HLA typing- hepatic and pancreatic disorders. Stem cell policy and ethics, stem cell research: Hype, hope and controversy.**
Course outcomes (Course Skill Set) **At the end of the course the student will be able to:** ➢ **Understand the basics of stem cell biology, the various types and their isolation and identification.** ➢ **Correlate stem cell technology in treatment of various diseases and disorders.** ➢ **Apply the basics of stem cells in drug discovery and tissue engineering in line with ethical considerations.**
B. E. BIOTECHNOLOGY **Outcome Based Education (OBE) and Choice Based Credit System (CBCS) SEMESTER - VII**

Course Title::	**BIOETHICS , BIOSAFETY & IPR**		
Course Code	**18BT741**	CIE Marks	40
Teaching Hours/Week (L:T:P)	(3:0:0)	SEE Marks	60
Credits	03	Exam Hours	03

Course Learning Objectives: : This course will enable students

- To introduce the biosafety regulations
- To understand the ethical concepts in biotechnology
- To emphasize on IPR issues and need for knowledge in patents in biotechnology

Module-1

BIOTECHNOLOGY AND SOCIETY

Introduction to science, technology and society, issues of access-Case studies/experiences from developing and developed countries. Ownership, monopoly, traditional knowledge, biodiversity, benefit sharing, environmental sustainability, public vs. private funding, biotechnology in international relations, globalization and development divide. Public acceptance issues for biotechnology: Biotechnology and hunger: Challenges
for the Indian Biotechnological research and industries.

Module-2

BIOETHICS & LEGAL ISSUES:

Principles of bioethics: Legality, morality and ethics, autonomy, human rights, beneficence, privacy, justice, equity etc. The expanding scope of ethics from biomedical practice to biotechnology, bioethics vs. business ethics, ethical dimensions of IPR, technology transfer and other global biotech issues.

The legal, institutional and socioeconomic impacts of biotechnology; biotechnology and social responsibility, Public education to increase the awareness of bioethics with regard to generating new forms of life for informed decision making – with case studies.

Module-3

BIOSAFETY CONCEPTS AND ISSUES:

Ethical conflicts in biotechnology - interference with nature, fear of unknown, unequal distribution of risks and benefits of biotechnology, Rational vs. subjective perceptions of risks and benefits, relationship between risk, hazard, exposure and safeguards, Biotechnology and biosafety concerns at the level of individuals, institutions, society, region, country and the world. The Cartagena protocol on biosafety. Bio-safety management. Ethical implications of biotechnological products and techniques.

Module-4

REGULATIONS:

Bio-safety assessment procedures in India and abroad. International dimensions in biosafety, bioterrorism and convention on biological weapons. Social and ethical implications of biological weapons. Bio-safety regulations and national and international guidelines with regard to recombinant DNA technology. Guidelines for research

in transgenic plants. Good manufacturing practice and Good lab practices (GMP and GLP). National and international regulations for food and pharma products.

Module-5

IPR, PATENTS AND PATENT LAWS:

Intellectual property rights-TRIP- GATT International conventions patents Methods of application of patents Legal implications Biodiversity and farmer rights

Objectives of the patent system Basic principles and general requirements of patent law Biotechnological inventions and patent law .Legal development-Patentable subjects and protection in biotechnology .The patenting of living organisms.

Course Outcomes: At the end of the course the student will be able to

- Describe the rules governing manufacture, use/import/exportand storage of hazardous microorganisms/genetically engineered organisms or cells.
- Describe the ethical issues related to biotechnology research
- Explain the various forms of IPR, methods of application of Patents, Protection of Plant varieties and farmer rights
- Overview of the Indian Patent Law, knowledge on patentability requirements, patenting biotechnological inventions and innovations

Department of Information Science & Engineering

Physical Education (Sports and Athletics) syllabus

Semester: IV						
PHYSICAL EDUCATION (SPORTS & ATHLETICS) – II						
Course Code	:	BPEK459		**CIE**	:	**100 Marks**
Credits: L:T:P	:	0:0:1				
Total Hours	:	24 P				

Course Outcomes: At the end of the course, the student will be able to

1. Understand the ethics and moral values in sports and athletics
2. Perform in the selected sports or athletics of student's choice.
3. Understand the roles and responsibilities of organisation and administration of sports and games.

Module I : Ethics and Moral Values **4 Hours**

A. Ethics in Sports
B. Moral Values in Sports and Games

Module II : Specific Games (Any one to be selected by the student) **16 Hours**

A. Volleyball – Attack, Block, Service, Upper Hand Pass and Lower hand Pass.
B. Athletics (Track Events) – Any event as per availability of Ground.

Module III: Role of Organisation and administration **4 Hours**

Scheme and Assessment for auditing the course and Grades:

Sl. No.	Activity	Marks
1.	Participation of student in all the modules	20
2.	Quizzes – 2, each of 15 marks	30
3.	Final presentation / exhibition / Participation in competitions/ practical on specific tasks assigned to the students	50
	Total	**100**

Course Title:	**Indian Constitution**		
Course Code:	BICOK107-207	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01
Total Hours of Pedagogy	15 hours	Credits	01

Course objectives :

The course **INDIAN CONSTITUTION (22ICO17 / 27)** will enable the students,

1. To know about the basic structure of Indian Constitution.
2. To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
3. To know about our Union Government, political structure & codes, procedures.
4. To know the State Executive & Elections system of India.
5. To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.

Teaching-Learning Process

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

(i) Direct instructional method (Low/Old Technology),
(ii) Flipped classrooms (High/advanced Technological tools),
(i i i) Blended learning (Combination of both),
(iv) Enquiry and evaluation based learning,
(v) Personalizedlearning,
(vi) Problems based learning through discussion.
(vii) Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

Module-1 (03 hours of pedagogy)

Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to theIndian constitution, Making of the Constitution, Role of the Constituent Assembly.

Module-2 (03 hours of pedagogy)

Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. FundamentalRights (FR's) and its Restriction and limitations in different Complex Situations. building.

Module-3 (03 hours of pedagogy)

Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties
and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.

Module-4 (03 hours of pedagogy)

Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India,Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.

Module-5 (03 hours of pedagogy)

State Executive and Governer, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral

Process	Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.

Course outcome (Course Skill Set)
At the end of the course 22ICO17/27 the student will be able to:

CO1	Analyse the basic structure of Indian Constitution.
CO2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
CO3	know about our Union Government, political structure & codes, procedures.
CO4	Understand our State Executive & Elections system of India.
CO5	Remember the Amendments and Emergency Provisions, other important provisions given by the constitution.

RESEARCH METHODOLOGY & INTELLECTUAL PROPERTY RIGHTS			
Course Code:	**21RMI56**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1:2:0:0	SEE Marks	50
Total Hours of Pedagogy	25	Total Marks	100
Credits	02	Exam Hours	03

Course Objectives:
CO1. To Understand the knowledge on basics of research and its types.
CO2. To Learn the concept of Literature Review, Technical Reading, Attributions and Citations.CO3. To learn Ethics in Engineering Research.
CO4. To Discuss the concepts of Intellectual Property Rights in engineering.

Teaching-Learning Process (General Instructions)
These are sample Strategies; which teachers can use to accelerate the attainment of the various courseoutcomes.

1. Lecturer methods (L) need not be only the traditional lecture methods, but alternativeeffective teaching methods could be adopted to attain the outcomes.
2. Use of Video to explain various concepts on IPR.
3. Encourage collaborative (Group Learning) Learning in the class.
4. Ask at least three HOT (Higher Order Thinking) questions in the class, which promotes criticalthinking.
5. Introduce Topics in manifold representations.
6. Show the different ways to analyze the research problem and encourage the students to comeup withtheir own creative ways to solve them.
7. Discuss how every concept can be applied to the real world - and when that's possible, it helpsImprove the students' understanding.

Module-1 (5 Hours)

Introduction: Meaning of Research, Objectives of Engineering Research, and Motivation in EngineeringResearch, Types of Engineering Research, Finding and Solving a Worthwhile Problem.

Ethics in Engineering Research, Ethics in Engineering Research Practice, Types of Research Misconduct, Ethical Issues Related to Authorship.

Teaching- Learning Process	Chalk and talk method / PowerPoint Presentation.

Module-2(5 Hours)

Literature Review and Technical Reading, New and Existing Knowledge, Analysis and Synthesis of Prior Art Bibliographic Databases, Web of Science, Google and Google Scholar, Effective Search: The Way Forward Introduction to Technical Reading Conceptualizing Research, Critical and Creative Reading, Taking Notes While Reading, Reading Mathematics and Algorithms, Reading a Datasheet.

Attributions and Citations: Giving Credit Wherever Due, Citations: Functions and Attributes, Impact of Title and Keywords on Citations, Knowledge Flow through Citation, Citing Datasets, Styles for Citations, Acknowledgments and Attributions, What Should Be Acknowledged, Acknowledgments in, Books
Dissertations, Dedication or Acknowledgments.

Teaching-Learning Process	Chalk and talk method / PowerPoint Presentation

Module-3(5 Hours)

Introduction To Intellectual Property: Role of IP in the Economic and Cultural Development of the Society, IP Governance, IP as a Global Indicator of Innovation, Origin of IP History of IP in India. Major Amendments in IP Laws and Acts in India.

Patents: Conditions for Obtaining a Patent Protection, To Patent or Not to Patent an Invention. Rights Associated with Patents. Enforcement of Patent Rights. Inventions Eligible for Patenting. Non-Patentable Matters. Patent Infringements. Avoid Public Disclosure of an Invention before Patenting. Process of Patenting. Prior Art Search. Choice of Application to be Filed. Patent Application Forms. Jurisdiction of Filing Patent Application. Publication. Pre-grant Opposition. Examination. Grant of a Patent. Validity of Patent Protection. Post-grant Opposition. Commercialization of a Patent. Need for a Patent Attorney/Agent. Can a Worldwide Patent be Obtained. Do I Need First to File a Patent in India. Patent Related Forms. Fee Structure. Types of Patent Applications. Commonly Used Terms in Patenting. National Bodies Dealing with Patent Affairs. Utility Models.

Process of Patenting. Prior Art Search. Choice of Application to be Filed. Patent Application Forms. Jurisdiction of Filing Patent Application. Publication. Pre-grant Opposition. Examination. Grant of a Patent. Validity of Patent Protection. Post-grant Opposition. Commercialization of a Patent. Need for a Patent Attorney/Agent. Can a Worldwide Patent be Obtained. Do I Need First to File a Patent in India. Patent Related Forms. Fee Structure. Types of Patent Applications. Commonly Used Terms in Patenting. National Bodies Dealing with Patent Affairs. Utility Models.

Teaching- Learning Process	Chalk and talk method / PowerPoint Presentation.

Module-4(5 Hours)

Copyrights and Related Rights: Classes of Copyrights. Criteria for Copyright. Ownership of Copyright. Copyrights of the Author. Copyright Infringements. Copyright Infringement is a Criminal Offence. Copyright Infringement is a Cognizable Offence. Fair Use Doctrine. Copyrights and Internet. Non-Copyright Work. Copyright Registration. Judicial Powers of the Registrar of Copyrights. Fee Structure. Copyright Symbol. Validity of Copyright. Copyright Profile of India. Copyright and the word 'Publish'. Transfer of Copyrights to a Publisher. Copyrights and the Word 'Adaptation'. Copyrights and the Word 'Indian Work'. Joint Authorship. Copyright Society. Copyright Board. Copyright Enforcement Advisory Council (CEAC). International Copyright Agreements, Conventions and Treaties. Interesting Copyrights Cases.

Trademarks: Eligibility Criteria. Who Can Apply for a Trademark. Acts and Laws. Designation of Trademark Symbols. Classification of Trademarks. Registration of a Trademark is Not Compulsory. Validity of Trademark. Types of Trademark Registered in India. Trademark Registry. Process for Trademarks Registration. Prior Art Search. Famous Case Law: Coca-Cola Company vs. Bisleri International Pvt. Ltd.

Module-5(5 Hours)

Industrial Designs: Eligibility Criteria. Acts and Laws to Govern Industrial Designs. Design Rights. Enforcement of Design Rights. Non-Protectable Industrial Designs India. Protection Term. Procedure for Registration of Industrial Designs. Prior Art Search. Application for Registration. Duration of the Registration of a Design. Importance of Design Registration. Cancellation of the Registered Design. Application Forms. Classification of Industrial Designs. Designs Registration Trend in India. International Treaties. Famous Case Law: Apple Inc. vs. Samsung Electronics Co.

Geographical Indications: Acts, Laws and Rules Pertaining to GI. Ownership of GI. Rights Granted to the Holders. Registered GI in India. Identification of Registered GI. Classes of GI. Non-Registerable GI. Protection of GI. Collective or Certification Marks. Enforcement of GI Rights. Procedure for GI Registration Documents Required for GI Registration. GI Ecosystem in India.

Case Studies on Patents. Case study of Curcuma (Turmeric) Patent, Case study of Neem Patent, Case study of Basmati patent.
IP Organizations In India. Schemes and Programmes

Department of Mechanical Engineering

Physical Education (Sports and Athletics) syllabus

Semester: IV						
PHYSICAL EDUCATION (SPORTS & ATHLETICS) – II						
Course Code	:	BPEK459		**CIE**	:	**100 Marks**
Credits: L:T:P	:	0:0:1				
Total Hours	:	24 P				

Course Outcomes: At the end of the course, the student will be able to

1. Understand the ethics and moral values in sports and athletics
2. Perform in the selected sports or athletics of student's choice.
3. Understand the roles and responsibilities of organisation and administration of sports and games.

Module I : Ethics and Moral Values **4 Hours**

A. Ethics in Sports
B. Moral Values in Sports and Games

Module II : Specific Games (Any one to be selected by the student) **16 Hours**

A. Volleyball – Attack, Block, Service, Upper Hand Pass and Lower hand Pass.
B. Athletics (Track Events) – Any event as per availability of Ground.

Module III: Role of Organisation and administration **4 Hours**

Scheme and Assessment for auditing the course and Grades:

Sl. No.	Activity	Marks
1.	Participation of student in all the modules	20
2.	Quizzes – 2, each of 15 marks	30
3.	Final presentation / exhibition / Participation in competitions/ practical on specific tasks assigned to the students	50
	Total	**100**

Course Title:	**Indian Constitution**		
Course Code:	BICOK107-207	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01
Total Hours of Pedagogy	15 hours	Credits	01

Course objectives :

The course **INDIAN CONSTITUTION (22ICO17 / 27)** will enable the students,

1. To know about the basic structure of Indian Constitution.
2. To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
3. To know about our Union Government, political structure & codes, procedures.
4. To know the State Executive & Elections system of India.
5. To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.

Teaching-Learning Process

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(vii) Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and
practical skills.

Module-1 (03 hours of pedagogy)

Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to theIndian constitution, Making of the Constitution, Role of the Constituent Assembly.

Module-2 (03 hours of pedagogy)

Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. FundamentalRights (FR's) and its Restriction and limitations in different Complex Situations. building.

Module-3 (03 hours of pedagogy)

Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.

Module-4 (03 hours of pedagogy)

Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India,Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.

Module-5 (03 hours of pedagogy)

State Executive and Governer, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral

Proc ess. Amendment to Constitution, and Important Constitutional Amendments till today. Emergency provisions.

Course outcome (Course Skill Set)

At the end of the course 22ICO17/27 the student will be able to:

CO1	Analyse the basic structure of Indian Constitution.
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CO3	know about our Union Government, political structure & codes, procedures.
CO4	Understand our State Executive & Elections system of India.
CO5	Remember the Amendments and Emergency Provisions, other important provisions given by the constitution.

RESEARCH METHODOLOGY & INTELLECTUAL PROPERTY RIGHTS			
Course Code:	**21RMI56**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1:2:0:0	SEE Marks	50
Total Hours of Pedagogy	25	Total Marks	100
Credits	02	Exam Hours	03

Course Objectives:

CO1. To Understand the knowledge on basics of research and its types.
CO2. To Learn the concept of Literature Review, Technical Reading, Attributions and Citations. CO3. To learn Ethics in Engineering Research.
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These are sample Strategies; which teachers can use to accelerate the attainment of the various courseoutcomes.

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6. Show the different ways to analyze the research problem and encourage the students to comeup withtheir own creative ways to solve them.
7. Discuss how every concept can be applied to the real world - and when that's possible, it helpsImprove the students' understanding.

Module-1 (5 Hours)

Introduction: Meaning of Research, Objectives of Engineering Research, and Motivation in EngineeringResearch, Types of Engineering Research, Finding and Solving a Worthwhile Problem.
Ethics in Engineering Research, Ethics in Engineering Research Practice, Types of Research Misconduct,Ethical Issues Related to Authorship.

Teaching- Learning Process	Chalk and talk method / PowerPoint Presentation.

Module-2(5 Hours)

Literature Review and Technical Reading, New and Existing Knowledge, Analysis and Synthesis of Prior Art Bibliographic Databases, Web of Science, Google and Google Scholar, Effective Search: The WayForward Introduction to Technical Reading Conceptualizing Research, Critical and Creative Reading, Taking Notes While Reading, Reading Mathematics and Algorithms, Reading a Datasheet.

Attributions and Citations: Giving Credit Wherever Due, Citations: Functions and Attributes, Impact of Title and Keywords on Citations, Knowledge Flow through Citation, Citing Datasets, Styles for Citations, Acknowledgments and Attributions, What Should Be Acknowledged, Acknowledgments in, Books
Dissertations, Dedication or Acknowledgments.

Teaching-Learning Process	Chalk and talk method / PowerPoint Presentation

Module-3(5 Hours)

Introduction To Intellectual Property: Role of IP in the Economic and Cultural Development of the Society, IP Governance, IP as a Global Indicator of Innovation, Origin of IP History of IP in India. Major Amendments inIP Laws and Acts in India.

Patents: Conditions for Obtaining a Patent Protection, To Patent or Not to Patent an Invention. Rights Associated with Patents. Enforcement of Patent Rights. Inventions Eligible for Patenting. Non-Patentable Matters. Patent Infringements. Avoid Public Disclosure of an Invention before Patenting. Process of Patenting.Prior Art Search. Choice of Application to be Filed. Patent

Application Forms. Jurisdiction of Filing Patent Application. Publication. Pre-grant Opposition. Examination. Grant of a Patent. Validity of Patent Protection. Post-grant Opposition. Commercialization of a Patent. Need for a Patent Attorney/Agent. Can a Worldwide Patent be Obtained. Do I Need First to File a Patent in India. Patent Related Forms. Fee Structure. Types of Patent Applications. Commonly Used Terms in Patenting. National Bodies Dealing with Patent Affairs. Utility Models.

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Teaching- Learning Process	Chalk and talk method / PowerPoint Presentation.

Module-4(5 Hours)

Copyrights and Related Rights: Classes of Copyrights. Criteria for Copyright. Ownership of Copyright. Copyrights of the Author. Copyright Infringements. Copyright Infringement is a Criminal Offence. Copyright Infringement is a Cognizable Offence. Fair Use Doctrine. Copyrights and Internet. Non-Copyright Work. Copyright Registration. Judicial Powers of the Registrar of Copyrights. Fee Structure. Copyright Symbol. Validity of Copyright. Copyright Profile of India. Copyright and the word 'Publish'. Transfer of Copyrights to a Publisher. Copyrights and the Word 'Adaptation'. Copyrights and the Word 'Indian Work'. Joint Authorship. Copyright Society. Copyright Board. Copyright Enforcement Advisory Council (CEAC). International Copyright Agreements, Conventions and Treaties. Interesting Copyrights Cases.

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Registration. Prior Art Search. Famous Case Law: Coca-Cola Company vs. Bisleri International Pvt. Ltd.

Module-5(5 Hours)

Industrial Designs: Eligibility Criteria. Acts and Laws to Govern Industrial Designs. Design Rights. Enforcement of Design Rights. Non-Protectable Industrial Designs India. Protection Term. Procedure for Registration of Industrial Designs. Prior Art Search. Application for Registration. Duration of the Registration of a Design. Importance of Design Registration. Cancellation of the Registered Design. Application Forms. Classification of Industrial Designs. Designs Registration Trend in India. International Treaties. Famous Case Law: Apple Inc. vs. Samsung Electronics Co.

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Case Studies on Patents. Case study of Curcuma (Turmeric) Patent, Case study of Neem Patent, Case study of Basmati patent.
IP Organizations In India. Schemes and Programmes

Department of Computer Science & Engineering

Physical Education (Sports and Athletics) syllabus

Semester: IV						
PHYSICAL EDUCATION (SPORTS & ATHLETICS) – II						
Course Code	:	BPEK459		**CIE**	:	**100 Marks**
Credits: L:T:P	:	0:0:1				
Total Hours	:	24 P				

Course Outcomes: At the end of the course, the student will be able to

1. Understand the ethics and moral values in sports and athletics
2. Perform in the selected sports or athletics of student's choice.
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A. Ethics in Sports
B. Moral Values in Sports and Games

Module II : Specific Games (Any one to be selected by the student) **16 Hours**

A. Volleyball – Attack, Block, Service, Upper Hand Pass and Lower hand Pass.
B. Athletics (Track Events) – Any event as per availability of Ground.

Module III: Role of Organisation and administration **4 Hours**

Scheme and Assessment for auditing the course and Grades:

Sl. No.	Activity	Marks
1.	Participation of student in all the modules	20
2.	Quizzes – 2, each of 15 marks	30
3.	Final presentation / exhibition / Participation in competitions/ practical on specific tasks assigned to the students	50
	Total	**100**

Course Title:	**Indian Constitution**		
Course Code:	BICOK107-207	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01
Total Hours of Pedagogy	15 hours	Credits	01

Course objectives :

The course **INDIAN CONSTITUTION (22ICO17 / 27)** will enable the students,

1. To know about the basic structure of Indian Constitution.
2. To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
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5. To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.

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Module-1 (03 hours of pedagogy)

Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to theIndian constitution, Making of the Constitution, Role of the Constituent Assembly.

Module-2 (03 hours of pedagogy)

Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. FundamentalRights (FR's) and its Restriction and limitations in different Complex Situations. building.

Module-3 (03 hours of pedagogy)

Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties
and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.

Module-4 (03 hours of pedagogy)

Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India,Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.

Module-5 (03 hours of pedagogy)

State Executive and Governor, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral

Process	Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.

Course outcome (Course Skill Set)
At the end of the course 22ICO17/27 the student will be able to:

CO1	Analyse the basic structure of Indian Constitution.
CO2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
CO3	know about our Union Government, political structure & codes, procedures.

Department of Electrical and Communication Engineering

Course Title:	**Indian Constitution**		
Course Code:	BICOK107-207	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01
Total Hours of Pedagogy	15 hours	Credits	01

Course objectives :
The course **INDIAN CONSTITUTION (22ICO17 / 27)** will enable the students,

1. To know about the basic structure of Indian Constitution.
2. To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
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(vii) Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

Module-1 (03 hours of pedagogy)

Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to theIndian constitution, Making of the Constitution, Role of the Constituent Assembly.

Module-2 (03 hours of pedagogy)

Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. FundamentalRights (FR's) and its Restriction and limitations in different Complex Situations. building.

Module-3 (03 hours of pedagogy)

Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties

and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.
Module-4 (03 hours of pedagogy)
Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India,Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.
Module-5 (03 hours of pedagogy)
State Executive and Governer, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.

Course outcome (Course Skill Set)
At the end of the course 22ICO17/27 the student will be able to:

CO1	Analyse the basic structure of Indian Constitution.
CO2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
CO3	know about our Union Government, political structure & codes, procedures.

Department of Artificial Intelligence and Machine Learning

Course Title:	**Indian Constitution**		
Course Code:	BICOK107-207	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01

Course objectives :

The course **INDIAN CONSTITUTION (22ICO17 / 27)** will enable the students,

1. To know about the basic structure of Indian Constitution.
2. To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
3. To know about our Union Government, political structure & codes, procedures.
4. To know the State Executive & Elections system of India.
5. To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.

Teaching-Learning Process

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

(i) Direct instructional method (Low/Old Technology),
(ii) Flipped classrooms (High/advanced Technological tools),
(iii) Blended learning (Combination of both),
(iv) Enquiry and evaluation based learning,
(v) Personalizedlearning,
(vi) Problems based learning through discussion.
(vii) Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

Module-1 (03 hours of pedagogy)

Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction

to theIndian constitution, Making of the Constitution, Role of the Constituent Assembly.
Module-2 (03 hours of pedagogy)
Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. FundamentalRights (FR's) and its Restriction and limitations in different Complex Situations. building.
Module-3 (03 hours of pedagogy)
Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.
Module-4 (03 hours of pedagogy)
Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India,Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.
Module-5 (03 hours of pedagogy)
State Executive and Governer, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.
Course outcome (Course Skill Set) At the end of the course 22ICO17/27 the student will be able to:

CO1	Analyse the basic structure of Indian Constitution.
CO2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
CO3	know about our Union Government, political structure & codes, procedures.

RESEARCH METHODOLOGY & INTELLECTUAL PROPERTY RIGHTS			
Course Code:	**21RMI56**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1:2:0:0	SEE Marks	50
Total Hours of Pedagogy	25	Total Marks	100
Credits	02	Exam Hours	03

Course Objectives:

CO1. To Understand the knowledge on basics of research and its types.
CO2. To Learn the concept of Literature Review, Technical Reading, Attributions and Citations.CO3. To learn Ethics in Engineering Research.
CO4. To Discuss the concepts of Intellectual Property Rights in engineering.

Teaching-Learning Process (General Instructions)

These are sample Strategies; which teachers can use to accelerate the attainment of the various courseoutcomes.

1. Lecturer methods (L) need not be only the traditional lecture methods, but alternativeeffective teaching methods could be adopted to attain the outcomes.
2. Use of Video to explain various concepts on IPR.
3. Encourage collaborative (Group Learning) Learning in the class.
4. Ask at least three HOT (Higher Order Thinking) questions in the class, which promotes criticalthinking.
5. Introduce Topics in manifold representations.
6. Show the different ways to analyze the research problem and encourage the students to comeup withtheir own creative ways to solve them.
7. Discuss how every concept can be applied to the real world - and when that's possible, it helpsImprove the students' understanding.

Module-1 (5 Hours)

Introduction: Meaning of Research, Objectives of Engineering Research, and Motivation in EngineeringResearch, Types of Engineering Research, Finding and Solving a Worthwhile Problem. Ethics in Engineering Research, Ethics in Engineering Research Practice, Types of Research Misconduct, Ethical Issues Related to Authorship.	
Teaching- Learning Process	Chalk and talk method / PowerPoint Presentation.
Module-2(5 Hours)	
Literature Review and Technical Reading, New and Existing Knowledge, Analysis and Synthesis of Prior Art Bibliographic Databases, Web of Science, Google and Google Scholar, Effective Search: The Way Forward Introduction to Technical Reading Conceptualizing Research, Critical and Creative Reading, Taking Notes While Reading, Reading Mathematics and Algorithms, Reading a Datasheet. **Attributions and Citations**: Giving Credit Wherever Due, Citations: Functions and Attributes, Impact of Title and Keywords on Citations, Knowledge Flow through Citation, Citing Datasets, Styles for Citations, Acknowledgments and Attributions, What Should Be Acknowledged, Acknowledgments in, Books Dissertations, Dedication or Acknowledgments.	
Teaching-Learning Process	Chalk and talk method / PowerPoint Presentation
Module-3(5 Hours)	
Introduction To Intellectual Property: Role of IP in the Economic and Cultural Development of the Society, IP Governance, IP as a Global Indicator of Innovation, Origin of IP History of IP in India. Major Amendments in IP Laws and Acts in India. **Patents:** Conditions for Obtaining a Patent Protection, To Patent or Not to Patent an Invention. Rights Associated with Patents. Enforcement of Patent Rights. Inventions Eligible for Patenting. Non-Patentable Matters. Patent Infringements. Avoid Public Disclosure of an Invention before Patenting. Process of Patenting. Prior Art Search. Choice of Application to be Filed. Patent Application Forms. Jurisdiction of Filing Patent Application. Publication. Pre-grant Opposition. Examination. Grant of a Patent. Validity of Patent Protection. Post-grant Opposition. Commercialization of a Patent. Need for a Patent Attorney/Agent. Can a Worldwide Patent be Obtained. Do I Need First to File a Patent in India. Patent Related Forms. Fee Structure. Types of Patent Applications. Commonly Used Terms in Patenting. National Bodies Dealing with Patent Affairs. Utility Models. **Process of Patenting.** Prior Art Search. Choice of Application to be Filed. Patent Application Forms. Jurisdiction of Filing Patent Application. Publication. Pre-grant Opposition. Examination. Grant of a Patent. Validity of Patent Protection. Post-grant Opposition. Commercialization of a Patent. Need for a Patent Attorney/Agent. Can a Worldwide Patent be Obtained. Do I Need First to File a Patent in India. Patent Related Forms. Fee Structure. Types of Patent Applications. Commonly Used Terms in Patenting. National Bodies Dealing with Patent Affairs. Utility Models.	
Teaching- Learning Process	Chalk and talk method / PowerPoint Presentation.
Module-4(5 Hours)	
Copyrights and Related Rights: Classes of Copyrights. Criteria for Copyright. Ownership of Copyright. Copyrights of the Author. Copyright Infringements. Copyright Infringement is a Criminal Offence. Copyright Infringement is a Cognizable Offence. Fair Use Doctrine. Copyrights and Internet. Non-Copyright Work. Copyright Registration. Judicial Powers of the Registrar of Copyrights. Fee Structure. Copyright Symbol. Validity of Copyright. Copyright Profile of India. Copyright and the word 'Publish'. Transfer of Copyrights to a Publisher. Copyrights and the Word 'Adaptation'. Copyrights and the Word 'Indian Work'. Joint Authorship. Copyright Society. Copyright Board. Copyright Enforcement Advisory Council (CEAC). International Copyright Agreements, Conventions and Treaties. Interesting Copyrights Cases. **Trademarks**: Eligibility Criteria. Who Can Apply for a Trademark. Acts and Laws. Designation of Trademark Symbols. Classification of Trademarks. Registration of a Trademark is Not Compulsory. Validity of Trademark. Types of Trademark Registered in India. Trademark Registry. Process for Trademarks Registration. Prior Art Search. Famous Case Law: Coca-Cola Company vs. Bisleri International Pvt. Ltd.	
Module-5(5 Hours)	

Industrial Designs: Eligibility Criteria. Acts and Laws to Govern Industrial Designs. Design Rights. Enforcement of Design Rights. Non-Protectable Industrial Designs India. Protection Term. Procedure for Registration of Industrial Designs. Prior Art Search. Application for Registration. Duration of the Registration of a Design. Importance of Design Registration. Cancellation of the Registered Design. Application Forms. Classification of Industrial Designs. Designs Registration Trend in India. International Treaties. Famous Case Law: Apple Inc. vs. Samsung Electronics Co.

Geographical Indications: Acts, Laws and Rules Pertaining to GI. Ownership of GI. Rights Granted to the Holders. Registered GI in India. Identification of Registered GI. Classes of GI. Non-Registerable GI. Protection of GI. Collective or Certification Marks. Enforcement of GI Rights. Procedure for GI Registration Documents Required for GI Registration. GI Ecosystem in India.

Case Studies on Patents. Case study of Curcuma (Turmeric) Patent, Case study of Neem Patent, Case study of Basmati patent.
IP Organizations In India. Schemes and Programmes.

Department of Mechatronics

Course Title:	**Indian Constitution**		
Course Code:	BICOK107-207	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01
Total Hours of Pedagogy	15 hours	Credits	01

Course objectives :

The course **INDIAN CONSTITUTION (22ICO17 / 27)** will enable the students,

6. To know about the basic structure of Indian Constitution.
7. To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
8. To know about our Union Government, political structure & codes, procedures.
9. To know the State Executive & Elections system of India.
10. To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.

Teaching-Learning Process

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

(i) Direct instructional method (Low/Old Technology),
(ii) Flipped classrooms (High/advanced Technological tools),
(iii) Blended learning (Combination of both),
(iv) Enquiry and evaluation based learning,
(v) Personalizedlearning,
(vi) Problems based learning through discussion.
(vii) Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

Module-1 (03 hours of pedagogy)

Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to theIndian constitution, Making of the Constitution, Role of the Constituent Assembly.

Module-2	**(03 hours of pedagogy)**
Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. FundamentalRights (FR's) and its Restriction and limitations in different Complex Situations. building.	
Module-3	**(03 hours of pedagogy)**
Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.	
Module-4	**(03 hours of pedagogy)**
Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India,Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.	
Module-5	**(03 hours of pedagogy)**
State Executive and Governer, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.	

Course outcome (Course Skill Set)
At the end of the course 22ICO17/27 the student will be able to:

CO1	Analyse the basic structure of Indian Constitution.
CO2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
CO3	know about our Union Government, political structure & codes, procedures.

RESEARCH METHODOLOGY & INTELLECTUAL PROPERTY RIGHTS			
Course Code:	**21RMI56**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1:2:0:0	SEE Marks	50
Total Hours of Pedagogy	25	Total Marks	100
Credits	02	Exam Hours	03

Course Objectives:
CO1. To Understand the knowledge on basics of research and its types.
CO2. To Learn the concept of Literature Review, Technical Reading, Attributions and Citations. CO3. To learn Ethics in Engineering Research.
CO4. To Discuss the concepts of Intellectual Property Rights in engineering.

Teaching-Learning Process (General Instructions)
These are sample Strategies; which teachers can use to accelerate the attainment of the various courseoutcomes.

8. Lecturer methods (L) need not be only the traditional lecture methods, but alternativeeffective teaching methods could be adopted to attain the outcomes.
9. Use of Video to explain various concepts on IPR.
10. Encourage collaborative (Group Learning) Learning in the class.
11. Ask at least three HOT (Higher Order Thinking) questions in the class, which promotes criticalthinking.
12. Introduce Topics in manifold representations.
13. Show the different ways to analyze the research problem and encourage the students to comeup withtheir own creative ways to solve them.
14. Discuss how every concept can be applied to the real world - and when that's possible, it helpsImprove the students' understanding.

Module-1 (5 Hours)

Introduction: Meaning of Research, Objectives of Engineering Research, and Motivation in EngineeringResearch, Types of Engineering Research, Finding and Solving a Worthwhile Problem. Ethics in Engineering Research, Ethics in Engineering Research Practice, Types of Research Misconduct, Ethical Issues Related to Authorship.	
Teaching- Learning Process	Chalk and talk method / PowerPoint Presentation.
Module-2(5 Hours)	
Literature Review and Technical Reading, New and Existing Knowledge, Analysis and Synthesis of Prior Art Bibliographic Databases, Web of Science, Google and Google Scholar, Effective Search: The Way Forward Introduction to Technical Reading Conceptualizing Research, Critical and Creative Reading, Taking Notes While Reading, Reading Mathematics and Algorithms, Reading a Datasheet. **Attributions and Citations**: Giving Credit Wherever Due, Citations: Functions and Attributes, Impact of Title and Keywords on Citations, Knowledge Flow through Citation, Citing Datasets, Styles for Citations, Acknowledgments and Attributions, What Should Be Acknowledged, Acknowledgments in, Books Dissertations, Dedication or Acknowledgments.	
Teaching-Learning Process	Chalk and talk method / PowerPoint Presentation
Module-3(5 Hours)	
Introduction To Intellectual Property: Role of IP in the Economic and Cultural Development of the Society, IP Governance, IP as a Global Indicator of Innovation, Origin of IP History of IP in India. Major Amendments in IP Laws and Acts in India. **Patents:** Conditions for Obtaining a Patent Protection, To Patent or Not to Patent an Invention. Rights Associated with Patents. Enforcement of Patent Rights. Inventions Eligible for Patenting. Non-Patentable Matters. Patent Infringements. Avoid Public Disclosure of an Invention before Patenting. Process of Patenting. Prior Art Search. Choice of Application to be Filed. Patent Application Forms. Jurisdiction of Filing Patent Application. Publication. Pre-grant Opposition. Examination. Grant of a Patent. Validity of Patent Protection. Post-grant Opposition. Commercialization of a Patent. Need for a Patent Attorney/Agent. Can a Worldwide Patent be Obtained. Do I Need First to File a Patent in India. Patent Related Forms. Fee Structure. Types of Patent Applications. Commonly Used Terms in Patenting. National Bodies Dealing with Patent Affairs. Utility Models. **Process of Patenting.** Prior Art Search. Choice of Application to be Filed. Patent Application Forms. Jurisdiction of Filing Patent Application. Publication. Pre-grant Opposition. Examination. Grant of a Patent. Validity of Patent Protection. Post-grant Opposition. Commercialization of a Patent. Need for a Patent Attorney/Agent. Can a Worldwide Patent be Obtained. Do I Need First to File a Patent in India. Patent Related Forms. Fee Structure. Types of Patent Applications. Commonly Used Terms in Patenting. National Bodies Dealing with Patent Affairs. Utility Models.	
Teaching- Learning Process	Chalk and talk method / PowerPoint Presentation.
Module-4(5 Hours)	
Copyrights and Related Rights: Classes of Copyrights. Criteria for Copyright. Ownership of Copyright. Copyrights of the Author. Copyright Infringements. Copyright Infringement is a Criminal Offence. Copyright Infringement is a Cognizable Offence. Fair Use Doctrine. Copyrights and Internet. Non-Copyright Work. Copyright Registration. Judicial Powers of the Registrar of Copyrights. Fee Structure. Copyright Symbol. Validity of Copyright. Copyright Profile of India. Copyright and the word 'Publish'. Transfer of Copyrights to a Publisher. Copyrights and the Word 'Adaptation'. Copyrights and the Word 'Indian Work'. Joint Authorship. Copyright Society. Copyright Board. Copyright Enforcement Advisory Council (CEAC). International Copyright Agreements, Conventions and Treaties. Interesting Copyrights Cases. **Trademarks**: Eligibility Criteria. Who Can Apply for a Trademark. Acts and Laws. Designation of Trademark Symbols. Classification of Trademarks. Registration of a Trademark is Not Compulsory. Validity of Trademark. Types of Trademark Registered in India. Trademark Registry. Process for Trademarks Registration. Prior Art Search. Famous Case Law: Coca-Cola Company vs. Bisleri International Pvt. Ltd.	
Module-5(5 Hours)	

Industrial Designs: Eligibility Criteria. Acts and Laws to Govern Industrial Designs. Design Rights. Enforcement of Design Rights. Non-Protectable Industrial Designs India. Protection Term. Procedure for Registration of Industrial Designs. Prior Art Search. Application for Registration. Duration of the Registration of a Design. Importance of Design Registration. Cancellation of the Registered Design. Application Forms. Classification of Industrial Designs. Designs Registration Trend in India. International Treaties. Famous Case Law: Apple Inc. vs. Samsung Electronics Co.

Geographical Indications: Acts, Laws and Rules Pertaining to GI. Ownership of GI. Rights Granted to the Holders. Registered GI in India. Identification of Registered GI. Classes of GI. Non-Registerable GI. Protection of GI. Collective or Certification Marks. Enforcement of GI Rights. Procedure for GI Registration Documents Required for GI Registration. GI Ecosystem in India.

Case Studies on Patents. Case study of Curcuma (Turmeric) Patent, Case study of Neem Patent, Case study of Basmati patent.
IP Organizations In India. Schemes and Programmes

Department of Civil Engineering

Course Title:	**Indian Constitution**		
Course Code:	BICOK107-207	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01
Total Hours of Pedagogy	15 hours	Credits	01

Course objectives :

The course **INDIAN CONSTITUTION (22ICO17 / 27)** will enable the students,

1. To know about the basic structure of Indian Constitution.
2. To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
3. To know about our Union Government, political structure & codes, procedures.
4. To know the State Executive & Elections system of India.
5. To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.

Teaching-Learning Process

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

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(iii) Blended learning (Combination of both),
(iv) Enquiry and evaluation based learning,
(v) Personalizedlearning,
(vi) Problems based learning through discussion.
(vii) Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

Module-1 (03 hours of pedagogy)

Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to theIndian constitution, Making of the Constitution, Role of the Constituent Assembly.

Module-2 (03 hours of pedagogy)

Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. FundamentalRights (FR's) and its Restriction and limitations in different Complex Situations. building.
Module-3 (03 hours of pedagogy)
Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.
Module-4 (03 hours of pedagogy)
Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India,Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.
Module-5 (03 hours of pedagogy)
State Executive and Governer, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.
Course outcome (Course Skill Set) At the end of the course 22ICO17/27 the student will be able to:

CO1	Analyse the basic structure of Indian Constitution.
CO2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
CO3	know about our Union Government, political structure & codes, procedures.

BUILDING MATERIALS TESTING LABORATORY		Semester	4
Course Code	BCVL404	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	0:0:2:0	SEE Marks	50
Credits	01	Total Marks	100
		Exam Hours	02
Examination type (SEE)	Practical		

Course objectives:

- Ability to apply knowledge of mathematics and engineering in calculating the mechanical propertiesofstructuralmaterials.
- Abilitytofunctiononmulti-disciplinaryteamsintheareaofmaterialstesting.
- Abilitytousethetechniques,skillsandmodernengineeringtoolsnecessaryforengineering.
- Understandingofprofessionalandethicalresponsibilityintheareasofmaterialtesting.
- Abilitytocommunicateeffectivelythemechanicalpropertiesofmaterials..

SL.NO	Experiments
1	Tests on Bricks, Tiles, Cement Concrete blocks (Weight &Dimensionality, Water Absorption, Strength)**(L1, L2, L3, L4)**
2	Tests on Fine aggregates - Sieve Analysis, Moisture content, Specific gravity, Bulk density, Bulking and Silt Content **(L1, L2, L3, L4)**
3	Tests on Coarse aggregates- Sieve Analysis, Water absorption, Moisture content, specific gravity and Bulk density**(L1, L2, L3, L4)**
4	Compression test on mild steel, cast iron and wood.**(L1, L2, L3, L4)**
5	Tension test on mild steel and HYSD bars **(L2, L3, L4)**
6	Torsion test on mild steel circular sections. **(L1, L2, L3, L4)**
7	Bending Test on Wood Under two-point loading. **(L1, L2, L3, L4)**
8	Shear Test on Mild steel- single and double shear. **(L1, L2, L3, L4)**
9	Impact test on Mild Steel (Charpy&Izod). **(L1, L2, L3, L4)**
10	Hardness tests on ferrous and non-ferrous metals- Brinell's, Rockwell and Vicker's. **(L1, L2, L3, L4)**
11	Demonstration of Strain gauges and Strain indicators. **(L1, L2, L3, L4)**

NOTE:Alltesttobecarriedoutasperrelevantlatest BIS Codes

Course outcomes (Course Skill Set):
At the end of the course the student will be able to:

- Analyze the physical characteristics, and behavior of common building materials.

V Semester

DESIGN OF RC STRUCTURAL ELEMENTS			
Course Code	21CV53	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	2+2+0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	3	Exam Hours	3

Course objectives:
This course will enable students to
1. Identify, formulate and solve engineering problems of RC elements subjected to different kinds of loading.
2. Follow a procedural knowledge in designing various structural RC elements.
3. Impart the usage of codes for strength, serviceability and durability.
4. Acquire knowledge in analysis and design of RC elements.

Teaching-Learning Process (General Instructions)
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.
1. Blackboard teaching
2. Power point Presentation
3. Videos , NPTEL materials
4. Quiz/Assignments/Open book test to develop skills
5. Adopt problem based learning (PBL) to develop analytical and thinking skills
6. Encourage collaborative learning, site visits related to subject and impart practical knowledge.

Module-1

Introduction to working stress and limit State Design: Introduction to working stress method, Difference between Working stress and Limit State Method of design.

Philosophy and principle of limit state design with assumptions. Partial Safety factors, Characteristic load and strength. Stress block parameters, concept of balanced section, under reinforced and over reinforced section.
Limiting deflection, short term deflection, long term deflection, Calculation of deflection of singly reinforced beam only.

Teaching-Learning Process	Chalk & Talk, PPT presentation, Youtube videos, Nearby construction site visits.

Module-2

Limit State Analysis of Beams:
Analysis of singly reinforced, doubly reinforced and flanged beams for flexure and shear.

Teaching-Learning Process	Chalk & Talk, PPT presentation, Youtube videos, Nearby construction site visits.

Module-3

Limit State Design of Beams: Design of singly reinforced beams with check for shear, check for development length and other checks. Design of doubly reinforced beams and flanged sections without checks.

Teaching-Learning Process	Chalk & Talk, PPT presentation, Youtube videos, Nearby construction site visits.

Module-4

B. E. CIVIL ENGINEERING
Choice Based Credit System (CBCS) and Outcome Based Education (OBE)
SEMESTER - VIII

TECHNICAL SEMINAR

Course Code	18CVS84	CIE Marks	100
Teaching Hours/Week(L:T:P)	--	SEE Marks	--
Credits	01	Exam Hours	03

Course Learning Objectives:

The objective of the seminar is to inculcate self-learning, face audience confidently, enhance communication skill, involve in group discussion and present and exchange ideas. Each student, under the guidance of a Faculty, is required to choose, preferably, a recent topic of his/her interest relevant to the course of specialization. Carryout literature survey; organize the Course topics in a systematic order.

- Conduct literature survey in the domain area to find appropriate topic.
- Prepare the synopsis report with own sentences in a standard format.
- Learn to use MS word, MS power point, MS equation and Drawing tools or any such facilities in the preparation of report and presentation.
- Present the seminar topic orally and/or through power point slides.
- Communicate effectively to answer the queries and involve in debate/discussion.
- The participants shall take part in discussion to foster friendly and stimulating environment in which the students are motivated to reach high standards and become self-confident.

Course Outcomes: At the end of the course the student will be able to:

- Develop knowledge in the field of Civil Engineering and other disciplines through independent learning and collaborative study.
- Identify and discuss the current, real-time issues and challenges in engineering & technology.
- Develop written and oral communication skills.
- Explore concepts in larger diverse social and academic contexts.
- Apply principles of ethics and respect in interaction with others.
- Develop the skills to enable life-long learning.

Evaluation Procedure:

- As per University guidelines.
- The Internal Assessment marks for the seminar shall be awarded based on the relevance of the seminar topic, quality of the report, presentation skills, participation in the question and answer, and attendance in the seminar classes/sessions.

Department of Electrical & Electronics Engineering

BSCK307 – Social Connect & Responsibility 2022 Scheme & syllabus 3rd sem

BSCK307 – Social Connect & Responsibility 2022 Scheme & syllabus for 3rd sem		Semester	3rd
Course Code	BSCK307	CIE Marks	100
Teaching Hours/Week (L:T:P: S)	0:0:3:1	SEE Marks	------
Total Hours of Pedagogy	40 hour Practical Session +15 hour Planning	Total Marks	100
Examination nature (No SEE – Only CIE)	For CIE Assessment - Activities Report Evaluation by College NSS Officer / HOD / Sports Dept / Any Dept.		
Credits	01 - Credit		

Course objectives: The course will enable the students to:

1. Provide a formal platform for students to communicate and connect to the surrounding.
2. create a responsible connection with the society.
3. Understand the community in general in which they work.
4. Identify the needs and problems of the community and involve them in problem –solving.
5. Develop among themselves a sense of social & civic responsibility & utilize their knowledge in finding practical solutions to individual and community problems.
6. Develop competence required for group-living and sharing of responsibilities & gain skills in mobilizing community participation to acquire leadership qualities and democratic attitudes.

General Instructions - Pedagogy :

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

1. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the activities will develop students' theoretical and applied social and cultural skills.
2. State the need for activities and its present relevance in the society and Provide real-life examples.
3. Support and guide the students for self-planned activities.
4. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress in real activities in the field.
5. Encourage the students for group work to improve their creative and analytical skills.

Contents :

The course is mainly activity-based that will offer a set of activities for the student that enables them to connect with fellow human beings, nature, society, and the world at large.

The course will engage students for interactive sessions, open mic, reading group, storytelling sessions, and semester-long activities conducted by faculty mentors.

In the following a set of activities planned for the course have been listed:

Social Connect & Responsibility - Contents

Part I:

Plantation and adoption of a tree:

Plantation of a tree that will be adopted for four years by a group of BE / B.Tech students. (ONE STUDENT ONE TREE) They will also make an excerpt either as a documentary or a photo blog describing the plant's origin, its usage in daily life, its appearance in folklore and literature - – Objectives, Visit, case study, report, outcomes.

Part II :

Heritage walk and crafts corner:

Heritage tour, knowing the history and culture of the city, connecting to people around through their history, knowing the city and its craftsman, photo blog and documentary on evolution and practice of various craft forms - – Objectives, Visit, case study, report, outcomes.

Part III :

Organic farming and waste management:

Usefulness of organic farming, wet waste management in neighboring villages, and implementation in the campus –

1

Objectives,Visit, case study, report, outcomes.

Part IV:

Water conservation:

Knowing the present practices in the surrounding villages and implementation in the campus, documentary or photoblog presenting the current practices – Objectives, Visit, case study, report, outcomes.

Part V :

Food walk:

City's culinary practices, food lore, and indigenous materials of the region used in cooking – Objectives, Visit, case study, report, outcomes.

Course outcomes (Course Skill Set):

At the end of the course, the student will be able to:

CO1: Communicate and connect to the surrounding.
CO2: Create a responsible connection with the society.
CO3: Involve in the community in general in which they work.
CO4: Notice the needs and problems of the community and involve them in problem –solving.
CO5: Develop among themselves a sense of social & civic responsibility & utilize their knowledge in finding practical solutions to individual and community problems.
CO6: Develop competence required for group-living and sharing of responsibilities & gain skills in mobilizing community participation to acquire leadership qualities and democratic attitudes.

Activities:

Jamming session, open mic, and poetry: Platform to connect to others. Share the stories with others. Share the experience of Social Connect. Exhibit the talent like playing instruments, singing, one-act play, art-painting, and fine art.

PEDAGOGY:

The pedagogy will include interactive lectures, inspiring guest talks, field visits, social immersion, and a course project. Applying and synthesizing information from these sources to define the social problem to address and take up the solution as the course project, with your group. Social immersionwith NGOs/social sections will be a key part of the course. Will all lead to the course project that will address the needs of the social sector?

COURSE TOPICS:

The course will introduce social context and various players in the social space, and present approaches to discovering and understanding social needs. Social immersion and inspiring conversional will culminate in developing an actual, idea for problem-based intervention, based on an in-depth understanding of a key social problem.

Duration :

A total of 40 - 50 hrs engagement per semester is required for the 3rd semester of the B.E. /B.Tech. program. The students will be divided into groups. Each group will be handled by faculty mentor. Faculty mentor will design the activities (particularly Jamming sessions open mic ,and poetry) Faculty mentors has to design the evaluation system as per VTU guidelines of scheme & syllabus.

Guideline for Assessment Process:

Continuous Internal Evaluation (CIE):

After completion of the course, the student shall prepare, with daily diary as reference, a comprehensive report in consultation with the mentor/s to indicate what he has observed and learned in the social connect period. The report should be signed by the mentor. The report shall

Physical Education (Sports and Athletics) syllabus

Semester: IV						
PHYSICAL EDUCATION (SPORTS & ATHLETICS) – II						
Course Code	:	BPEK459		**CIE**	:	**100 Marks**
Credits: L:T:P	:	0:0:1				
Total Hours	:	24 P				

Course Outcomes: At the end of the course, the student will be able to

1. Understand the ethics and moral values in sports and athletics
2. Perform in the selected sports or athletics of student's choice.
3. Understand the roles and responsibilities of organisation and administration of sports and games.

Module I : Ethics and Moral Values **4 Hours**

A. Ethics in Sports
B. Moral Values in Sports and Games

Module II : Specific Games (Any one to be selected by the student) **16 Hours**

A. Volleyball – Attack, Block, Service, Upper Hand Pass and Lower hand Pass.
B. Athletics (Track Events) – Any event as per availability of Ground.

Module III: Role of Organisation and administration **4 Hours**

Scheme and Assessment for auditing the course and Grades:

Sl. No.	Activity	Marks
1.	Participation of student in all the modules	20
2.	Quizzes – 2, each of 15 marks	30
3.	Final presentation / exhibition / Participation in competitions/ practical on specific tasks assigned to the students	50
	Total	**100**

Course Title:	**Indian Constitution**		
Course Code:	BICOK107-207	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01
Total Hours of Pedagogy	15 hours	Credits	01

Course objectives :

The course **INDIAN CONSTITUTION (22ICO17 / 27)** will enable the students,

1. To know about the basic structure of Indian Constitution.
2. To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
3. To know about our Union Government, political structure & codes, procedures.
4. To know the State Executive & Elections system of India.
5. To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.

Teaching-Learning Process

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

(i) Direct instructional method (Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools),
(iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion.

(ii) Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and
practical skills.

Module-1 (03 hours of pedagogy)

Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to theIndian constitution, Making of the Constitution, Role of the Constituent Assembly.

Module-2 (03 hours of pedagogy)

Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. FundamentalRights (FR's) and its Restriction and limitations in different Complex Situations. building.

Module-3 (03 hours of pedagogy)

Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties
and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.

Module-4 (03 hours of pedagogy)

Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India,Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.

Module-5 (03 hours of pedagogy)

State Executive and Governer, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.

Course outcome (Course Skill Set)
At the end of the course 22ICO17/27 the student will be able to:

CO1	Analyse the basic structure of Indian Constitution.
CO2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
CO3	know about our Union Government, political structure & codes, procedures.

RESEARCH METHODOLOGY & INTELLECTUAL PROPERTY RIGHTS

Course Code:	**21RMI56**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1:2:0:0	SEE Marks	50
Total Hours of Pedagogy	25	Total Marks	100
Credits	02	Exam Hours	03

Course Objectives:
CO1. To Understand the knowledge on basics of research and its types.
CO2. To Learn the concept of Literature Review, Technical Reading, Attributions and Citations.CO3. To learn Ethics in Engineering Research.
CO4. To Discuss the concepts of Intellectual Property Rights in engineering.

Teaching-Learning Process (General Instructions)
These are sample Strategies; which teachers can use to accelerate the attainment of the various courseoutcomes.

1. Lecturer methods (L) need not be only the traditional lecture methods, but alternativeeffective teaching methods could be adopted to attain the outcomes.
2. Use of Video to explain various concepts on IPR.
3. Encourage collaborative (Group Learning) Learning in the class.
4. Ask at least three HOT (Higher Order Thinking) questions in the class, which promotes criticalthinking.
5. Introduce Topics in manifold representations.
6. Show the different ways to analyze the research problem and encourage the students to comeup withtheir own creative ways to solve them.
7. Discuss how every concept can be applied to the real world - and when that's possible, it helpsImprove the students' understanding.

Module-1 (5 Hours)

Introduction: Meaning of Research, Objectives of Engineering Research, and Motivation in EngineeringResearch, Types of Engineering Research, Finding and Solving a Worthwhile Problem.

Ethics in Engineering Research, Ethics in Engineering Research Practice, Types of Research Misconduct, Ethical Issues Related to Authorship.

Teaching- Learning Process	Chalk and talk method / PowerPoint Presentation.

Module-2(5 Hours)

Literature Review and Technical Reading, New and Existing Knowledge, Analysis and Synthesis of Prior Art Bibliographic Databases, Web of Science, Google and Google Scholar, Effective Search: The Way Forward Introduction to Technical Reading Conceptualizing Research, Critical and Creative Reading, Taking Notes While Reading, Reading Mathematics and Algorithms, Reading a Datasheet.

Attributions and Citations: Giving Credit Wherever Due, Citations: Functions and Attributes, Impact of Title and Keywords on Citations, Knowledge Flow through Citation, Citing Datasets, Styles for Citations, Acknowledgments and Attributions, What Should Be Acknowledged, Acknowledgments in, Books
Dissertations, Dedication or Acknowledgments.

Teaching-Learning Process	Chalk and talk method / PowerPoint Presentation

Module-3(5 Hours)

Introduction To Intellectual Property: Role of IP in the Economic and Cultural Development of the Society, IP Governance, IP as a Global Indicator of Innovation, Origin of IP History of IP in India. Major Amendments inIP Laws and Acts in India.

Patents: Conditions for Obtaining a Patent Protection, To Patent or Not to Patent an Invention. Rights Associated with Patents. Enforcement of Patent Rights. Inventions Eligible for Patenting. Non-Patentable Matters. Patent Infringements. Avoid Public Disclosure of an Invention before Patenting. Process of Patenting. Prior Art Search. Choice of Application to be Filed. Patent Application Forms. Jurisdiction of Filing Patent Application. Publication. Pre-grant Opposition. Examination. Grant of a Patent. Validity of Patent Protection. Post-grant Opposition. Commercialization of a Patent. Need for a Patent Attorney/Agent. Can a Worldwide Patent be Obtained. Do I Need First to File a Patent in India. Patent Related Forms. Fee Structure. Types of Patent Applications. Commonly Used Terms in Patenting. National Bodies Dealing with Patent Affairs. Utility Models.

Process of Patenting. Prior Art Search. Choice of Application to be Filed. Patent Application Forms. Jurisdiction of Filing Patent Application. Publication. Pre-grant Opposition. Examination. Grant of a Patent. Validity of Patent Protection. Post-grant Opposition. Commercialization of a Patent. Need for a Patent Attorney/Agent. Can a Worldwide Patent be Obtained. Do I Need First to File a Patent in India. Patent Related Forms. Fee Structure. Types of Patent Applications. Commonly Used Terms in Patenting. National Bodies Dealing with Patent Affairs. Utility Models.

Teaching- Learning Process	Chalk and talk method / PowerPoint Presentation.

Module-4(5 Hours)

Copyrights and Related Rights: Classes of Copyrights. Criteria for Copyright. Ownership of Copyright. Copyrights of the Author. Copyright Infringements. Copyright Infringement is a Criminal Offence. Copyright Infringement is a Cognizable Offence. Fair Use Doctrine. Copyrights and Internet. Non-Copyright Work. Copyright Registration. Judicial Powers of the Registrar of Copyrights. Fee Structure. Copyright Symbol. Validity of Copyright. Copyright Profile of India. Copyright and the word 'Publish'. Transfer of Copyrights to a Publisher. Copyrights and the Word 'Adaptation'. Copyrights and the Word 'Indian Work'. Joint Authorship. Copyright Society. Copyright Board. Copyright Enforcement Advisory Council (CEAC). International Copyright Agreements, Conventions and Treaties. Interesting Copyrights Cases.

Trademarks: Eligibility Criteria. Who Can Apply for a Trademark. Acts and Laws. Designation of Trademark Symbols. Classification of Trademarks. Registration of a Trademark is Not Compulsory. Validity of Trademark. Types of Trademark Registered in India. Trademark Registry. Process for Trademarks
Registration. Prior Art Search. Famous Case Law: Coca-Cola Company vs. Bisleri International Pvt. Ltd.

Module-5(5 Hours)

Industrial Designs: Eligibility Criteria. Acts and Laws to Govern Industrial Designs. Design Rights. Enforcement of Design Rights. Non-Protectable Industrial Designs India. Protection Term. Procedure for Registration of Industrial Designs. Prior Art Search. Application for Registration. Duration of the Registration of a Design. Importance of Design Registration. Cancellation of the Registered Design. Application Forms. Classification of Industrial Designs. Designs Registration Trend in India. International Treaties. Famous Case Law: Apple Inc. vs. Samsung Electronics Co.

Geographical Indications: Acts, Laws and Rules Pertaining to GI. Ownership of GI. Rights Granted to the Holders. Registered GI in India. Identification of Registered GI. Classes of GI. Non-Registerable GI. Protection of GI. Collective or Certification Marks. Enforcement of GI Rights. Procedure for GI Registration Documents Required for GI Registration. GI Ecosystem in India.

Case Studies on Patents. Case study of Curcuma (Turmeric) Patent, Case study of Neem Patent, Case study of Basmati patent.
IP Organizations In India. Schemes and Programmes

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

TECHNICAL SEMINAR

Course Code	18EES84	CIE Marks	100
Contact Hours/Week	02	SEE Marks	--
Credits	01	Exam Hours	--

Course objectives:

The objective of the seminar is to inculcate self-learning, face audience confidently, enhance communication skill, involve in group discussion and present and exchange ideas.

Each student, under the guidance of a Faculty, shall choose, preferably, a recent topic of his/her interest relevant to the Course of Specialization.

- Carryout literature survey, organize the seminarcontent in a systematic manner.
- Prepare the report with own sentences, avoiding cut and paste act.
- Type the matter to acquaint with the use of Micro-soft equation and drawing tools or any such facilities.
- Present the seminar topic orally and/or through power point slides.
- Answer the queries and involve in debate/discussion.
- Submit typed report with a list of references.

The participants shall take part in discussion to foster friendly and stimulating environment in which the students are motivated to reach high standards and become self-confident. ■

Revised Bloom's Taxonomy Level	L_3 – Applying, L_4 – Analysing, L_5 – Evaluating, L_6 – Creating

Course outcomes:

At the end of the course the student will be able to:

- Attain, use and develop knowledge in the field of engineering and other disciplines through independent learning and collaborative study.
- Identify, understand and discuss current, real-time issues.
- Improve oral and written communication skills.
- Explore an appreciation of the self in relation to its larger diverse social and academic contexts.
- Apply principles of ethics and respect in interaction with others.■

Evaluation Procedure:

The CIE marks for the seminar shall be awarded (based on the relevance of the topic, presentation skill, participation in the question and answer session and quality of report) by the committee constituted for the purpose by the Head of the Department. The committee shall consist of three teachers from the department with the senior most acting as the Chairman.

Marks distribution for CIE of the course:

Seminar Report:50 marks

Presentation skill:25 marks

Department of Business Administration

ENTREPRENEURSHIP DEVELOPMENT			
Course Code	**22MBA12**	**CIE Marks**	**50**
Teaching Hours/Week (L:P:SDA)	**4:0:0**	**SEE Marks**	**50**
Total Hours of Pedagogy	**50**	**Total Marks**	**100**
Credits	**04**	**Exam Hours**	**03**

Course Learning objectives:

- To develop and strengthen entrepreneurial qualities and motivation among students.
- To impart basic entrepreneurial skills and understandings to run a business efficiently and effectively.
- To provide insights to students on entrepreneurship opportunities, sources of funding and institutions supporting entrepreneurs.
- To make students understand the ways of starting a company of their own.

Module-1 (7 Hours)

Introduction to Entrepreneur & Entrepreneurship: Meaning of entrepreneur - Evolution of the concept - Functions of an Entrepreneur - Types of Entrepreneurs - Intrapreneur- an emerging class - Concept of Entrepreneurship -Entrepreneurial Culture - Stages in entrepreneurial process.
Creativity and Innovation: The role of creativity , The innovation Process , Sources of New Ideas , Methods of Generating Ideas , Creative Problem Solving , Entrepreneurial Process.

Module-2 (9 Hours)

Developing Business Model: Importance of Business Model , Starting a small-scale industry - Components of an Effective Business Model, Osterwalder Business Model Canvas.
Business Planning Process: Meaning of business plan - Business plan process - Advantages of business planning - Final Project Report with Feasibility Study - preparing a model project report for starting a new venture.
Lab Component and assignment: Designing a Business Model Canvas

Module-3 (9 Hours)

Managing and Growing New Venture: Preparing for the new venture launch - early management decisions, Managing early growth of the new venture- new venture expansion strategies and issues.
Getting Financing or Funding for the New Venture: Estimating the financial needs of a new venture and preparation of a financial plan, Sources of Personal Financing, Preparing to Raise Debt or Equity Financing, Business Angels, Venture Capital, Initial Public Offering, Commercial Banks, Other Sources of Debt Financing, Leasing. Forms of business organization: Sole Proprietorship , Partnership , Limited liability partnership - Joint Stock Companies and Cooperatives.

Module-4 (9 Hours)

Entrepreneurship Development and Government: Role of Central Government and State Government in promoting Entrepreneurship - Introduction to various incentives, subsidies and grants - Export Oriented Units - Fiscal and Tax concessions available- Start Up India scheme. Women Entrepreneurs, Reasons for low women Entrepreneurs, Prospects for Women Entrepreneurs, Strategies to motivate entrepreneurship amongst women.
Institutions supporting Entrepreneurs: A brief overview of financial institutions in India - SIDBI - NABARD - IDBI - SIDCO - Indian Institute of Entrepreneurship - DIC - Single Window - Latest Industrial Policy of Government of India.

Module-5 (7 Hours)

Process of Company Incorporation; process of registration of a private limited company, a public limited company, a partnership; Characteristics of a limited liability partnership; Four stages of Start Up, Intellectual property protection and Ethics: Patents , Copyright - Trademark- Geographical indications , Ethical and social responsibility and challenges.

Module-6 (9 Hours)

Emerging Trends in Entrepreneurship Development; Digital Entrepreneurship , meaning, scope and opportunities.Social Entrepreneur , Meaning of Social Entrepreneur, Motivation for a Social Entrepreneur; Supporting and Evaluating Social Entrepreneurship in India. Rural Entrepreneur , Meaning of Rural Entrepreneur, Potential opportunities for Rural entrepreneurship in India

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing marks for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements (passed) and earned the credits allotted to each course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation:

There shall be a maximum of 50 CIE Marks. A candidate shall obtain not less than 50% of the maximum marks prescribed for the CIE.

CIE Marks shall be based on:

a) Tests (for 25Marks) and

b) Assignments, presentations, Quiz, Simulation, Experimentation, Mini project, oral examination, field work and class participation etc., (for 25 Marks) conducted in the respective course. Course instructors are given autonomy in choosing a few of the above based on the subject relevance and should maintain necessary supporting documents for same.

Semester End Examination:

The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50.

- The question paper will have 8 full questions carrying equal marks.
- Each full question is for 20 marks with 3 sub questions.
- Each full question will have sub question covering all the topics.
- The students will have to answer five full questions; selecting four full question from question number one to seven in the pattern of 3, 7 & 10 Marks and question number eight is compulsory.

Suggested Learning Resources: Books

1. The Dynamics of Entrepreneurial Development and Management, Vasant Desai, Himalaya Publishing House, 2010.
2. Entrepreneurship, Donald F. Kuratko and Richard M. Hodgetts, South-Western, 2012.
3. Entrepreneurship Development, Gupta S.L., Arun Mittal, International Book House, 2012.
4. Management and Entrepreneurship Development, Sudha G. S, Indus Valley Publication, 2009

Web links and Video Lectures (e-Resources):

- https://youtu.be/rbmz5VEW90A
- https://www.youtube.com/watch?v=CnStAWc7iOw
- https://www.youtube.com/watch?v=RLQivEQUgUc

Note: The aforesaid links and study material are suggestive in nature, they may be used with due regards to copy rights, patenting and other IPR rules.

Research Methodology and IPR

Course Code	**22MBA23**	CIE Marks	**50**
Teaching Hours/Week (L:P:SDA)	**4:0:0**	SEE Marks	**50**
Total Hours of Pedagogy	**50**	Total Marks	**100**
Credits	**04**	Exam Hours	**03**

Course Learning objectives:

- To understand the basic components of research design
- To Gain an insight into the applications of research methods
- To equip students with various research analytical tools used in business research
- To provide the insights of IPR and IPR system in India

Module-1 (7 Hours)

Introduction to Business Research: Meaning, types, process of research- management problem, defining the research problem, formulating the research Hypothesis, developing the research proposals, research design formulation, sampling design, planning and collecting the data for research, data analysis and interpretation. Research Application in business decisions, Ethical issues in business research. Features of a good research study.

Module-2 (9 Hours)

Business Research Design: Meaning, types and significance of research design, errors affecting research design.
Exploratory Research: Meaning, purpose, methods, Literature search, experience survey, focus groups and comprehensive case methods.
Conclusive Research Design: Descriptive Research, Meaning, Types, Cross sectional studies and longitudinal studies.
Experimental Research Design: Meaning and classification of experimental designs, formal and informal, Pre experimental design, True experimental design, Quasi-experimental design, Statistical experimental design.

Module-3 (7 Hours)

Sampling: Concepts, Types of Sampling, **Probability Sampling**: simple random sampling, systematic sampling, stratified random sampling, cluster sampling,
Non Probability Sampling: convenience sampling- judgmental sampling, snowball sampling, quota sampling, Errors in sampling.

Module-4 (9 Hours)

Data Collection: Meaning, types, **Data collection methods**: Observations, survey and interview techniques, **Questionnaire design**: Meaning, process of designing questionnaire. Qualitative Techniques of data collection Secondary data Sources: advantages and disadvantages.
Measurement and Scaling Techniques: Basic measurement scales-Nominal scale, Ordinal scale, Interval scale, Ratio scale. Attitude measurement scale - Likert Scale, Semantic Differential Scale, Thurston scale,
Multi-Dimensional Scaling: Non comparative scaling techniques

Module-5 (9 Hours)

Data Analysis and Report Writing: Editing, Coding, Classification, Tabulation, Validation. Analysis and Interpretation, Report writing and presentation of results, Importance of report writing, types of research reports, Report structure, Guidelines for effective documentation.

Module-6 (9 Hours)

Intellectual Property Rights: Meaning and Concepts of Intellectual Property, Nature and Characteristics of Intellectual Property, Origin and Development of Intellectual Property, Kinds of Intellectual Property, Intellectual Property System in India, IPRs- Invention and Creativity- Intellectual Property-Importance and Protection of Intellectual Property Rights (IPRs)- **A brief summary of**: Patents, Copyrights, Trademarks, TRIPS and TRIMS , Industrial Designs- Integrated Circuits-Geographical Indications-Establishment of WIPO-Application and Procedures.

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing marks for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements (passed) and earned the credits allotted to each course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation:

There shall be a maximum of 50 CIE Marks. A candidate shall obtain not less than 50% of the maximum marks prescribed for the CIE.

CIE Marks shall be based on:

a) Tests (for 25 Marks) and

b) Assignments, presentations, Quiz, Simulation, Experimentation, Mini project, oral examination, field work and class participation etc., (for 25 Marks) conducted in the respective course. Course instructors are given autonomy in choosing a few of the above based on the subject relevance and should maintain necessary supporting documents for same.

Semester End Examination:

The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50.

- The question paper will have 8 full questions carrying equal marks.
- Each full question is for 20 marks with 3 sub questions.
- Each full question will have sub question covering all the topics.
- The students will have to answer five full questions; selecting four full question from question number one to seven in the pattern of 3, 7 & 10 Marks and question number eight is compulsory.
- 100 Percent theory.

MANAGERIAL ECONOMICS			
Course Code	**22MBA26**	**CIE Marks**	**50**
Teaching Hours/Week (L:P:SDA)	**4:0:0**	**SEE Marks**	**50**
Total Hours of Pedagogy	**50**	**Total Marks**	**100**
Credits	**4**	**Exam Hours**	**3**

Course Learning objectives:

- To introduce the fundamentals, tools and theories of managerial economics.
- To provide an understanding of the application of Economics in Business
- To learn the basic Micro and Macro-economic concepts.
- To understand Demand, Production, Cost, Profit and Market competitions with reference to firm and industry.

Module-1 (7 Hours)

Introduction: Managerial Economics: Meaning, Nature, Scope & Significance, Uses of Managerial Economics, Role and Responsibilities of Managerial Economist.
Theory of the Firm: Firm and Industry, Objectives of the firm, alternate objectives of firm. Managerial theories: Baumol's Model, Marris's model of growth maximization, Williamson's model of managerial discretion.

Module-2 (9 Hours)

Demand Analysis
Law of Demand, Exceptions to the Law of Demand, Elasticity of Demand , Classification of Price, Income &Cross elasticity, Promotional elasticity of demand. Uses of elasticity of demand for Managerial decision making, Measurement of elasticity of demand. Law of supply, Elasticity of supply.
Demand forecasting: Meaning & Significance, Methods of demand forecasting. (Problems on Price elasticity of demand, and demand forecasting using Time-series method).

Module-3 (9 Hours)

Cost Analysis & Production Analysis
Concepts of Production, production function with one variable input - Law of Variable Proportion, Laws of returns to scale, Indifference Curves, ISO-Quants & ISO-Cost line, Economies of scale, Diseconomies of scale. Types of cost, Cost curves, Cost – Output Relationship in the short run and in the long run, Long- Run Average Cost (LAC) curve
Break Even Analysis–Meaning, Assumptions, Determination of BEA, Limitations, Margin of safety, Uses of BEA In Managerial decisions (Theory and simple Problems).

Module -4 (9 Hours)

Market structure and Pricing Practices
Perfect Competition: Features, Determination of price under perfect competition, **Monopolistic Competition**: Features, Pricing Under monopolistic competition, Product differentiation.
Oligopoly: Features, Kinked demand Curve, Cartels, Price leadership.
Monopoly: Features, Pricing under monopoly, Price Discrimination.
Descriptive Pricing Approaches: Loss leader pricing, Peak Load pricing, Transfer pricing.

Module-5 (9 Hours)

Indian Business Environment
Nature, Scope, Structure of Indian Business Environment, Internal and External Environment. Political and Legal Environment, Economic Environment, Socio– Cultural Environment, Global Environment. Private Sector, Growth, Problems and Prospects, SMEs, Significance in Indian economy, challenges and prospects. **Fiscal policy and Monetary Policy:** Meaning of Fiscal policy, three main types of fiscal policy – neutral policy, expansionary, and contractionary. Monetary policy: Meaning, **Objectives of monetary policies:** Controlling inflation, Managing employment levels, and Maintaining long-term interest rates. (Theory only)

Module-6 (7 Hours)

Indian Industrial Policy : New industrial policy 1991, **Production Linked Incentive** (PLI) scheme for Promoting manufacturing of Telecom & Networking Products in India, New economic initiatives proposed by Indian government for economic growth Private Sector-Growth- like Atma Nirbhar Bharath Abhiyan.

RECRUITMENT AND SELECTION			
Course Code	**22MBAHR303**	**CIE Marks**	**50**
Teaching Hours/Week (L:P:SDA)	**4:0:0**	**SEE Marks**	**50**
Total Hours of Pedagogy	**50**	**Total Marks**	**100**
Credits	**04**	**Exam Hours**	**03**

Course Learning Objectives:

This course will enable the students

- To recite the theories and various steps involved in Recruitment and Selection
- To describe and explain in her/his own words, the relevance and importance of Recruitment and Selection in the Organization
- To apply and solve the workplace problems through Recruitment and Selection intervention
- To classify and categorize in differentiating between the best method to be adopted by organization related to Recruitment and Selection
- To compare and contrast different approaches of Recruitment and Selection framework for solving the complex issues and problems
- To design and develop an original framework and framework in dealing with the problems in the organization.

Module-1 (8 Hours)

Workforce Planning and Recruitment Analytics:

Concept of Work, Organisation's Work and Jobs; Millennials at the work place; Key Characteristics of Millennials; Types of Millennial; The Evolution of Work Structure; Organising the Work; Strategic Job Redesign and Its Benefits; Strategic Issues in Recruitment; What make Bad Recruitment; Overview of the Hiring Process; Recruitment Metrics; Factors Affecting Recruitment; Recruitment Strategy: An Internal Approach; Recruitment Strategy: An External Approach; Legal and Ethical Considerations; Organisational Best Practices.

Module-2 (9 Hours)

Job Analysis, Job Description and Job Design:

Identify the Job to Examine; Determine Appropriate Information Sources and Collect Job-Related Data; Job Description; Competency and Competency Ice Berg Model; Why Competency Based Recruitment; Sources of Recruitment; Different steps of job search; Motivational Job Specification; Creation of Functional Specification; Creation of Behavioural Specification; Employer branding; Social Media; Job Design.

Module-3 (9 Hours)

Job Evaluation:

The Job Evaluation Process; Obtain Job KSAOs, Qualifications, Working Conditions, and Essential Duties; Examine Compensable Factors Using the Rating/Weighting Evaluation Method; Determine Overall Job Value; Hay Group—Pioneer in Job Evaluation; Determining Compensation using Job Evaluation Data; Legal and Ethical Considerations for Job Evaluation; Online Salary Survey.

Module-4 (9 Hours)

Selection and Interview Strategy:
Interview Strategy and Process; Millennials shaping the Recruitment landscape in the organizations; Strategies for recruiting and selecting Generation Y into the workforce Developing Effective. Interviewers; Interviewing Techniques; Legal and Ethical Considerations in the Interview Process; The overall BEI Process; Assessment Centre's; Simulations.

Module-5 (9 Hours)

Testing and Assessment:
Testing in Occupational Selection; Test related to Assessment of Knowledge, Skills, and Abilities; Personality Assessment; The Birkman method and MBTI® comparison; FIRO-B; Honesty and Integrity Assessment; Various Non-Interviewing Methods; Graphology; Skills Assessment; Games and Group Activity for Leadership Assessment; Administration of Tests and Assessments; Key Interviewer Skills.

Module-6 (7 Hours)

Making the Hire; Assessment of Candidate and Job Fit:
Unique Recruitment strategies; Biodata and Application Forms; Implications of Using Social Media Content in Hiring Decisions; Background Checks; Reference Checks; Pre-employment Testing; Making a Job Offer; Transitioning from Job Candidate to Employee; Induction; Placement.

Assessment Details (both CIE and SEE)
The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing marks for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements (passed) and earned the credits allotted to each course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation:
There shall be a maximum of 50 CIE Marks. A candidate shall obtain not less than 50% of the maximum marks prescribed for the CIE.

CIE Marks shall be based on:
a) Tests (for 25Marks) and
b) Assignments, presentations, Quiz, Simulation, Experimentation, Mini project, oral examination, field work and class participation etc., (for 25 Marks) conducted in the respective course. Course instructors are given autonomy in choosing a few of the above based on the subject relevance and should maintain necessary supporting documents for same.

Semester End Examination:
The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50.

- The question paper will have 8 full questions carrying equal marks.
- Each full question is for 20 marks with 3 sub questions.
- Each full question will have sub question covering all the topics.
- The students will have to answer five full questions; selecting four full questions from question number one to seven in the pattern of 3, 7 & 10 Marks and question number eight is compulsory.

International Business

Course Code	22MBA401	CIE Marks	50
Teaching Hours/Week (L:P:SDA)	2:2:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	03

Course Learning objectives:

- To explore and offer knowledge on Global Business Environment.
- To explore knowledge on International Institutions involved in global business.
- To assist the students to develop a truly Global Perspective.
- To understand the contemporary issues in global business that illustrates the unique challenges faced by managers in the IBE.

Module-1 (6 Hours)

Introduction to International Business: Evolution, Meaning, Importance, Nature and Scope of International Business, Characteristics of International Business, Factors affecting International Business, Changing scenario of International Business, Advantages of International Business, challenges in International business, Modes of entry into International Business, Internationalization Process.

Module-2 (7 Hours)

International Business Environment: Introduction, Meaning and Components of International Business Environment, Political Environment, Legal Environment, Economic Environment, Technological Environment, Socio and Cultural Environment, Ethics in International Business and CSR in International Business.

Module-3 (7 Hours)

Theories of International Business: Introduction, Mercantilism, Theory of absolute cost advantage, Comparative cost advantage theory, Comparative cost advantage with money, Relative factor endowment theory, Product life cycle theory, Global strategic rivalry theory, Porter's National Competitive Advantage Theory.

Module-4 (7 Hours)

International Institutions: UNCTAD- Introduction, Principles and achievements, IMF-Role and objectives, WTO-Role and advantages, TRIMS, TRIPS Features, Economic Integration-Introduction, Levels of Economic Integration, Regional Economic Integration in Europe, USA, ASEAN, SAARC, SAPTA.

Module-5 (6 Hours)

Multi-National Corporations: Definition and Meaning, factors that contributed to positive growth of MNCs, Importance of MNCs, Advantages and disadvantages of MNCs, MNCs in India, Organizational structure of MNCs, Transfer of Technology, Global Competitiveness, Indicators of competitiveness, Technology of Global competitiveness.

Module-6 (7 Hours)

Basics of International Marketing- Environment and cultural dynamics of global markets, functions of International Marketing, determining International Marketing strategies, Major actors in International Marketing, Competitive Global Marketing Strategies.
Global HRM- Characteristics, Nature and factors of IHRM, Functions of IHRM,
Global Finance-Features of Global Capital Market, Growth of Global Capital Market, Global equity market.
International Production Management-Coordinating Global Manufacturing System.

INTEGRATED MARKETING COMMUNICATIONS			
Course Code	**22MBAMM404**	**CIE Marks**	**50**
Teaching Hours/Week (L:P:SDA)	**2:2:0**	**SEE Marks**	**50**
Total Hours of Pedagogy	**40**	**Total Marks**	**100**
Credits	**03**	**Exam Hours**	**03**

Course Learning objectives:

- To build a comprehensive framework for integrated marketing communications.
- To the study the advertising, publicity, personal selling, direct marketing and sales promotion.
- To enhance knowledge of emerging trends in integrated marketing communications.
- To acquaint the students with the latest internet and e-marketing techniques, ethically way of handling business.

Module-1 (6 Hours)

Integrated Marketing Communication: Role of IMC in marketing process, IMC planning model, Marketing and promotion Process model.
Communication Process, steps involved in developing IMC programme, Effectiveness of marketing communications
Advertising: Purpose, Role, Functions, Types, Advertising Vs Marketing mix, Advertising appeal in various stages of PLC
Relevant Case Study

Module-2 (6 Hours)

Advertising Agency: Type of agencies, Services offered by various agencies, Criteria For selecting the agencies and evaluation.
Advertising objectives and Budgeting: Goal setting – DAGMAR approach, various budgeting methods used.
Relevant Case Study

Module-3 (7 Hours)

Media planning: Factors considered in Media Planning, Developing Media plan, Importance, Problems encountered, Advertising Media, Media Evaluation-Print, Broadcast media, Support media in advertising.
Media strategy: Creativity, Elements of creative strategies and its implementation, Importance of Headline and body copy.
Relevant Case Study

Module-4 (7 Hours)

Direct Marketing: Features, Functions, Growth, Advantages/Disadvantages, And Direct Marketing Strategies.
Promotion: Meaning, Importance, tools used, Conventional/unconventional, drawbacks, push pull strategies, Co-operative advertising, Integration with advertising and publicity
Public relation/ Publicity:-Meaning, Objectives, tools of public relations, Public Relation strategies, Goals of publicity
Corporate Advertising – Role, Types, Limitations, PR Vs Publicity
Relevant Case Study

Module-5 **(7 Hours)**
Monitoring, Evaluation and control: Measurement in advertising, various methods used for evaluation, Pre-testing, Post testing. **Relevant Case Study**
Module-6 **(7 Hours)**
International Advertising: Global environment in advertising, Decision areas in international advertising. **Industrial advertising:** B 2 B Communication, Special issues in Industrial selling. **Internet advertising:** Meaning, Components, Advantages and Limitations, Types of Internet advertising **Advertising Laws & Ethics:** Adverting & Law, Advertising & Ethics, Pester Power, Intellectual Property Rights, ASCI **Relevant Case Study**

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing marks for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements (passed) and earned the credits allotted to each course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation:

There shall be a maximum of 50 CIE Marks. A candidate shall obtain not less than 50% of the maximum marks prescribed for the CIE.

CIE Marks shall be based on:

a) Tests (for 25Marks) and

b) Assignments, presentations, Quiz, Simulation, Experimentation, Mini project, oral examination, field work and class participation etc., (for 25 Marks) conducted in the respective course. Course instructors are given autonomy in choosing a few of the above based on the subject relevance and should maintain necessary supporting documents for same.

Semester End Examination:

The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50.

- The question paper will have 8 full questions carrying equal marks.
- Each full question is for 20 marks with 3 sub questions.
- Each full question will have sub question covering all the topics.
- The students will have to answer five full questions; selecting four full question from question number one to seven in the pattern of 3, 7 & 10 Marks and question number eight is compulsory.

Master of Computer Applications

Research Methodology and IPR			
Course Code	22RMI18	CIE Marks	50
Teaching Hours/Week (L:P:SDA)	2:0:0	SEE Marks	50
Total Hours of Pedagogy	20	Total Marks	100
Credits	02	Exam Hours	03

Course Learning objectives:

- To give an overview of the research methodology and explain the technique of defining a research problem
- To explain the functions of the literature review in research.
- To explain carrying out a literature search, its review, developing theoretical and conceptual frameworks and writing a review.
- To explain various research designs and their characteristics.
- To explain the details of sampling designs, measurement and scaling techniques and also different methods of data collections.
- To explain several parametric tests of hypotheses and Chi-square test.
- To explain the art of interpretation and the art of writing research reports.
- To explain various forms of the intellectual property, its relevance and business impact in the changing global business environment.
- To discuss leading International Instruments concerning Intellectual Property Rights.

Module-1

Research Methodology: Introduction, Meaning of Research, Objectives of Research, Motivation in Research, Types of Research, Research Approaches, Significance of Research, Research Methods versus Methodology, Research and Scientific Method, Importance of Knowing How Research is Done, Research Process, Criteria of Good Research, and Problems Encountered by Researchers in India.

Teaching-Learning Process	Chalk and talk method / PowerPoint Presentation

Module-2

Defining the Research Problem: Research Problem, Selecting the Problem, Necessity of Defining the Problem, Technique Involved in Defining a Problem, An Illustration. Reviewing the literature: Place of the literature review in research, Bringing clarity and focus to your research problem, Improving research methodology, Broadening knowledge base in research area, Enabling contextual findings, How to review the literature, searching the existing literature, reviewing the selected literature, Developing a theoretical framework, Developing a conceptual framework, Writing about the literature reviewed.

Teaching-Learning Process	Chalk and talk method / PowerPoint Presentation

Module-3

Research Design: Meaning of Research Design, Need for Research Design, Features of a Good Design, Important Concepts Relating to Research Design, Different Research Designs, Basic Principles of Experimental Designs, Important Experimental Designs. Design of Sample Surveys: Introduction, Sample Design, Sampling and Non-sampling Errors, Sample Survey versus Census Survey, Types of Sampling Designs.

Intellectual Property (IP) Acts: Introduction to IP: Introduction to Intellectual Property (IP), different types of IPs and its importance in the present scenario, Patent Acts: Indian patent acts 1970.Design Act: Industrial Design act 2000. Copy right acts: Copyright Act 1957. Trade Mark Act, 1999.	
Teaching-Learning Process	Chalk and talk method / PowerPoint Presentation

Assessment Details (both CIE and SEE)

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Continuous Internal Evaluation:

1. Three Unit Tests each of **20 Marks**
2. Two assignments each of **20 Marks** or **one Skill Development Activity of 40 marks** to attain the COs and POs

The sum of three tests, two assignments/skill Development Activities, will be **scaled down to 50 marks**

CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

Semester End Examination:

1. The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50.
2. The question paper will have ten full questions carrying equal marks.
3. Each full question is for 20 marks. There will be two full questions (with a maximum of four sub-questions) from each module.
4. Each full question will have a sub-question covering all the topics under a module.
5. The students will have to answer five full questions, selecting one full question from each module.

Suggested Learning Resources:

Text Books

1. Research Methodology: Methods and Techniques, C.R. Kothari, Gaurav Garg New Age International 4th Edition, 2018.
2. Research Methodology a step-by- step guide for beginners. (For the topic Reviewing the literature under module 2) Ranjit Kumar SAGE Publications Ltd 3rd Edition, 2011 Study Material.
3. Intelectual property, Debirag E. Bouchoux, Cengage learning, 2013.

References Books

1. Research Methods: the concise knowledge base Trochim, Atomic Dog Publishing, 2005.
2. Conducting Research Literature Reviews: From the Internet to Paper Fink A Sage Publications, 2009.

Software Engineering			
Course Code	22MCA23	CIE Marks	50
Teaching Hours/Week (L:P:SDA)	4:0:0	SEE Marks	50
Total Hours of Pedagogy	50	Total Marks	100
Credits	04	Exam Hours	03

Course Learning objectives:

- Outline software engineering principles and activities involved in building large software programs.
- Identify ethical and professional issues and explain why they are of concern to software engineers.
- Explain the fundamentals of object oriented concepts.
- Describe the process of requirements gathering, requirements classification, requirements specification and requirements validation.
- Differentiate system models, use UML diagrams and apply design patterns.
- Discuss the distinctions between validation testing and defect testing.

Module-1

Introduction: Professional Software Development Attributes of good software, software engineering diversity, IEEE/ACM code of software engineering ethics, case studies. Software Process and Agile Software Development Software Process models: waterfall, incremental development, reuses oriented, Process activities; coping with change, The Rational Unified Process.

Teaching-Learning Process	Chalk and board, Active Learning, Problem based learning

Module-2

Agile Methods, Plan-Driven and Agile Development, Extreme Programming, Agile Project Management, scaling agile methods. Requirement Engineering: Functional and non-functional requirements, The Software requirements document, Requirements specification, Requirements engineering processes, Requirement elicitation and analysis, Requirement validation, Requirement management

Teaching-Learning Process	Chalk and board, Active Learning, Problem based learning

Module-3

What is object orientation? What is OO development? OO themes; Evidence for usefulness of OO development; OO modelling history, modelling as design Technique: Modelling; abstraction; the three models. Object and class concepts; Link and associations concepts; Generalization and inheritance; A sample class model; Navigation of class models; Practical tips. Advanced objects and class concepts; Associations ends; N-array association; Aggregation, Abstract class; Multiple inheritance; Metadata; Reification; Constraints; Derived data; packages; practical tips

Teaching-Learning Process	Chalk and board, Active Learning, Problem based learning

Module-4

System Models: Context models, Interaction models. Structural models. Behavioural models. Model-driven engineering Design and Implementation: Introduction to RUP, Design Principles. Object-oriented design using the UML. Design patterns. Implementation issues. Open source development.

User Interface Design			
Course Code	22MCA254	CIE Marks	50
Teaching Hours/Week (L:P:SDA)	2:0:2	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	03

Course Learning objectives:

- Identify and define key terms related to user interfaces and user interface design and implementation.
- Identify and describe various types of computer users and computer use contexts.
- Describe and explain the user interface design process.

Module-1	
Introduction: Usability of Interactive Systems: Introduction, Usability Goals and Measures, Usability Motivation, Universal Usability, Goals for our profession. Guideline, principles, and theories: Introduction, Guidelines, principles, Theories.	
Teaching-Learning Process	Chalk and talk method / PowerPoint Presentation

Module-2	
Development Processes: Managing Design Processes: Introduction, Organizational Design to support Usability, The Four Pillars of Design, Development methodologies: Ethnographic Observation, Participatory Design, Scenario Development, Social Impact statement for Early Design Review, Legal Issues.	
Teaching-Learning Process	Chalk and talk method / PowerPoint Presentation

Module-3	
Evaluating Interface: Design Introduction, Expert Reviews, Usability Testing and Laboratories, Survey Instruments, Acceptance tests, Evaluation during Active Use, Controlled Psychologically Oriented Experiments	
Teaching-Learning Process	Chalk and talk method / PowerPoint Presentation

Module-4	
Direct Manipulation and Virtual Environments: Introduction, Examples of Direct Manipulation, Discussion of direct manipulation, 3D Interfaces, Tele-operation, Virtual and Augmented Reality Menu Selection, Form Filling and Dialog Boxes: Introduction, Task-Related Menu Organization, Single Menus, Combination of Multiple Menus, Content Organization, Fast Movement Through Menus, Data Entry With Menus, Form Filling, Dialog Boxes and Alternatives, Audio Menus and Menus for Small Displays	
Teaching-Learning Process	Chalk and talk method / PowerPoint Presentation

Module-5	
Command and Natural Languages Introduction, Command-organization functionality strategies and structure, Naming and Abbreviations, Natural Language in computing. Interaction Devices: Introduction, Keyboards and Keypads, Pointing Devices, Speech and Auditory interfaces, Displays-Small and Large	
Teaching-Learning Process	Chalk and talk method / PowerPoint Presentation

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Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation:

1. Three Unit Tests each of **20 Marks**
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The sum of three tests, two assignments/skill Development Activities, will be **scaled down to 50 marks**
CIE methods /question paper is designed to attain the different levels of Bloom's **taxonomy as per the outcome defined for the course.**

Semester End Examination:

1. The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50.
2. The question paper will have ten full questions carrying equal marks.
3. Each full question is for 20 marks. There will be two full questions (with a maximum of four sub-questions) from each module.
4. Each full question will have a sub-question covering all the topics under a module.
5. The students will have to answer five full questions, selecting one full question from each module

Gender

Department of Biotechnology

GENETIC ENGINEERING & APPLICATIONS			
Course Code	**18BT56**	CIE Marks	40
Teaching Hours/Week (L:T:P)	(3:0:0)	SEE Marks	60
Credits	03	Exam Hours	03

Course Learning Objectives:

- To learn about rDNA technology, vectors and enzymes used in genetic engineering.
- To learn acquire the knowledge of specific techniques like PCR, NA hybridization & libraries.
- To learn about various gene transfer techniques, applications of transgenic plants & animals and importance of gene therapy

Module-1

VECTORS & ENZYMES IN GENETIC ENGINEERING:

Vectors in rDNA technology, salient features of vectors, types of vectors-plasmids, cosmids, phagemids and viruses. Construction of rDNA& vectors (BAC, Blue script and YAC). Exonucleases and Restriction Endonculeases: classification, mode of action. Enzymes in modification - Polynucleotide phosphorylase, DNase, Methylases, phosphatases, polynucleotide Kinase, Ligases, RNase and their mechansim of action

Module-2

NUCLEIC ACID HYBRIDIZATION, AMPLIFICATION & CONSTRUCTION OF LIBRARIES:

Methods of nucleic acid detection, polymerase chain reaction (PCR), variants of PCR and applications, methods of nucleic acid hybridization, Southern, Northern & Western hybridization techniques & applications. Isolation of nucleic acids (DNA & RNA). Isolation of plasmids, construction of genomic and cDNA libraries, purification, screening and preservation

Module-3

METHODS OF GENE/DNA TRANSFER:

Overview & classification of gene transfer techniques in plants, animals and microbes – Transformation, stable & transient transformation, transfection, electroporation, microinjection, liposome mediated gene transfer, transfection of DNA by calcium phosphate coprecipitation, gene gun method. *Agrobacterium*-mediated gene transfer in plants – Ti &Ri plasmids: structure and functions, Ti plasmid based vectors – advantages, disease control of *Agrobacterium tumefaciens*. Chloroplast transformation & its applications.

Module-4

TRANSGENIC SCIENCE IN GENETIC IMPROVEMENT

Transgenic science in plant improvement, biopharming – plants as bioreactors, transgenic crops for increased yield, resistance to biotic and abiotic stresses. Techniques of gene mapping in plants. Marker-assisted selection and breeding for improvement. Transgenic science for animal improvement, biopharming - animals as bioreactors for recombinant proteins, Gene mapping in farm animals. Marker-assisted selection and genetic improvement of livestock.

Module-5

OTHER APPLICATIONS & GENE THERAPY

Microbial biotechnology - Genetic manipulation, engineering microbes for the production of antibiotics, enzymes, Insulin, growth hormones, monoclonal antibodies, clearing oil spills. Introduction to gene therapy. Methods of Gene therapy. Gene targeting and silencing. Gene therapy in the treatment of cancer, SCID, muscular dystrophy, respiratory disease (emphysema), cystic fibrosis. Challenges & future of gene therapy.

Course Outcomes: At the end of the course the student will be able to:

- Explain & compare the different vectors & enzymes used in the construction of recombinant DNA in Genetic engineering
- Choose& explain specific techniques like PCR, Blotting & construction of libraries
- Differentiate between & learn the different gene/DNA transfer techniques
- Outline the various methods of producing transgenic organisms and sub-divide/summarize the applications of genetic engineering for the welfare of mankind & society

Question paper pattern:

- The question paper will have ten full questions carrying equal marks.
- Each full question will be for 20 marks.
- There will be two full questions (with a maximum of four sub- questions) from each module.
- Each full question will have sub- question covering all the topics under a module.
- The students will have to answer five full questions, selecting one full question from each module.

Sl No	Title of the Book	Name of the Author/s	Name of the Publisher	Edition and Year
Textbook/s				
1	Principles of Gene Manipulation and Genomics	S.B. Primrose and R. M. Twyman	Blackwell Science Publications	7th edition 2006
2	Gene Cloning and DNA Analysis: An Introduction	T A Brown	Wiley – Blackwell Publications.	(6th edition)
Reference Books				
3	Recombinant DNA	Watson.J.D. et al	Scientific American Books, New York	1993
4	Plant Genetic Engineering	J. H. Dodds	Cambridge University Press	1983
5	Gene Cloning and Manipulation	Howe C. J	Cambridge University Press	2007

Course Title:	**Indian Constitution**		
Course Code:	BICOK107-207	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01
Total Hours of Pedagogy	15 hours	Credits	01

Course objectives :

The course **INDIAN CONSTITUTION (22ICO17 / 27)** will enable the students,

1. To know about the basic structure of Indian Constitution.
2. To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
3. To know about our Union Government, political structure & codes, procedures.
4. To know the State Executive & Elections system of India.
5. To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.

Teaching-Learning Process

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

(i) Direct instructional method (Low/Old Technology),
(ii) Flipped classrooms (High/advanced Technological tools),
(iii) Blended learning (Combination of both),
(iv) Enquiry and evaluation based learning,
(v) Personalizedlearning,
(vi) Problems based learning through discussion.
(vii) Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

Module-1 (03 hours of pedagogy)

Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to theIndian constitution, Making of the Constitution, Role of the Constituent Assembly.

Module-2 (03 hours of pedagogy)

Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. FundamentalRights (FR's) and its Restriction and limitations in different Complex Situations. building.

Module-3 (03 hours of pedagogy)

Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties
and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.

Module-4 (03 hours of pedagogy)

Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India,Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.

Module-5 (03 hours of pedagogy)

State Executive and Governer, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process Amendment to Constitution, and Important Constitutional Amendments till today. Emergency

Provisions.

Course outcome (Course Skill Set)
At the end of the course 22ICO17/27 the student will be able to:

CO1	Analyse the basic structure of Indian Constitution.
CO2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
CO3	know about our Union Government, political structure & codes, procedures.
CO4	Understand our State Executive & Elections system of India.
CO5	Remember the Amendments and Emergency Provisions, other important provisions given by the constitution.

Department of Information Science & Engineering

Course Title:	**Indian Constitution**		
Course Code:	BICOK107-207	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01
Total Hours of Pedagogy	15 hours	Credits	01

Course objectives :

The course **INDIAN CONSTITUTION (22ICO17 / 27)** will enable the students,

1. To know about the basic structure of Indian Constitution.
2. To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
3. To know about our Union Government, political structure & codes, procedures.
4. To know the State Executive & Elections system of India.
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Module-2 (03 hours of pedagogy)

Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. FundamentalRights (FR's) and its Restriction and limitations in different Complex Situations. building.

Module-3 (03 hours of pedagogy)

Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.

Module-4 (03 hours of pedagogy)

Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India,Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.

Module-5	**(03 hours of pedagogy)**
State Executive and Governer, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process. Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.	

Course outcome (Course Skill Set)
At the end of the course 22ICO17/27 the student will be able to:

CO1	Analyse the basic structure of Indian Constitution.
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CO3	know about our Union Government, political structure & codes, procedures.
CO4	Understand our State Executive & Elections system of India.
CO5	Remember the Amendments and Emergency Provisions, other important provisions given by the constitution.

Department of Mechanical Engineering

Course Title:	**Indian Constitution**		
Course Code:	BICOK107-207	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01
Total Hours of Pedagogy	15 hours	Credits	01

Course objectives :
The course **INDIAN CONSTITUTION (22ICO17 / 27)** will enable the students,

1. To know about the basic structure of Indian Constitution.
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(vii) Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

Module-1	**(03 hours of pedagogy)**
Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to theIndian constitution, Making of the Constitution, Role of the Constituent Assembly.	

Module-2	**(03 hours of pedagogy)**
Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. FundamentalRights (FR's) and its Restriction and limitations in different Complex Situations. building.	

Module-3	**(03 hours of pedagogy)**
Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties	

and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.
Module-4 (03 hours of pedagogy)
Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India,Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.
Module-5 (03 hours of pedagogy)
State Executive and Governer, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process. Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.

Course outcome (Course Skill Set)
At the end of the course 22ICO17/27 the student will be able to:

CO1	Analyse the basic structure of Indian Constitution.
CO2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
CO3	know about our Union Government, political structure & codes, procedures.
CO4	Understand our State Executive & Elections system of India.
CO5	Remember the Amendments and Emergency Provisions, other important provisions given by the constitution.

Department of Computer Science & Engineering

Course Title:	**Indian Constitution**		
Course Code:	BICOK107-207	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01
Total Hours of Pedagogy	15 hours	Credits	01

Course objectives : The course **INDIAN CONSTITUTION (22ICO17 / 27)** will enable the students,

1. To know about the basic structure of Indian Constitution.
2. To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
3. To know about our Union Government, political structure & codes, procedures.
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5. To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.

Teaching-Learning Process

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

(i) Direct instructional method (Low/Old Technology),
(ii) Flipped classrooms (High/advanced Technological tools),
(iii) Blended learning (Combination of both),
(iv) Enquiry and evaluation based learning,
(v) Personalizedlearning,
(vi) Problems based learning through discussion.

Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

Module-1 (03 hours of pedagogy)

Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to theIndian constitution, Making of the Constitution, Role of the Constituent Assembly.
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Module-5 (03 hours of pedagogy)
State Executive and Governer, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.

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Department of Electrical and Communication Engineering

Course Title:	**Indian Constitution**		
Course Code:	BICOK107-207	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01
Total Hours of Pedagogy	15 hours	Credits	01

Course objectives :
The course **INDIAN CONSTITUTION (22ICO17 / 27)** will enable the students,

1. To know about the basic structure of Indian Constitution.
2. To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
3. To know about our Union Government, political structure & codes, procedures.
4. To know the State Executive & Elections system of India.
5. To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.

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These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

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Module-1 (03 hours of pedagogy)

Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to theIndian constitution, Making of the Constitution, Role of the Constituent Assembly.

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Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.

Module-4 (03 hours of pedagogy)

Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India,Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.

Module-5 (03 hours of pedagogy)

State Executive and Governer, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.

Course outcome (Course Skill Set)
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Department of Artificial Intelligence and Machine Learning

Course Title:	**Indian Constitution**		
Course Code:	BICOK107-207	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01
Total Hours of Pedagogy	15 hours	Credits	01

Course objectives :
The course **INDIAN CONSTITUTION (22ICO17 / 27)** will enable the students,

1. To know about the basic structure of Indian Constitution.
2. To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
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4. To know the State Executive & Elections system of India.
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Teaching-Learning Process

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Module-1 (03 hours of pedagogy)

Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to theIndian constitution, Making of the Constitution, Role of the Constituent Assembly.

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Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. FundamentalRights (FR's) and its Restriction and limitations in different Complex Situations. building.

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CHILDREN'S EDUCATION SOCIETY (Regd.)
Administrative Office:
1st Phase, JP Nagar, Bengaluru – 560 078
✆: 080-61754501 – 502 Fax: 080-2654 8658

THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,
Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),
Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24&Diamond Rating by QS I Guage)
Bommanahalli, Hosur Road, Bangalore –560068. ✆: 080 -61754601/602
E-mail: engprincipal@theoxford.edu Web: www.theoxfordengg.org

Department of Mechatronics

Course Title:	**Indian Constitution**		
Course Code:	BICOK107-207	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01
Total Hours of Pedagogy	15 hours	Credits	01

Course objectives :

The course **INDIAN CONSTITUTION (22ICO17 / 27)** will enable the students,

1. To know about the basic structure of Indian Constitution.
2. To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
3. To know about our Union Government, political structure & codes, procedures.
4. To know the State Executive & Elections system of India.
5. To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.

Teaching-Learning Process

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

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(vii) Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

Module-1 (03 hours of pedagogy)

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and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.

Module-4 (03 hours of pedagogy)

Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India,Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.

Module-5 (03 hours of pedagogy)

State Executive and Governer, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process Amendment to Constitution, and Important Constitutional Amendments till today. Emergency

Provisions.

Course outcome (Course Skill Set)
At the end of the course 22ICO17/27 the student will be able to:

CO1	Analyse the basic structure of Indian Constitution.
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CO3	know about our Union Government, political structure & codes, procedures.
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CO5	Remember the Amendments and Emergency Provisions, other important provisions given by the constitution.

Department of Civil Engineering

Course Title:	**Indian Constitution**		
Course Code:	BICOK107-207	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01
Total Hours of Pedagogy	15 hours	Credits	01

Course objectives :
The course **INDIAN CONSTITUTION (22ICO17 / 27)** will enable the students,

1. To know about the basic structure of Indian Constitution.
2. To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
3. To know about our Union Government, political structure & codes, procedures.
4. To know the State Executive & Elections system of India.
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Teaching-Learning Process
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Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to theIndian constitution, Making of the Constitution, Role of the Constituent Assembly.

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CO4	Understand our State Executive & Elections system of India.
CO5	Remember the Amendments and Emergency Provisions, other important provisions given by the constitution.

Department of Electrical & Electronics Engineering

Course Title:	**Indian Constitution**		
Course Code:	BICOK107-207	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01
Total Hours of Pedagogy	15 hours	Credits	01

Course objectives :

The course **INDIAN CONSTITUTION (22ICO17 / 27)** will enable the students,

1. To know about the basic structure of Indian Constitution.
2. To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
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4. To know the State Executive & Elections system of India.
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Teaching-Learning Process

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Module-1 (03 hours of pedagogy)

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Module-4 (03 hours of pedagogy)

Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India,Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.

Module-5 (03 hours of pedagogy)

State Executive and Governer, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral
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Course outcome (Course Skill Set)
At the end of the course 22ICO17/27 the student will be able to:

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Management and Entrepreneurship			
Course Code	21EE61	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	3:0:0:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	03

Course objectives:
(1)To introduce the field of management, task of the manager, importance of planning and types of planning, staff recruitment and selection process.
(2)To discuss the ways in which work is allocation, structure of organizations, modes of communication and importance of managerial control in business.
(3)To explain need of coordination between the manager and staff, the social responsibility of business and leadership.
(4)To explain the role and importance of the entrepreneur in economic development and the concepts of entrepreneurship.
(5)To explain various types of entrepreneurs and their functions, the myths of entrepreneurship and the factors required for capacity building for entrepreneurs.
(6)To discuss the importance of Small Scale Industries and the related terms and problems involved.
(7)To discuss methods for generating new business ideas and business opportunities in India and the importance of business plan.
(8)To introduce the concepts of project management and discuss capitol building process.
(9)To explain project feasibility study and project appraisal and discuss project financing.
(10)To discuss about different institutions at state and central levels supporting business enterprises.

Teaching-Learning Process (General Instructions)
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.
1. Lecturer method (L) needs not to be only traditional lecture method, but alternative effective teaching methods could be adopted to attain the outcomes.
2. Use of Video/Animation to explain functioning of various concepts.
3. Encourage collaborative (Group Learning) Learning in the class.
4. Ask at least three HOT (Higher order Thinking) questions in the class, which promotes critical thinking.
5. Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develop design thinking skills such as the ability to design, evaluate, generalize, and analyse information rather than simply recall it.
6. Introduce Topics in manifold representations.
7. Show the different ways to solve the same problem with different circuits/logic and encourage the students to come up with their own creative ways to solve them.
8. Discuss how every concept can be applied to the real world - and when that's possible, it helps improve the students' understanding.

Module-1

Management: Definition, Importance – Nature and Characteristics of Management, Management Functions, Roles of Manager, Levels of Management, Managerial Skills, Management & Administration, Management as a Science, Art &Profession.
Planning: Nature, Importance and Purpose Of Planning, Types of Plans, Steps in Planning, Limitations of Planning, Decision Making – Meaning, Types of Decisions- Steps in Decision Making.

Teaching-Learning Process	Chalk and Board, Power Point Presentation.

Module-2

Organizing and Staffing: Meaning, Nature and Characteristics of Organization – Process of Organization, Principles of Organization, Departmentalization, Committees – meaning, Types of Committees, Centralization Versus Decentralization of Authority and Responsibility, Span of Control (Definition only), Nature and Importance of Staffing, Process of Selection and Recruitment.
Directing and Controlling: Meaning and Nature of Directing-Leadership Styles, Motivation Theories Communication – Meaning and Importance, Coordination- Meaning and Importance, Techniques of Coordination. Controlling – Meaning, Steps in Controlling.

Teaching-Learning Process	Chalk and Board, Power Point Presentation.

Module-3

Department of Business Administration

RECRUITMENT AND SELECTION			
Course Code	**22MBAHR303**	**CIE Marks**	**50**
Teaching Hours/Week (L:P:SDA)	**4:0:0**	**SEE Marks**	**50**
Total Hours of Pedagogy	**50**	**Total Marks**	**100**
Credits	**04**	**Exam Hours**	**03**

Course Learning Objectives:

This course will enable the students

- To recite the theories and various steps involved in Recruitment and Selection
- To describe and explain in her/his own words, the relevance and importance of Recruitment and Selection in the Organization
- To apply and solve the workplace problems through Recruitment and Selection intervention
- To classify and categorize in differentiating between the best method to be adopted by organization related to Recruitment and Selection
- To compare and contrast different approaches of Recruitment and Selection framework for solving the complex issues and problems
- To design and develop an original framework and framework in dealing with the problems in the organization.

Module-1 (8 Hours)

Workforce Planning and Recruitment Analytics:

Concept of Work, Organisation's Work and Jobs; Millennials at the work place; Key Characteristics of Millennials; Types of Millennial; The Evolution of Work Structure; Organising the Work; Strategic Job Redesign and Its Benefits; Strategic Issues in Recruitment; What make Bad Recruitment; Overview of the Hiring Process; Recruitment Metrics; Factors Affecting Recruitment; Recruitment Strategy: An Internal Approach; Recruitment Strategy: An External Approach; Legal and Ethical Considerations; Organisational Best Practices.

Module-2 (9 Hours)

Job Analysis, Job Description and Job Design:

Identify the Job to Examine; Determine Appropriate Information Sources and Collect Job-Related Data; Job Description; Competency and Competency Ice Berg Model; Why Competency Based Recruitment; Sources of Recruitment; Different steps of job search; Motivational Job Specification; Creation of Functional Specification; Creation of Behavioural Specification; Employer branding; Social Media; Job Design.

Module-3 (9 Hours)

Job Evaluation:

The Job Evaluation Process; Obtain Job KSAOs, Qualifications, Working Conditions, and Essential Duties; Examine Compensable Factors Using the Rating/Weighting Evaluation Method; Determine Overall Job Value; Hay Group—Pioneer in Job Evaluation; Determining Compensation using Job Evaluation Data; Legal and Ethical Considerations for Job Evaluation; Online Salary Survey.

Module-4 (9 Hours)

Selection and Interview Strategy:
Interview Strategy and Process; Millennials shaping the Recruitment landscape in the organizations; Strategies for recruiting and selecting Generation Y into the workforce Developing Effective. Interviewers; Interviewing Techniques; Legal and Ethical Considerations in the Interview Process; The overall BEI Process; Assessment Centre's; Simulations.

Module-5 (9 Hours)

Testing and Assessment:
Testing in Occupational Selection; Test related to Assessment of Knowledge, Skills, and Abilities; Personality Assessment; The Birkman method and MBTI® comparison; FIRO-B; Honesty and Integrity Assessment; Various Non-Interviewing Methods; Graphology; Skills Assessment; Games and Group Activity for Leadership Assessment; Administration of Tests and Assessments; Key Interviewer Skills.

Module-6 (7 Hours)

Making the Hire; Assessment of Candidate and Job Fit:
Unique Recruitment strategies; Biodata and Application Forms; Implications of Using Social Media Content in Hiring Decisions; Background Checks; Reference Checks; Pre-employment Testing; Making a Job Offer; Transitioning from Job Candidate to Employee; Induction; Placement.

Assessment Details (both CIE and SEE)
The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing marks for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements (passed) and earned the credits allotted to each course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation:
There shall be a maximum of 50 CIE Marks. A candidate shall obtain not less than 50% of the maximum marks prescribed for the CIE.

CIE Marks shall be based on:
a) Tests (for 25Marks) and
b) Assignments, presentations, Quiz, Simulation, Experimentation, Mini project, oral examination, field work and class participation etc., (for 25 Marks) conducted in the respective course. Course instructors are given autonomy in choosing a few of the above based on the subject relevance and should maintain necessary supporting documents for same.

Semester End Examination:
The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50.

- The question paper will have 8 full questions carrying equal marks.
- Each full question is for 20 marks with 3 sub questions.
- Each full question will have sub question covering all the topics.
- The students will have to answer five full questions; selecting four full questions from question number one to seven in the pattern of 3, 7 & 10 Marks and question number eight is compulsory.

CONFLICT & NEGOTIATION MANAGEMENT			
Course Code	**22MBAHR403**	**CIE Marks**	**50**
Teaching Hours/Week (L:P:SDA)	**2:2:0**	**SEE Marks**	**50**
Total Hours of Pedagogy	**40**	**Total Marks**	**100**
Credits	**03**	**Exam Hours**	**03**

Course Learning objectives:

1. To understand the nature of various dimensions of conflict.
2. To learn various strategies and techniques to manage conflicts.
3. To understand the importance and role of negotiation in conflict resolution.
4. To understand the importance of cross-cultural and gender dimensions of negotiation.

Module-1 **6 Hours**

Introduction: Conflict: Definition, Meaning, Theories, Types of Conflicts - Productive (functional) and Destructive (dysfunctional). Levels of conflict – intrapersonal, interpersonal, group & organizational conflicts, Process and Structural Models. Myths about conflicts - of conflicts: cognitive (Pseudo conflict), process (simple conflict) and Inter-personal conflict (ego conflict), causes of conflict: common causes, organizational and interpersonal of conflict: traditional, Contemporary and Integrationist, Causes for work place conflicts – Harassment and discrimination.

Module-2 **7 Hours**

Analogy of Conflict: Stages of conflicts: grievances- personal needs, lack of monetary benefits and Incentives, promotion and recognition, harassment, discrimination, prejudice and Bias, identity unconcern attitudes of administration, frustration, escalation of Conflicts, and violence, Cost and effect of conflicts. Perspectives of conflict - organizational and individuals. Spectrum of conflicts- Persona conflicts, group conflicts, labour conflicts, social and political conflicts, Contingency conflic management process, Cost of Workplace Conflict, conflict mapping and tracking

Module-3 **7 Hours**

Conflict Management: Nature of conflict Management, Managing conflict: Thomas conflict resolution approach (Avoiding, Accommodating, Compromising, Competing, Collaboration) behavioural style and conflict handling, Cosier Schank model of conflict resolution. Strategies for resolving Individual, Team and organizational level conflict, Conflict Resolution Process – Persuasion, Counselling and Reconciliation Skills, Negotiation and Arbitration, Skills for conflict management – Listening, Mentoring, Mediating, Negotiating, Counselling, Diplomacy, EI (Emotional Intelligence). Conflict Regulation Reduction, Resolution, Transformation

Module-4 **6 Hours**

Negotiation: Negotiations/ Negotiation strategies –Meaning , Six Foundations of Negotiation, Negotiations, negotiation process, Principles for successful negotiations, Factors and essential skills for negotiation, tricks used in negotiation process, psychological advantage of negotiations, Techniques of negotiation, issues in negotiations. Negotiation strategies: Strategy and tactics for

Human Values

Department of Biotechnology

Scientific Foundations of Health

Course Title:	Scientific Foundations of Health		
Course Code:	BSFHK158/258	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01

Course objectives
The course Scientific Foundations of Health (22SFH18/28) will enable the students,

1. To know about Health and wellness (and its Beliefs) & It's balance for positive mindset.
2. To Build the healthy lifestyles for good health for their better future.
3. To Create a Healthy and caring relationships to meet the requirements of good/social/positive life.
4. To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future
5. To Prevent and fight against harmful diseases for good health through positive mindset

Teaching-Learning Process
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective:
Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.
(i) Direct instructional method (Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools), (iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion, (vii) Following the method of expeditionary learning Tools and techniques, (viii) Use of audio visual methods.
Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

Module-1 **(03 hours of pedagogy)**

Good Health & It's balance for positive mindset: Health -Importance of Health, Influencing factors of Health, Health beliefs, Advantages of good health, Health & Behavior, Health & Society, Health & family, Health & Personality, Psychological disorders-Methods to improve good psychological health, Changing health habits for good health.

Module-2 **(03 hours of pedagogy)**

Building of healthy lifestyles for better future: Developing healthy diet for good health, Food & health, Nutritional guidelines for good health, Obesity & overweight disorders and its management, Eating disorders, Fitness components for health. Wellness and physical function. How to avoid exercise injuries.

Module-3 **(03 hours of pedagogy)**

Creation of Healthy and caring relationships : Building communication skills, Friends and friendship - Education, the value of relationship and communication skills, Relationships for Better or worsening of life, understanding of basic instincts of life (more than a biology), Changing health behaviours through social engineering.

Module-4 **(03 hours of pedagogy)**

Avoiding risks and harmful habits : Characteristics of health compromising behaviors, Recognizing and avoiding of addictions, How addiction develops, Types of addictions, influencing factors of addictions, Differences between addictive people and non addictive people & their behaviors. Effects of addictions Such as..., how to recovery from addictions.

Module-5 **(03 hours of pedagogy)**

Preventing & fighting against diseases for good health: How to protect from different types of infections, How to reduce risks for good health, Reducing risks & coping with chronic conditions, Management of chronic illness for Quality of life, Health & Wellness of youth :a challenge for upcoming future, Measuring of health & wealth status.

Universal Human Values (UHV)		Semester	3rd
Course Code	**BUHK408**	CIE Marks	50
Teaching Hours/Week (L: T:P: S)	1:0:0:1	SEE Marks	50
Total Hours of Pedagogy	15 hour Theory Session +15 hour Self study	Total Marks	100
Credits	01	Exam Hours	01 Hour
Examination type (SEE)	SEE paper shall be set for 50 questions, each of the 01 mark. The pattern of the question paper is **MCQ (multiple choice questions).**		

Course objectives:

This course is intended to:

- To help the students appreciate the essential complementarity between 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity which are the core aspirations of all human beings.
- To facilitate the development of a Holistic perspective among students towards life and profession as well as towards happiness and prosperity based on a correct understanding of the Human reality and the rest of existence. Such a holistic perspective forms the basis of Universal Human Values and movement towards value-based living in a natural way.
- To highlight plausible implications of such a Holistic understanding in terms of ethical human conduct, trustful and mutually fulfilling human behaviour and mutually enriching interaction with Nature.
- This course is intended to provide a much-needed orientation input in value education to the young enquiring minds.

Teaching-Learning Process (General Instructions)

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

1. The methodology of this course is explorational and thus universally adaptable. It involves a systematic and rational study of the human being vis-à-vis the rest of existence.
2. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the activities will develop students' theoretical and applied skills.
3. State the need for UHV activities and its present relevance in the society and Provide real-life examples.
4. Support and guide the students for self-study activities.
5. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress in real activities in the field.
6. This process of self-exploration takes the form of a dialogue between the teacher and the students to begin with, and then to continue within the student in every activity, leading to continuous selfevolution.
7. Encourage the students for group work to improve their creative and analytical skills.

Module-1

Introduction to Value Education **(3 hours)**

Right Understanding, Relationship and Physical Facility (Holistic Development and the Role of Education) Understanding Value Education, Self-exploration as the Process for Value Education, Continuous Happiness and Prosperity – the Basic Human Aspirations, Happiness and Prosperity – Current Scenario, Method to Fulfil the Basic Human Aspirations

Module-2

Harmony in the Human Being : **(3 hours)** Understanding Human being as the Co-existence of the Self and the Body, Distinguishing between the Needs of the Self and the Body, The Body as an Instrument of the Self, Understanding Harmony in the Self, Harmony of the Self with the Body, Programme to ensure self-regulation and Health
Module-3
Harmony in the Family and Society : **(3 hours)** Harmony in the Family – the Basic Unit of Human Interaction, 'Trust' – the Foundational Value in Relationship, 'Respect' – as the Right Evaluation, Other Feelings, Justice in Human-to-Human Relationship, Understanding Harmony in the Society, Vision for the Universal Human Order
Module-4
Harmony in the Nature/Existence : **(3 hours)** Understanding Harmony in the Nature, Interconnectedness, self-regulation and Mutual Fulfilment among the Four Orders of Nature, Realizing Existence as Co-existence at All Levels, The Holistic Perception of Harmony in Existence
Module-5
Implications of the Holistic Understanding – a Look at Professional Ethics : **(3 hours)** Natural Acceptance of Human Values, Definitiveness of (Ethical) Human Conduct, A Basis for Humanistic Education, Humanistic Constitution and Universal Human Order, Competence in Professional Ethics Holistic Technologies, Production Systems and Management Models-Typical Case Studies, Strategies for Transition towards Value-based Life and Profession
Course outcome (Course Skill Set) At the end of the course, students are expected to become more aware of themselves, and their surroundings (family, society, nature); • They would become more responsible in life, and in handling problems with sustainable solutions, while keeping human relationships and human nature in mind. • They would have better critical ability. • They would also become sensitive to their commitment towards what they have understood (human values, human relationship and human society). • It is hoped that they would be able to apply what they have learnt to their own self in different day-to-day settings in real life, at least a beginning would be made in this direction. Expected to positively impact common graduate attributes like: 1. Ethical human conduct 2. Socially responsible behaviour 3. Holistic vision of life 4. Environmentally responsible work 5. Having Competence and Capabilities for Maintaining Health and Hygiene 6. Appreciation and aspiration for excellence (merit) and gratitude for all

Department of Information Science & Engineering

Scientific Foundations of Health

Course Title:	Scientific Foundations of Health		
Course Code:	BSFHK158/258	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01

Course objectives

The course Scientific Foundations of Health (22SFH18/28) will enable the students,

1. To know about Health and wellness (and its Beliefs) & It's balance for positive mindset.
2. To Build the healthy lifestyles for good health for their better future.
3. To Create a Healthy and caring relationships to meet the requirements of good/social/positive life.
4. To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future
5. To Prevent and fight against harmful diseases for good health through positive mindset

Teaching-Learning Process

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective:
Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.
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Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

Module-1 **(03 hours of pedagogy)**

Good Health & It's balance for positive mindset: Health -Importance of Health, Influencing factors of Health, Health beliefs, Advantages of good health, Health & Behavior, Health & Society, Health & family, Health & Personality, Psychological disorders-Methods to improve good psychological health, Changing health habits for good health.

Module-2 **(03 hours of pedagogy)**

Building of healthy lifestyles for better future: Developing healthy diet for good health, Food & health, Nutritional guidelines for good health, Obesity & overweight disorders and its management, Eating disorders, Fitness components for health. Wellness and physical function. How to avoid exercise injuries.

Module-3 **(03 hours of pedagogy)**

Creation of Healthy and caring relationships : Building communication skills, Friends and friendship - Education, the value of relationship and communication skills, Relationships for Better or worsening of life, understanding of basic instincts of life (more than a biology), Changing health behaviours through social engineering.

Module-4 **(03 hours of pedagogy)**

Avoiding risks and harmful habits : Characteristics of health compromising behaviors, Recognizing and avoiding of addictions, How addiction develops, Types of addictions, influencing factors of addictions, Differences between addictive people and non addictive people & their behaviors. Effects of addictions Such as..., how to recovery from addictions.

Module-5 **(03 hours of pedagogy)**

Preventing & fighting against diseases for good health: How to protect from different types of infections, How to reduce risks for good health, Reducing risks & coping with chronic conditions, Management of chronic illness for Quality of life, Health & Wellness of youth :a challenge for upcoming future, Measuring of health & wealth status.

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THE OXFORD COLLEGE OF ENGINEERING

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Bommanahalli, Hosur Road, Bangalore –560068. ✆: 080 -61754601/602
E-mail: engprincipal@theoxford.edu Web: www.theoxfordengg.org

BSCK307 – Social Connect & Responsibility **2022 Scheme & syllabus for 3rd sem**		Semester	**3rd**
Course Code	**BSCK307**	CIE Marks	**100**
Teaching Hours/Week (L:T:P: S)	0:0:3:1	SEE Marks	------
Total Hours of Pedagogy	40 hour Practical Session +15 hour Planning	Total Marks	**100**
Examination nature (No SEE – Only CIE)	For CIE Assessment - Activities Report Evaluation by College NSS Officer / HOD / Sports Dept / Any Dept.		
Credits	01 - Credit		

Course objectives: The course will enable the students to:

1. Provide a formal platform for students to communicate and connect to the surrounding.
2. create a responsible connection with the society.
3. Understand the community in general in which they work.
4. Identify the needs and problems of the community and involve them in problem –solving.
5. Develop among themselves a sense of social & civic responsibility & utilize their knowledgein finding practical solutions to individual and community problems.
6. Develop competence required for group-living and sharing of responsibilities & gain skills in mobilizing community participation to acquire leadership qualities and democratic attitudes.

General Instructions - Pedagogy :

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

1. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted sothat the activities will develop students' theoretical and applied social and cultural skills.
2. State the need for activities and its present relevance in the society and Provide real-life examples.
3. Support and guide the students for self-planned activities.
4. You will also be responsible for assigning homework, grading assignments and quizzes, and documentingstudents' progress in real activities in the field.
5. Encourage the students for group work to improve their creative and analytical skills.

Contents :

The course is mainly activity-based that will offer a set of activities for the student that enables them to connect with fellowhuman beings, nature, society, and the world at large.

The course will engage students for interactive sessions, open mic, reading group, storytelling sessions, and semester-longactivities conducted by faculty mentors.

In the following a set of activities planned for the course have been listed:

Social Connect & Responsibility - Contents

Part I:

Plantation and adoption of a tree:

Plantation of a tree that will be adopted for four years by a group of BE / B.Tech students. (ONE STUDENT ONE TREE)They will also make an excerpt either as a documentary or a photo blog describing the plant's origin, its usage in daily life, its appearance in folklore and literature - – Objectives, Visit, case study, report, outcomes.

Part II :

Heritage walk and crafts corner:

Heritage tour, knowing the history and culture of the city, connecting to people around through their history, knowing the city and its craftsman, photo blog and documentary on evolution and practice of various craft forms -– Objectives, Visit, case study, report, outcomes.

Part III :

Organic farming and waste management:

Usefulness of organic farming, wet waste management in neighboring villages, and implementation in the campus

Objectives, Visit, case study, report, outcomes.

Part IV:

Water conservation:

Knowing the present practices in the surrounding villages and implementation in the campus, documentary or photoblog presenting the current practices – Objectives, Visit, case study, report, outcomes.

Part V :

Food walk:

City's culinary practices, food lore, and indigenous materials of the region used in cooking – Objectives, Visit, case study, report, outcomes.

Universal Human Values (UHV)		Semester	3rd
Course Code	**BUHK408**	CIE Marks	50
Teaching Hours/Week (L: T:P: S)	1:0:0:1	SEE Marks	50
Total Hours of Pedagogy	15 hour Theory Session +15 hour Self study	Total Marks	100
Credits	01	Exam Hours	01 Hour
Examination type (SEE)	SEE paper shall be set for 50 questions, each of the 01 mark. The pattern of the question paper is **MCQ (multiple choice questions).**		

Course objectives:

This course is intended to:

- To help the students appreciate the essential complementarily between 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity which are the core aspirations ofall human beings.
- To facilitate the development of a Holistic perspective among students towards life and profession as well as towards happiness and prosperity based on a correct understanding of the Human reality and the rest of existence. Such a holistic perspective forms the basisof Universal Human Values and movement towards value-based living in a natural way.
- To highlight plausible implications of such a Holistic understanding in terms of ethical human conduct, trustful and mutually fulfilling human behaviour and mutually enrichinginteraction with Nature.
- This course is intended to provide a much-needed orientation input in value education to
  the young enquiring minds.

Teaching-Learning Process (General Instructions)

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

1. The methodology of this course is explorational and thus universally adaptable. It involves a systematicand rational study of the human being vis-à-vis the rest of existence.
2. In addition to the traditional lecture method, different types of innovative teaching methods may beadopted so that the activities will develop students' theoretical and applied skills.
3. State the need for UHV activities and its present relevance in the society and Provide real-life examples.
4. Support and guide the students for self-study activities.
5. You will also be responsible for assigning homework, grading assignments and quizzes, anddocumenting students' progress in real activities in the field.
6. This process of self-exploration takes the form of a dialogue between the teacher and the students to beginwith, and then to continue within the student in every activity, leading to continuous selfevolution.
7. Encourage the students for group work to improve their creative and analytical skills.

Module-1

Introduction to Value Education (3 hours)

Right Understanding, Relationship and Physical Facility (Holistic Development and the Role ofEducation) Understanding Value Education, Self-exploration as the Process for Value Education, Continuous Happiness and Prosperity – the Basic Human Aspirations, Happiness and Prosperity – Current Scenario, Method to Fulfil the Basic Human Aspirations
Module-2
Harmony in the Human Being : (3 hours) Understanding Human being as the Co-existence of the Self and the Body, Distinguishing between the Needs of the Self and the Body, The Body as an Instrument of the Self, Understanding Harmony in the Self, Harmony of the Self with the Body, Programme to ensure self-regulation and Health
Module-3
Harmony in the Family and Society : (3 hours) Harmony in the Family – the Basic Unit of Human Interaction, 'Trust' – the Foundational Value in Relationship, 'Respect' – as the Right Evaluation, Other Feelings, Justice in Human-to- Human Relationship, Understanding Harmony in the Society, Vision for the Universal Human Order
Module-4
Harmony in the Nature/Existence : (3 hours) Understanding Harmony in the Nature, Interconnectedness, self-regulation and Mutual Fulfilment among the Four Orders of Nature, Realizing Existence as Co-existence at All Levels, The Holistic Perception of Harmony in Existence
Module-5
Implications of the Holistic Understanding – a Look at Professional Ethics : (3 hours) Natural Acceptance of Human Values, Definitiveness of (Ethical) Human Conduct, A Basis forHumanistic Education, Humanistic Constitution and Universal Human Order, Competence inProfessional Ethics Holistic Technologies, Production Systems and Management Models-Typical Case Studies, Strategies for Transition towards Value-based Life and Profession

Department of Mechanical Engineering

Scientific Foundations of Health

Course Title:	Scientific Foundations of Health		
Course Code:	BSFHK158/258	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01

Course objectives
The course Scientific Foundations of Health (22SFH18/28) will enable the students,

1. To know about Health and wellness (and its Beliefs) & It's balance for positive mindset.
2. To Build the healthy lifestyles for good health for their better future.
3. To Create a Healthy and caring relationships to meet the requirements of good/social/positive life.
4. To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future
5. To Prevent and fight against harmful diseases for good health through positive mindset

Teaching-Learning Process
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective:
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(i) Direct instructional method (Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools), (iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion, (vii) Following the method of expeditionary learning Tools and techniques, (viii) Use of audio visual methods.
Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

Module-1 **(03 hours of pedagogy)**

Good Health & It's balance for positive mindset: Health -Importance of Health, Influencing factors of Health, Health beliefs, Advantages of good health, Health & Behavior, Health & Society, Health & family, Health & Personality, Psychological disorders-Methods to improve good psychological health, Changing health habits for good health.

Module-2 **(03 hours of pedagogy)**

Building of healthy lifestyles for better future: Developing healthy diet for good health, Food & health, Nutritional guidelines for good health, Obesity & overweight disorders and its management, Eating disorders, Fitness components for health. Wellness and physical function. How to avoid exercise injuries.

Module-3 **(03 hours of pedagogy)**

Creation of Healthy and caring relationships : Building communication skills, Friends and friendship - Education, the value of relationship and communication skills, Relationships for Better or worsening of life, understanding of basic instincts of life (more than a biology), Changing health behaviours through social engineering.

Module-4 **(03 hours of pedagogy)**

Avoiding risks and harmful habits : Characteristics of health compromising behaviors, Recognizing and avoiding of addictions, How addiction develops, Types of addictions, influencing factors of addictions, Differences between addictive people and non addictive people & their behaviors. Effects of addictions Such as..., how to recovery from addictions.

Module-5 **(03 hours of pedagogy)**

Preventing & fighting against diseases for good health: How to protect from different types of infections, How to reduce risks for good health, Reducing risks & coping with chronic conditions, Management of chronic illness for Quality of life, Health & Wellness of youth :a challenge for upcoming future, Measuring of health & wealth status.

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E-mail: engprincipal@theoxford.edu Web: www.theoxfordengg.org

Universal Human Values (UHV)		Semester	3rd
Course Code	**BUHK408**	CIE Marks	50
Teaching Hours/Week (L: T:P: S)	1:0:0:1	SEE Marks	50
Total Hours of Pedagogy	15 hour Theory Session +15 hour Self study	Total Marks	100
Credits	01	Exam Hours	01 Hour
Examination type (SEE)	SEE paper shall be set for 50 questions, each of the 01 mark. The pattern of the question paper is **MCQ (multiple choice questions).**		

Course objectives:

This course is intended to:

- To help the students appreciate the essential complementarily between 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity which are the core aspirations ofall human beings.
- To facilitate the development of a Holistic perspective among students towards life and profession as well as towards happiness and prosperity based on a correct understanding of the Human reality and the rest of existence. Such a holistic perspective forms the basisof Universal Human Values and movement towards value-based living in a natural way.
- To highlight plausible implications of such a Holistic understanding in terms of ethical human conduct, trustful and mutually fulfilling human behaviour and mutually enrichinginteraction with Nature.
- This course is intended to provide a much-needed orientation input in value education to the young enquiring minds.

Teaching-Learning Process (General Instructions)

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Module-1

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Department of Computer Science & Engineering

Scientific Foundations of Health

Course Title:	Scientific Foundations of Health		
Course Code:	BSFHK158/258	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01

Course objectives
The course Scientific Foundations of Health (22SFH18/28) will enable the students,

1. To know about Health and wellness (and its Beliefs) & It's balance for positive mindset.
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Module-1 **(03 hours of pedagogy)**

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Module-5 **(03 hours of pedagogy)**

Preventing & fighting against diseases for good health: How to protect from different types of infections, How to reduce risks for good health, Reducing risks & coping with chronic conditions, Management of chronic illness for Quality of life, Health & Wellness of youth :a challenge for upcoming future, Measuring of health & wealth status.

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Universal Human Values (UHV)		Semester	**3rd**
Course Code	**BUHK408**	CIE Marks	50
Teaching Hours/Week (L: T:P: S)	1:0:0:1	SEE Marks	50
Total Hours of Pedagogy	15 hour Theory Session +15 hour Self study	Total Marks	100
Credits	01	Exam Hours	01 Hour
Examination type (SEE)	SEE paper shall be set for 50 questions, each of the 01 mark. The pattern of the question paper is **MCQ (multiple choice questions).**		

Course objectives:

This course is intended to:

- To help the students appreciate the essential complementarity between 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity which are the core aspirations ofall human beings.
- To facilitate the development of a Holistic perspective among students towards life and profession as well as towards happiness and prosperity based on a correct understanding of the Human reality and the rest of existence. Such a holistic perspective forms the basisof Universal Human Values and movement towards value-based living in a natural way.
- To highlight plausible implications of such a Holistic understanding in terms of ethical human conduct, trustful and mutually fulfilling human behaviour and mutually enrichinginteraction with Nature.
- This course is intended to provide a much-needed orientation input in value education to

  the young enquiring minds.

Teaching-Learning Process (General Instructions)

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

1. The methodology of this course is explorational and thus universally adaptable. It involves a systematicand rational study of the human being vis-à-vis the rest of existence.
2. In addition to the traditional lecture method, different types of innovative teaching methods may beadopted so that the activities will develop students' theoretical and applied skills.
3. State the need for UHV activities and its present relevance in the society and Provide real-life examples.
4. Support and guide the students for self-study activities.
5. You will also be responsible for assigning homework, grading assignments and quizzes, anddocumenting students' progress in real activities in the field.
6. This process of self-exploration takes the form of a dialogue between the teacher and the students to beginwith, and then to continue within the student in every activity, leading to continuous self evolution.
7. Encourage the students for group work to improve their creative and analytical skills.

Module-1

Introduction to Value Education (3 hours) Right Understanding, Relationship and Physical Facility (Holistic Development and the Role ofEducation) Understanding Value Education, Self-exploration as the Process for Value Education, Continuous Happiness and Prosperity – the Basic Human Aspirations, Happiness and Prosperity – Current Scenario, Method to Fulfil the Basic Human Aspirations
Module-2
Harmony in the Human Being : (3 hours) Understanding Human being as the Co-existence of the Self and the Body, Distinguishing between the Needs of the Self and the Body, The Body as an Instrument of the Self, Understanding Harmony in the Self, Harmony of the Self with the Body, Programme to ensure self-regulation and Health
Module-3
Harmony in the Family and Society : (3 hours) Harmony in the Family – the Basic Unit of Human Interaction, 'Trust' – the Foundational Value in Relationship, 'Respect' – as the Right Evaluation, Other Feelings, Justice in Human-to- Human Relationship, Understanding Harmony in the Society, Vision for the Universal Human Order
Module-4
Harmony in the Nature/Existence : (3 hours) Understanding Harmony in the Nature, Interconnectedness, self-regulation and Mutual Fulfilment among the Four Orders of Nature, Realizing Existence as Co-existence at All Levels, The Holistic Perception of Harmony in Existence
Module-5
Implications of the Holistic Understanding – a Look at Professional Ethics : (3 hours) Natural Acceptance of Human Values, Definitiveness of (Ethical) Human Conduct, A Basis forHumanistic Education, Humanistic Constitution and Universal Human Order, Competence inProfessional Ethics Holistic Technologies, Production Systems and Management Models-Typical Case Studies, Strategies for Transition towards Value-based Life and Profession

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BSCK307 – Social Connect & Responsibility **2022 Scheme & syllabus for 3rd sem**		Semester	**3rd**
Course Code	**BSCK307**	CIE Marks	**100**
Teaching Hours/Week (L:T:P: S)	0:0:3:1	SEE Marks	------
Total Hours of Pedagogy	40 hour Practical Session +15 hour Planning	Total Marks	**100**
Examination nature (No SEE – Only CIE)	For CIE Assessment - Activities Report Evaluation by College NSS Officer / HOD / Sports Dept / Any Dept.		
Credits	01 - Credit		

Course objectives: The course will enable the students to:

1. Provide a formal platform for students to communicate and connect to the surrounding.
2. create a responsible connection with the society.
3. Understand the community in general in which they work.
4. Identify the needs and problems of the community and involve them in problem –solving.
5. Develop among themselves a sense of social & civic responsibility & utilize their knowledgein finding practical solutions to individual and community problems.
6. Develop competence required for group-living and sharing of responsibilities & gain skills in mobilizing community participation to acquire leadership qualities and democratic attitudes.

General Instructions - Pedagogy :

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

1. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted sothat the activities will develop students' theoretical and applied social and cultural skills.
2. State the need for activities and its present relevance in the society and Provide real-life examples.
3. Support and guide the students for self-planned activities.
4. You will also be responsible for assigning homework, grading assignments and quizzes, and documentingstudents' progress in real activities in the field.
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Contents :

The course is mainly activity-based that will offer a set of activities for the student that enables them to connect with fellowhuman beings, nature, society, and the world at large.

The course will engage students for interactive sessions, open mic, reading group, storytelling sessions, and semester-longactivities conducted by faculty mentors.

In the following a set of activities planned for the course have been listed:

Social Connect & Responsibility - Contents

Part I:

Plantation and adoption of a tree:

Plantation of a tree that will be adopted for four years by a group of BE / B.Tech students. (ONE STUDENT ONE TREE)They will also make an excerpt either as a documentary or a photo blog describing the plant's origin, its usage in daily life, its appearance in folklore and literature - – Objectives, Visit, case study, report, outcomes.

Part II :

Heritage walk and crafts corner:

Heritage tour, knowing the history and culture of the city, connecting to people around through their history, knowing the city and its craftsman, photo blog and documentary on evolution and practice of various craft forms - – Objectives,Visit, case study, report, outcomes.

Part III :

Organic farming and waste management:

Usefulness of organic farming, wet waste management in neighboring villages, and implementation in the campus –

Objectives,Visit, case study, report, outcomes.

Part IV:

Water conservation:

Knowing the present practices in the surrounding villages and implementation in the campus, documentary or photoblog presenting the current practices – Objectives, Visit, case study, report, outcomes.

Part V :

Food walk:

City's culinary practices, food lore, and indigenous materials of the region used in cooking – Objectives, Visit, case study, report, outcomes.

Department of Electrical and Communication Engineering

Scientific Foundations of Health

Course Title:	Scientific Foundations of Health		
Course Code:	BSFHK158/258	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01

Course objectives
The course Scientific Foundations of Health (22SFH18/28) will enable the students,

1. To know about Health and wellness (and its Beliefs) & It's balance for positive mindset.
2. To Build the healthy lifestyles for good health for their better future.
3. To Create a Healthy and caring relationships to meet the requirements of good/social/positive life.
4. To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future
5. To Prevent and fight against harmful diseases for good health through positive mindset

Teaching-Learning Process
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective:
Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.
(i) Direct instructional method (Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools), (iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion, (vii) Following the method of expeditionary learning Tools and techniques, (viii) Use of audio visual methods.
Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

Module-1 **(03 hours of pedagogy)**

Good Health & It's balance for positive mindset: Health -Importance of Health, Influencing factors of Health, Health beliefs, Advantages of good health, Health & Behavior, Health & Society, Health & family, Health & Personality, Psychological disorders-Methods to improve good psychological health, Changing health habits for good health.

Module-2 **(03 hours of pedagogy)**

Building of healthy lifestyles for better future: Developing healthy diet for good health, Food & health, Nutritional guidelines for good health, Obesity & overweight disorders and its management, Eating disorders, Fitness components for health. Wellness and physical function. How to avoid exercise injuries.

Module-3 **(03 hours of pedagogy)**

Creation of Healthy and caring relationships : Building communication skills, Friends and friendship - Education, the value of relationship and communication skills, Relationships for Better or worsening of life, understanding of basic instincts of life (more than a biology), Changing health behaviours through social engineering.

Module-4 **(03 hours of pedagogy)**

Avoiding risks and harmful habits : Characteristics of health compromising behaviors, Recognizing and avoiding of addictions, How addiction develops, Types of addictions, influencing factors of addictions, Differences between addictive people and non addictive people & their behaviors. Effects of addictions Such as..., how to recovery from addictions.

Module-5 **(03 hours of pedagogy)**

Preventing & fighting against diseases for good health: How to protect from different types of infections, How to reduce risks for good health, Reducing risks & coping with chronic conditions, Management of chronic illness for Quality of life, Health & Wellness of youth :a challenge for upcoming future, Measuring of health & wealth status.

Universal Human Values (UHV)		Semester	**3rd**
Course Code	**BUHK408**	CIE Marks	50
Teaching Hours/Week (L: T:P: S)	1:0:0:1	SEE Marks	50
Total Hours of Pedagogy	15 hour Theory Session +15 hour Self study	Total Marks	100
Credits	01	Exam Hours	01 Hour
Examination type (SEE)	SEE paper shall be set for 50 questions, each of the 01 mark. The pattern of the question paper is **MCQ (multiple choice questions).**		

Course objectives:

This course is intended to:

- To help the students appreciate the essential complementarity between 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity which are the core aspirations ofall human beings.
- To facilitate the development of a Holistic perspective among students towards life and profession as well as towards happiness and prosperity based on a correct understanding of the Human reality and the rest of existence. Such a holistic perspective forms the basisof Universal Human Values and movement towards value-based living in a natural way.
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Teaching-Learning Process (General Instructions)

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2. In addition to the traditional lecture method, different types of innovative teaching methods may beadopted so that the activities will develop students' theoretical and applied skills.
3. State the need for UHV activities and its present relevance in the society and Provide real-life examples.
4. Support and guide the students for self-study activities.
5. You will also be responsible for assigning homework, grading assignments and quizzes, anddocumenting students' progress in real activities in the field.
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Module-1

Introduction to Value Education (3 hours)

Right Understanding, Relationship and Physical Facility (Holistic Development and the Role ofEducation) Understanding Value Education, Self-exploration as the Process for Value Education, Continuous Happiness and Prosperity – the Basic Human Aspirations,

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BSCK307 – Social Connect & Responsibility **2022 Scheme & syllabus for 3rd sem**		Semester	**3rd**
Course Code	**BSCK307**	CIE Marks	**100**
Teaching Hours/Week (L:T:P: S)	0:0:3:1	SEE Marks	------
Total Hours of Pedagogy	40 hour Practical Session +15 hour Planning	Total Marks	**100**
Examination nature (No SEE – Only CIE)	For CIE Assessment - Activities Report Evaluation by College NSS Officer / HOD / Sports Dept / Any Dept.		
Credits	01 - Credit		

Course objectives: The course will enable the students to:

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Part V :

Food walk:

City's culinary practices, food lore, and indigenous materials of the region used in cooking – Objectives, Visit, case study, report, outcomes.

Department of Artificial Intelligence and Machine Learning

Scientific Foundations of Health

Course Title:	Scientific Foundations of Health		
Course Code:	BSFHK158/258	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01

Course objectives
The course Scientific Foundations of Health (22SFH18/28) will enable the students,

1. To know about Health and wellness (and its Beliefs) & It's balance for positive mindset.
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Universal Human Values (UHV)		Semester	3rd
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BSCK307 – Social Connect & Responsibility **2022 Scheme & syllabus for 3rd sem**		Semester	**3rd**
Course Code	**BSCK307**	CIE Marks	**100**
Teaching Hours/Week (L:T:P: S)	0:0:3:1	SEE Marks	------
Total Hours of Pedagogy	40 hour Practical Session +15 hour Planning	Total Marks	**100**
Examination nature (No SEE – Only CIE)	For CIE Assessment - Activities Report Evaluation by College NSS Officer / HOD / Sports Dept / Any Dept.		
Credits	01 - Credit		

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Usefulness of organic farming, wet waste management in neighboring villages, and implementation in the campus –

Objectives,Visit, case study, report, outcomes.

Part IV:

Water conservation:

Knowing the present practices in the surrounding villages and implementation in the campus, documentary or photoblog presenting the current practices – Objectives, Visit, case study, report, outcomes.

Part V :

Food walk:

City's culinary practices, food lore, and indigenous materials of the region used in cooking – Objectives, Visit, case study, report, outcomes.

CHILDREN'S EDUCATION SOCIETY (Regd.)
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Department of Mechatronics

Scientific Foundations of Health

Course Title:	Scientific Foundations of Health		
Course Code:	BSFHK158/258	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01

Course objectives
The course Scientific Foundations of Health (22SFH18/28) will enable the students,

1. To know about Health and wellness (and its Beliefs) & It's balance for positive mindset.
2. To Build the healthy lifestyles for good health for their better future.
3. To Create a Healthy and caring relationships to meet the requirements of good/social/positive life.
4. To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future
5. To Prevent and fight against harmful diseases for good health through positive mindset

Teaching-Learning Process
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective:
Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.
(i) Direct instructional method (Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools), (iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion, (vii) Following the method of expeditionary learning Tools and techniques, (viii) Use of audio visual methods.
Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

Module-1 **(03 hours of pedagogy)**

Good Health & It's balance for positive mindset: Health -Importance of Health, Influencing factors of Health, Health beliefs, Advantages of good health, Health & Behavior, Health & Society, Health & family, Health & Personality, Psychological disorders-Methods to improve good psychological health, Changing health habits for good health.

Module-2 **(03 hours of pedagogy)**

Building of healthy lifestyles for better future: Developing healthy diet for good health, Food & health, Nutritional guidelines for good health, Obesity & overweight disorders and its management, Eating disorders, Fitness components for health. Wellness and physical function. How to avoid exercise injuries.

Module-3 **(03 hours of pedagogy)**

Creation of Healthy and caring relationships : Building communication skills, Friends and friendship - Education, the value of relationship and communication skills, Relationships for Better or worsening of life, understanding of basic instincts of life (more than a biology), Changing health behaviours through social engineering.

Module-4 **(03 hours of pedagogy)**

Avoiding risks and harmful habits : Characteristics of health compromising behaviors, Recognising and avoiding of addictions, How addiction develops, Types of addictions, influencing factors of addictions, Differences between addictive people and non addictive people & their behaviors. Effects of addictions Such as..., how to recovery from addictions.

Module-5 **(03 hours of pedagogy)**

Preventing & fighting against diseases for good health: How to protect from different types of infections, How to reduce risks for good health, Reducing risks & coping with chronic conditions, Management of chronic illness for Quality of life, Health & Wellness of youth :a challenge for upcoming future, Measuring of health & wealth status.

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Universal Human Values (UHV)		Semester	3rd
Course Code	**BUHK408**	CIE Marks	50
Teaching Hours/Week (L: T:P: S)	1:0:0:1	SEE Marks	50
Total Hours of Pedagogy	15 hour Theory Session +15 hour Self study	Total Marks	100
Credits	01	Exam Hours	01 Hour
Examination type (SEE)	SEE paper shall be set for 50 questions, each of the 01 mark. The pattern of the question paper is **MCQ (multiple choice questions).**		

Course objectives:

This course is intended to:

- To help the students appreciate the essential complementarity between 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity which are the core aspirations ofall human beings.
- To facilitate the development of a Holistic perspective among students towards life and profession as well as towards happiness and prosperity based on a correct understanding of the Human reality and the rest of existence. Such a holistic perspective forms the basisof Universal Human Values and movement towards value-based living in a natural way.
- To highlight plausible implications of such a Holistic understanding in terms of ethical human conduct, trustful and mutually fulfilling human behaviour and mutually enrichinginteraction with Nature.
- This course is intended to provide a much-needed orientation input in value education to
  the young enquiring minds.

Teaching-Learning Process (General Instructions)

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

1. The methodology of this course is explorational and thus universally adaptable. It involves a systematicand rational study of the human being vis-à-vis the rest of existence.
2. In addition to the traditional lecture method, different types of innovative teaching methods may beadopted so that the activities will develop students' theoretical and applied skills.
3. State the need for UHV activities and its present relevance in the society and Provide real-life examples.
4. Support and guide the students for self-study activities.
5. You will also be responsible for assigning homework, grading assignments and quizzes, anddocumenting students' progress in real activities in the field.
6. This process of self-exploration takes the form of a dialogue between the teacher and the students to beginwith, and then to continue within the student in every activity, leading to continuous selfevolution.
7. Encourage the students for group work to improve their creative and analytical skills.

Module-1

Introduction to Value Education (3 hours) Right Understanding, Relationship and Physical Facility (Holistic Development and the Role ofEducation) Understanding Value Education, Self-exploration as the Process for Value Education, Continuous Happiness and Prosperity – the Basic Human Aspirations, Happiness and Prosperity – Current Scenario, Method to Fulfil the Basic Human Aspirations
Module-2
Harmony in the Human Being : (3 hours) Understanding Human being as the Co-existence of the Self and the Body, Distinguishing between the Needs of the Self and the Body, The Body as an Instrument of the Self, Understanding Harmony in the Self, Harmony of the Self with the Body, Programme to ensure self-regulation and Health
Module-3
Harmony in the Family and Society : (3 hours) Harmony in the Family – the Basic Unit of Human Interaction, 'Trust' – the Foundational Value in Relationship, 'Respect' – as the Right Evaluation, Other Feelings, Justice in Human-to- Human Relationship, Understanding Harmony in the Society, Vision for the Universal Human Order
Module-4
Harmony in the Nature/Existence : (3 hours) Understanding Harmony in the Nature, Interconnectedness, self-regulation and Mutual Fulfilment among the Four Orders of Nature, Realizing Existence as Co-existence at All Levels, The Holistic Perception of Harmony in Existence
Module-5
Implications of the Holistic Understanding – a Look at Professional Ethics : (3 hours) Natural Acceptance of Human Values, Definitiveness of (Ethical) Human Conduct, A Basis forHumanistic Education, Humanistic Constitution and Universal Human Order, Competence inProfessional Ethics Holistic Technologies, Production Systems and Management Models-Typical Case Studies, Strategies for Transition towards Value-based Life and Profession

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BSCK307 – Social Connect & Responsibility 2022 Scheme & syllabus for 3rd sem		Semester	3rd
Course Code	**BSCK307**	CIE Marks	**100**
Teaching Hours/Week (L:T:P: S)	0:0:3:1	SEE Marks	------
Total Hours of Pedagogy	40 hour Practical Session +15 hour Planning	Total Marks	**100**
Examination nature (No SEE – Only CIE)	For CIE Assessment - Activities Report Evaluation by College NSS Officer / HOD / Sports Dept / Any Dept.		
Credits	01 - Credit		

Course objectives: The course will enable the students to:

1. Provide a formal platform for students to communicate and connect to the surrounding.
2. create a responsible connection with the society.
3. Understand the community in general in which they work.
4. Identify the needs and problems of the community and involve them in problem –solving.
5. Develop among themselves a sense of social & civic responsibility & utilize their knowledgein finding practical solutions to individual and community problems.
6. Develop competence required for group-living and sharing of responsibilities & gain skills in mobilizing community participation to acquire leadership qualities and democratic attitudes.

General Instructions - Pedagogy :

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

1. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted sothat the activities will develop students' theoretical and applied social and cultural skills.
2. State the need for activities and its present relevance in the society and Provide real-life examples.
3. Support and guide the students for self-planned activities.
4. You will also be responsible for assigning homework, grading assignments and quizzes, and documentingstudents' progress in real activities in the field.
5. Encourage the students for group work to improve their creative and analytical skills.

Contents :

The course is mainly activity-based that will offer a set of activities for the student that enables them to connect with fellowhuman beings, nature, society, and the world at large.

The course will engage students for interactive sessions, open mic, reading group, storytelling sessions, and semester-longactivities conducted by faculty mentors.

In the following a set of activities planned for the course have been listed:

Social Connect & Responsibility - Contents

Part I:

Plantation and adoption of a tree:

Plantation of a tree that will be adopted for four years by a group of BE / B.Tech students. (ONE STUDENT ONE TREE)They will also make an excerpt either as a documentary or a photo blog describing the plant's origin, its usage in daily life, its appearance in folklore and literature - – Objectives, Visit, case study, report, outcomes.

Part II :

Heritage walk and crafts corner:

Heritage tour, knowing the history and culture of the city, connecting to people around through their history, knowing the city and its craftsman, photo blog and documentary on evolution and practice of various craft forms - – Objectives,Visit, case study, report, outcomes.

Part III :

Organic farming and waste management:

Usefulness of organic farming, wet waste management in neighboring villages, and implementation in the campus

Objectives, Visit, case study, report, outcomes.

Part IV:

Water conservation:

Knowing the present practices in the surrounding villages and implementation in the campus, documentary or photoblog presenting the current practices – Objectives, Visit, case study, report, outcomes.

Part V :

Food walk:

City's culinary practices, food lore, and indigenous materials of the region used in cooking – Objectives, Visit, case study, report, outcomes.

Department of Civil Engineering

Scientific Foundations of Health

Course Title:	Scientific Foundations of Health		
Course Code:	BSFHK158/258	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01

Course objectives
The course Scientific Foundations of Health (22SFH18/28) will enable the students,

1. To know about Health and wellness (and its Beliefs) & It's balance for positive mindset.
2. To Build the healthy lifestyles for good health for their better future.
3. To Create a Healthy and caring relationships to meet the requirements of good/social/positive life.
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Teaching-Learning Process
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Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

Module-1 **(03 hours of pedagogy)**

Good Health & It's balance for positive mindset: Health -Importance of Health, Influencing factors of Health, Health beliefs, Advantages of good health, Health & Behavior, Health & Society, Health & family, Health & Personality, Psychological disorders-Methods to improve good psychological health, Changing health habits for good health.

Module-2 **(03 hours of pedagogy)**

Building of healthy lifestyles for better future: Developing healthy diet for good health, Food & health, Nutritional guidelines for good health, Obesity & overweight disorders and its management, Eating disorders, Fitness components for health. Wellness and physical function. How to avoid exercise injuries.

Module-3 **(03 hours of pedagogy)**

Creation of Healthy and caring relationships : Building communication skills, Friends and friendship - Education, the value of relationship and communication skills, Relationships for Better or worsening of life, understanding of basic instincts of life (more than a biology), Changing health behaviours through social engineering.

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BSCK307 – Social Connect & Responsibility 2022 Scheme & syllabus for 3rd sem		Semester	3rd
Course Code	**BSCK307**	CIE Marks	**100**
Teaching Hours/Week (L:T:P: S)	0:0:3:1	SEE Marks	------
Total Hours of Pedagogy	40 hour Practical Session +15 hour Planning	Total Marks	**100**
Examination nature (No SEE – Only CIE)	For CIE Assessment - Activities Report Evaluation by College NSS Officer / HOD / Sports Dept / Any Dept.		
Credits	01 - Credit		

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Department of Electrical & Electronics Engineering

Scientific Foundations of Health

Course Title:	Scientific Foundations of Health		
Course Code:	BSFHK158/258	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01

Course objectives
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1. To know about Health and wellness (and its Beliefs) & It's balance for positive mindset.
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Creation of Healthy and caring relationships : Building communication skills, Friends and friendship - Education, the value of relationship and communication skills, Relationships for Better or worsening of life, understanding of basic instincts of life (more than a biology), Changing health behaviours through social engineering.

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BSCK307 – Social Connect & Responsibility **2022 Scheme & syllabus for 3rd sem**		Semester	**3rd**
Course Code	**BSCK307**	CIE Marks	**100**
Teaching Hours/Week (L:T:P: S)	0:0:3:1	SEE Marks	------
Total Hours of Pedagogy	40 hour Practical Session +15 hour Planning	Total Marks	**100**
Examination nature (No SEE – Only CIE)	For CIE Assessment - Activities Report Evaluation by College NSS Officer / HOD / Sports Dept / Any Dept.		
Credits	01 - Credit		

Course objectives: The course will enable the students to:

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2. create a responsible connection with the society.
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Part V :

Food walk:

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Department of Business Administration

Principles of Management and Organisational Behaviour			
Course Code	**22MBA11**	**CIE Marks**	**50**
Teaching Hours/Week (L:P:SDA)	**4:0:0**	**SEE Marks**	**50**
Total Hours of Pedagogy	**50**	**Total Marks**	**100**
Credits	**04**	**Exam Hours**	**03**

Course Objectives: This course will enable the students

- To understand theories and models of Management and OB.
- To classify and differentiate between various methods of problem solving.
- To compile an adept framework for solving the problems at the workplace.
- To acquaint the students with industry relevant skill sets.

Module-1 (8 Hours)

Introduction: Meaning, Objectives, Differences between Administration and Management, Levels of Management, Kinds of Managers, Managerial roles, History of Management, Recent trends in Management.

Module-2 (9 Hours)

Planning: Importance, Process, Benefits of Planning, Types of Plans, Planning tools and techniques.
Organising: Meaning, Types of Organisation structures, Traditional structures, Directions in organisation structures.
Leading: Meaning, Nature, Traits and Behaviour, Contingency approaches to Leadership, Transformational leadership.
Controlling: Meaning, Importance, Steps in the control process, Types of Control.

Module-3 (9 Hours)

Organisational Behaviour: Introduction, Meaning, History of Organisational Behaviour, Organisational effectiveness, Organisational learning process, Stakeholders, Contemporary challenges for Organisations.

Module-4 (9 Hours)

Behavioural Dynamics: MARS Model of individual behaviour and performance, Types of Individual behaviour, Personality in Organisation, Values in the work place, Types of values, **Perception,** Meaning, Model of Perceptual process. Emotions in work place, Types of emotions, Circumplex Model of Emotion, Attitudes and Behaviour, Work-related stress and its management. **Motivation,** Meaning, Maslow's Hierarchy of Needs, Four Drive Theory of Motivation.

Module-5 (9 Hours)

Teams: Advantages of Teams, Model of Team Effectiveness, Stages of Team Development. Power , Meaning, Sources, and Contingencies of Power, Consequences of Power.

Module-6 (7 Hours)

BUSINESS COMMUNICATION			
Course Code	**22MBA16**	**CIE Marks**	**50**
Teaching Hours/Week (L:P:SDA)	**4:0:0**	**SEE Marks**	**50**
Total Hours of Pedagogy	**50**	**Total Marks**	**100**
Credits	**04**	**Exam Hours**	**03**

Course Learning objectives:

- To enable the students to become aware of their communication skills and sensitize them to their potential to become successful managers.
- To enable learners with the mechanics of writing and also help them to draft business letters in English precisely and effectively.
- To introduce the students to some of the practices in managerial communication those are in vogue.
- To prepare students to develop the art of business communication with emphasis on analysing business situations.
- To train Students towards drafting business proposals.

Module-1 (7 Hours)

Introduction: Meaning & Definition, Role, Classification, Purpose of communication, Communication Process, Characteristics of successful communication, Importance of communication in management, Communication structure in organization, Communication in conflict resolution, Communication in crisis. Communication and negotiation, Communication in a cross-cultural setting, Barriers to communication.

Module-2 (9 Hours)

Oral Communication: Meaning, Principles of successful oral communication, Barriers to oral communication, Conversation control, Reflection and Empathy: two sides of effective oral communication. Modes of Oral Communication, Effectiveness of oral communication.
Listening as a Communication Skill: Approaches to listening, how to be a better listener, Process of listening, Nonverbal communication: Meaning, classification.

Module-3 (9 Hours)

Written Communication: Purpose of writing, Clarity in writing, Principles of effective writing, Approaching the writing process systematically: The 3X3 writing process for business communication Pre writing, Writing, Revising. Audience analysis, Writing Positive, Neutral, Persuasive and Bad-news Messages.
Types of Written Communication In Business: Business Letters: Introduction To Business Letters, Types of Business Letters, Writing Routine And Persuasive Letters, Positive And Negative Messages Writing, Employee Reviews, Recommendation Letters, Thank You Letters.

Module-4 (9 Hours)

Business Reports: Purpose, Kinds and Objectives of reports , Organization & Preparing reports, short and long reports Writing Proposals: Structure & preparation , Writing memos, Media Management:
The press release, Press conference, Media interviews.
Group Communication: Meetings, Planning meetings, objectives , participants , timing , venue of meetings.
Meeting Documentation: Notice, Agenda and Resolution & Minutes.

Module-5 (9 Hours)

Case method of learning: Understanding the case method of learning , different types of cases , overcoming the difficulties of the case method , reading a case properly , case analysis approaches , analyzing the case , dos and don'ts for case preparation.
Employment Communication: Introduction, Writing CVs, Group discussion, Interview skills.

HUMAN RESOURCE MANAGEMENT			
Course Code	**22MBA21**	**CIE Marks**	**50**
Teaching Hours/Week (L:P:SDA)	**4:0:0**	**SEE Marks**	**50**
Total Hours of Pedagogy	**50**	**Total Marks**	**100**
Credits	**04**	**Exam Hours**	**03**

Course Learning objectives: The student will be able to

- Recite the theories and various functions of Human Resources Management
- Describe and explain in her/his own words, the relevance and importance of Human Resources Management at workplace
- Apply and solve the workplace problems through Human Resources Management intervention
- Compare and contrast different approaches of HRM for solving the complex issues and problems at the workplace
- Design and develop an original framework and model in dealing with the problems in the organization.

Module-1 (7 Hours)

Introduction HRM: Introduction, meaning, nature, scope of HRM, Importance and Evolution of the concept of HRM, Major functions of HRM, Principles of HRM. Human Resource Management and Personnel Management, Models of Human Resource Management, HRM in India, The Factors Influencing Human Resource Management, The HR Competencies, Human Resource Management and Firm Performance.

Module-2 (9 Hours)

HR Planning: Importance of HR Planning, Manpower Planning to HR Planning, Factors Affecting HR Planning, Benefits of HR Planning, HRP Process, Tools for Demand Forecasting, Attributes of an Effective HR Planning, Barriers to HR Planning, The Challenges for HR, Process of Job Analysis, Job Description and Job Evaluation.

Recruitment and Selection: Importance of Recruitment, Recruitment Policies, Factors Influencing Recruitment, Recruitment Process, Sources, Evaluation of Recruitment Process, Recruitment Strategy, Future Trends in Recruitment; Selection Process; Selection Tests; Factors Influencing Selections.

Module-3 (9 Hours)

Performance Management and Appraisal: Objectives of Performance Management, Performance Management and Performance Appraisal, Common Problems with Performance Appraisals, Performance Management Process, Types of Performance Rating Systems, Future of Performance Management.

Compensation and Benefits: Introduction, Definitions, Total Compensation, Total Rewards System, Forms of Pay, External and Internal Factors, Establishing Pay Rates, Employee Benefits.

Industrial Relations: Decent Workplace, International Labour Organisation, Industrial Relations, The Objectives of Industrial Relations, Approaches of Industrial Relations Systems, The Actors in Industrial Relations, Indian Context, Industrial Relations and Human Resource Management.

Module-4 (9 Hours)

Human Resource Management in Small and Medium Enterprises: Introduction to SMEs, The Difference in Adoption of Human Resource Management, SMEs and Large Firms, Indian Experience, Impact of Weak Adoption of Human Resource Management in SMEs,

Human Resource Management in the Service Sector: Introduction, The Emergence of the Services Sector, Implications for Human Resource, Management Function, Differences Between Services Sector and the Manufacturing Sector, Difference in Human Resource Management in Services and Manufacturing Sectors, Human Resource Management and Service Quality Correlation, Trade Unions in Services Sector, Models of Union Strategies.

Module-5 (9 Hours)

Human Resource Management and Innovations: Factors Affecting the Innovation Process in organisations, Current Trends in Human Resource Management, Innovative Human Resource Management Practices in India, Sustainable and innovative Human Resource Management.

Module-6 (7 Hours)

Future trends in Human Resource Management: Hybrid work model, Employee skill development, Internal mobility, Diversity and inclusion in workforce, People analytics, Employee well-being, Multi-generational workforces and All-in-One HR tools.

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing marks for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements (passed) and earned the credits allotted to each course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation:

There shall be a maximum of 50 CIE Marks. A candidate shall obtain not less than 50% of the maximum marks prescribed for the CIE.

CIE Marks shall be based on:

a) Tests (for 25Marks) and

b) Assignments, presentations, Quiz, Simulation, Experimentation, Mini project, oral examination, field work and class participation etc., (for 25 Marks) conducted in the respective course. Course instructors are given autonomy in choosing a few of the above based on the subject relevance and should maintain necessary supporting documents for same.

Semester End Examination:

The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50.

- The question paper will have 8 full questions carrying equal marks.
- Each full question is for 20 marks with 3 sub questions.
- Each full question will have sub question covering all the topics.
- The students will have to answer five full questions; selecting four full questions from question number one to seven in the pattern of 3, 7 & 10 Marks and question number eight is compulsory.

INNOVATION AND DESIGN THINKING			
Course Code	**22MBA402**	**CIE Marks**	**50**
Teaching Hours/Week (L:P:SDA)	**2:2:0**	**SEE Marks**	**50**
Total Hours of Pedagogy	**40**	**Total Marks**	**100**
Credits	**03**	**Exam Hours**	**03**

Course Learning objectives:

- To familiarise Design Thinking (DT) and its phases
- To enable the students to become aware of the evolution, concepts & models of Design Thinking.
- To enable learners with the context, methods and mindsets pertaining to Design Thinking.
- To equip students to the opportunities to ideate and find solutions by applying DT.

Module-1 (6 Hours)

Introduction, Design Thinking as a Solution, The Value of Design Thinking, A Look at the History of Design Thinking, A Look at the History of Design Thinking, Four Core Principles of Successful Innovation, A Model of the Design Innovation Process, Seven Modes of the Design Innovation Process, Understanding Methods.

Module-2 (9 Hours)

Sense Intent: Mindsets, Sensing Changing Conditions, Seeing Overviews, Foreseeing Trends, Reframing Problems, Forming an Intent, Sense Intent: Methods, Buzz Reports, Popular Media Scan, Key Facts, Innovation Sourcebook, Trends Expert Interview, Keyword Bibliometrics, Ten Types of Innovation Framework, Innovation Landscape, Trends Matrix, Convergence Map, From To Exploration, Initial Opportunity Map, Offering-Activity-Culture Map, Intent Statement.
Know Context: Mindsets, Knowing Context History, Understanding Frontiers, Seeing System Overviews, Understanding Stakeholders, Using Mental Models, Know Context: Methods, Contextual Research Plan, Popular Media Search, Publications Research, Eras Map, Innovation Evolution Map, Financial Profile, Analogous Models, Competitors- Complementors Map, Ten Types of Innovation Diagnostics, Industry Diagnostics, SWOT Analysis, Subject Matter Experts Interview, Interest Groups Discussion.

Module-3 (6 Hours)

Know People: Mindsets, Observing Everything, Building Empathy, Immersing in Daily Life, Listening Openly, Looking for Problems and Needs.
Know People: Methods, Research Participant Map, Research Planning Survey, User Research Plan, Five Human Factors, POEMS, Field Visit, Video Ethnography, Ethnographic Interview, User Pictures Interview, Cultural Artifacts, Image Sorting, Experience Simulation, Field Activity, Remote Research, User Observations Database.

Module-4 (7 Hours)

Frame Insights: Mindsets, Exploring Systems, Looking for Patterns, Constructing Overviews, Identifying Opportunities, Developing Guiding Principles.
Frame Insights: Methods, Observations to Insights, Insights Sorting, User Observation Database

Master of Computer Applications

Software Engineering

Course Code	22MCA23	CIE Marks	50
Teaching Hours/Week (L:P:SDA)	4:0:0	SEE Marks	50
Total Hours of Pedagogy	50	Total Marks	100
Credits	04	Exam Hours	03

Course Learning objectives:

- Outline software engineering principles and activities involved in building large software programs.
- Identify ethical and professional issues and explain why they are of concern to software engineers.
- Explain the fundamentals of object oriented concepts.
- Describe the process of requirements gathering, requirements classification, requirements specification and requirements validation.
- Differentiate system models, use UML diagrams and apply design patterns.
- Discuss the distinctions between validation testing and defect testing.

Module-1

Introduction: Professional Software Development Attributes of good software, software engineering diversity, IEEE/ACM code of software engineering ethics, case studies. Software Process and Agile Software Development Software Process models: waterfall, incremental development, reuses oriented, Process activities; coping with change, The Rational Unified Process.

Teaching-Learning Process	Chalk and board, Active Learning, Problem based learning

Module-2

Agile Methods, Plan-Driven and Agile Development, Extreme Programming, Agile Project Management, scaling agile methods. Requirement Engineering: Functional and non-functional requirements, The Software requirements document, Requirements specification, Requirements engineering processes, Requirement elicitation and analysis, Requirement validation, Requirement management

Teaching-Learning Process	Chalk and board, Active Learning, Problem based learning

Module-3

What is object orientation? What is OO development? OO themes; Evidence for usefulness of OO development; OO modelling history, modelling as design Technique: Modelling; abstraction; the three models. Object and class concepts; Link and associations concepts; Generalization and inheritance; A sample class model; Navigation of class models; Practical tips. Advanced objects and class concepts; Associations ends; N-array association; Aggregation, Abstract class; Multiple inheritance; Metadata; Reification; Constraints; Derived data; packages; practical tips

Teaching-Learning Process	Chalk and board, Active Learning, Problem based learning

Module-4	
System Models: Context models, Interaction models. Structural models. Behavioural models. Model-driven engineering Design and Implementation: Introduction to RUP, Design Principles. Object-oriented design using the UML. Design patterns. Implementation issues. Open source development.	
Teaching-Learning Process	Chalk and board, Active Learning, Problem based learning
Module-5	
Software Testing: Development testing, Test-driven development, Release testing ,User testing . Test Automation. Software Evolution: Evolution processes. Program evolution dynamics. Software maintenance. Legacy system management .	
Teaching-Learning Process	Chalk and board, Active Learning, Problem based learning

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Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation:

1. Three Unit Tests each of **20 Marks**
2. Two assignments each of **20 Marks** or **one Skill Development Activity of 40 marks** to attain the COs and POs

The sum of three tests, two assignments/skill Development Activities, will be **scaled down to 50 marks**

CIE methods /question paper is designed to attain the different levels of Bloom's **taxonomy as per the outcome defined for the course.**

Software Project Management			
Course Code	22MCA414	CIE Marks	50
Teaching Hours/Week (L:P:SDA)	2:0:0:2	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	03

Course Learning objectives:

- Apply the practices and methods for successful software project management
- Identifytechniquesforrequirements,policiesanddecisionmakingforeffectiveresource management
- Illustratetheevaluationtechniquesforestimatingcost,benefits,scheduleandrisk
- Devise a framework for software project management plan for a ctivities, risk, monitoring and control
- 5. Design a framework to manage people

Module-1

INTRODUCTION TO SOFTWARE PROJECT MANAGEMENT
Introduction, Why is Software Project Management important? What is a Project?, Contract Management, Activities Covered by Software Project Management, Plans, Methods and Methodologies, Some ways of categorizing software projects, Stakeholders, Setting Objectives, Business Case, Project Success and Failure, What is Management? Management Control, Traditional versus Modern Project Management Practices

Teaching-Learning Process	Chalk and Talk/PPT/Web Content

Module-2

PROJECT EVALUATION & FINANCE
Evaluation of Individual Projects, Cost Benefit Evaluation Techniques, Risk Evaluation, Programme Management, Managing allocation of Resources within Programmes, Financial Accounting–An overview– Accounting concepts, Principles & Standards, Ledger posting, Trial balance, Profit and Loss account Balance sheet

Teaching-Learning Process	Chalk and Talk/PPT/Web Content

Module-3

ACTIVITY PLANNING
Objectives of Activity Planning, When to Plan, Project Schedules, Sequencing and Scheduling Activities, Network Planning Models, Forward Pass– Backward Pass, Identifying critical path, Activity Float, Shortening Project Duration, Activity on Arrow Networks Risk Management, Nature of Risk, Categories of Risk, A framework for dealing with Risk, Risk Identification, Risk analysis and prioritization, risk planning and risk monitoring.

Teaching-Learning Process	Chalk and Talk/PPT/Web Content

Module-4	
MONITORING AND CONTROL Creating the Framework, Collecting the Data, Review, Project Termination Review, Visualizing Progress, Cost Monitoring, Earned Value Analysis, Prioritizing Monitoring, Getting Project Back To Target, Change Control, Software Configuration Management	
Teaching-Learning Process	Chalk and Talk/PPT/Web Content
Module-5	
MANAGING PEOPLE AND WORKING IN TEAMS Introduction, Understanding Behavior, Organizational Behavior:A Background, Selecting the Right Person for the Job, Instruction in the Best Methods, Motivation, The Oldham–Hackman Job Characteristics Model, Stress–Health and Safety Working In Teams, Becoming a Team, Decision Making,	

Leadership.	
Teaching-Learning Process	Chalk and Talk/PPT/Web Content

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation:

- Three Unit Tests each of 20 Marks
- Two assignments each of 20 Marks or one Skill Development Activity of 40 marks to attain the COs and POs

The sum of three tests, two assignments/skill Development Activities, will be scaled down to 50 marks
CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

CHILDREN'S EDUCATION SOCIETY (Regd.)
Administrative Office:
1st Phase, JP Nagar, Bengaluru – 560 078
✆: 080-61754501 – 502 Fax: 080-2654 8658

THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,
Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),
Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24&Diamond Rating by QS I Guage)
Bommanahalli, Hosur Road, Bangalore –560068. ✆: 080 -61754601/602
E-mail: engprincipal@theoxford.edu Web: www.theoxfordengg.org

Environment and Sustainability

Department of Biotechnology

I/II Semester

ENGINEERING CHEMISTRY			
Course Code	**21CHE12/22**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	2:2:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	3Hour

Course Objectives: The course will enable the students to

CLO1: Impart the basic knowledge of chemistry and its principles involved in electrochemistry, energy storage devices and its commercial applications.

CLO2: Understand the basic principles of corrosion and its prevention, metal finishing and its technological importance

CLO3: Master the knowledge of synthesis, properties and utilization of engineering materials like polymers & Nano materials.

CLO4: Apply the knowledge of Green Chemistry principles for production of chemical compounds. understanding the concepts of alternative energy sources.

CLO5: Understand the basic concepts of water chemistry & theory, basic principle and applications of volumetric analysis and analytical instruments.

Pedagogy (General Instructions):

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

1. Lecturer method (L) does not mean only traditional lecture method, but different type of teaching methods may be adopted to develop the outcomes.
2. Show Video/animation films to explain methods of synthesis of nanomaterials.
4. Encourage collaborative (Group Learning) Learning in the class
5. Ask at least three HOTS (Higher order Thinking) questions in the class, which promotes critical thinking
6. Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develop thinking skills such as the ability to evaluate, generalize, and analyse information rather than simply recall it.
7. Topics will be introduced in a multiple representation.
8. Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.
9. Discuss how every concept can be applied to the real world - and when that's possible, it helps improve the students' understanding.

Module-1

Electrochemistry and energy storage systems:

Electrochemistry: Introduction, EMF of cell, Free Energy, Single electrode potential-Derivation of Nernst equation, Numerical problems based on Nernst Equation (E, E° & Ecell).

Reference Electrodes: Introduction, construction, working and applications of calomel electrode, ion selective electrodes: Introduction, construction, working and applications of Glass electrode, determination of pH using Glass electrode.

Energy storage Systems: Introduction, Classification of batteries (primary, secondary and reserved batteries). Construction, working and applications of Li-ion batteries. Advantages of Li-ion battery as

Module-4	
Green Chemistry and Alternative energy resources Green Chemistry: Introduction, definition, Major environmental pollutants - Oxides Nitrogen, Sulphur and Carbon (Mansion the impact of these pollutants on environment), Basic principles of green chemistry -brief discussion on 12 principles of green chemistry. Various green chemical approaches – Microwave synthesis, Bio catalysed reaction (only explanation with examples), Solvent-free reactions- advantages and conditions Synthesis of typical organic compounds by conventional and green route; i) Adipic acid – Conventional synthesis from Benzene, Green synthesis from glucose. ii) Paracetamol- Conventional and Green synthesis from Phenol Industrial applications of Green Chemistry **Green fuel**: Hydrogen-production (Photo electrocatalytic and photo catalytic water splitting) and applications in hydrogen fuel cells. Construction, working and applications of Methanol-Oxygen fuel cell (H_2SO_4 as electrolyte). **Solar Energy:** Introduction, construction, working and applications of photovoltaic cell.	
Teaching Learning process	Chalk and talk/power point presentation - Basic principles of green chemistry Videos: Various green chemical approaches, Self-study material: Atom economy-synthesis of ethylene oxide and methyl methacrylate. Advantages & disadvantages of photovoltaic cell.
Module-5	
Water Chemistry, chemical analysis and Instrumental methods of analysis **Water chemistry:** Introduction, sources and impurities in water, Potable water; meaning and specifications (as per WHO standards), Hardness of water, types, determination of hardness using EDTA titration, numerical problems on hardness of water. Definition of Biological oxygen demand (BOD) and Chemical Oxygen Demand (COD), determination of COD of waste water sample and Numerical problems on COD. **Methods of Chemical Analysis:** **Volumetric Analysis:** Introduction, principles of titrimetric analysis, requirement of titrimetric analysis, primary and secondary standards. Requirement of a primary standard solution, units of standard solutions- Definition of normality, molarity, molality, mole fraction, ppm. **Instrumental methods of analysis:** Introduction, Theory, Instrumentation and applications of Colorimetry, Flame Photometry, Potentiometry, Conductometry (Strong acid with strong base, weak acid with a strong base, mixture of strong acid and a weak acid with a strong base)	
Teaching	Chalk and talk/power point presentation – principles of titrimetric analysis, requirement of titrimetric analysis, Classification of titrimetric analysis, Ostwald's theory of acid-base

MICROBIOLOGY		Semester	III
Course Code	**BBT304**	CIE Marks	50
Teaching Hours/Week (L: T:P: S)	3:0:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	03
Examination type (SEE)	Theory		

Course objectives:

- To understand the details of classification, structural features and functional aspects of prokaryotic and eukaryoticmicroorganisms.
- To learn different techniques of microscopy and be able to describe microbial techniques for growth, cultivation and characterization of microorganisms.
- To explain microbial metabolism, growth and control of microorganisms.
- To describe and relate the occurrence of microbes caused diseases.
- To be able to study occurrence and role of general microflora of air, water and soil.

Teaching-Learning Process (General Instructions)

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

- Explanation via real life problem, situation modelling, and deliberation of solutions, hands-on sessions, reflectiveand questioning /inquiry-based teaching.
- Instructions with interactions in classroom lectures (physical/hybrid).
- Use of ICT tools, including YouTube videos, related MOOCs, AR/VR/MR tools.
- Flipped classroom sessions (~10% of the classes).
- Industrial visits, Guests talks and competitions for learning beyond the syllabus.
- Students' participation through audio-video based content creation for the syllabus (as assignments).
- Use of gamification tools (in both physical/hybrid classes) for creative learning outcomes.
- Students' seminars (in solo or group) /oral presentations.

Module-1 (8 hours)

OVERVIEW OF MICROBIOLOGY AND MICROORGANISMS:

Scope and History of Microbiology (Major milestones). Prokaryotes, Archaea and Eukaryotes. Microbial diversity and Taxonomy. Classification, characteristics and reproduction of Bacteria, Viruses, Fungi, Protozoa, Algae. General features of true bacteria (Rickettsia, Mycoplasma and Chlamydia), Prions, Spirochetes, Actinomycetes.

Module-2 (8 hours)

METHODS AND TECHNIQUES IN MICROBIOLOGY:

Microscopy: Bright-Field, Dark-Field, Phase-Contrast, Acoustic, Fluorescence, Electron Microscopy (SEM, TEM). Micrometry. Media: types and preparation. Pure culture Techniques (streak-plate, spread plate, pour plate). Staining techniques (Simple and differential).

Module-3 (8 hours)

MICROBIAL GROWTH, METABOLISM AND CONTROL:

Microbial growth Phases, Factors affecting the growth, growth measurement and enumeration. Metabolism; Primary and Secondary metabolites with examples, metabolic pathways important in microorganisms- Respiration and Fermentation (EMP, HMP, ED, Phospho ketolase, Mixed acid, TCA). Control of growth (Sterilization and disinfection techniques).

Module-4 (8 hours)
MICROBIOLOGY AND DISEASES: Common diseases caused by microbes: viruses (Polio, H1N1, SARS, Covid-19, HIV, Hepatis), bacteria (TB, Cholera, Typhoid, Pneumonia, Plague, Diphtheria, *E. coli* infections), Protozoans (Malaria, Leishmaniasis and Amebiasis). Common types of fungal infections (ringworm, yeast infection). Microbiome and gut health.

PLANT PHYSIOLOGY AND PHYTOHORMONES		Semester	III
Course Code	**BBT306D**	CIE Marks	50
Teaching Hours/Week (L: T:P: S)	3:0:0:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	3
Examination type (SEE)	Theory		

Course objectives:

- To learn the fundamental so plant physiology
- To explore the roles of various phytohormones and their action mechanisms
- To study the plant environment interactions

Teaching-Learning Process (General Instructions)
These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

- Explanation via real life problem, situation modelling, and deliberation of solutions, hands-on sessions, reflective and questioning /inquiry-based teaching.
- Instructions with interactions in classroom lectures (physical/hybrid).
- Use of ICT tools, including YouTube videos, related MOOCs, AR/VR/MR tools.
- Flipped classroom sessions (~10% of the classes).
- Industrial visits, Guests talks and competitions for learning beyond the syllabus.
- Students' participation through audio-video based content creation for the syllabus (as assignments).
- Use of gamification tools (in both physical/hybrid classes) for creative learning outcomes.
- Students' seminars (in solo or group) /oral presentations.

Module-1 (8 Hours)
Introduction to Plant Physiology: Definition and scope of plant physiology, Plant anatomy and morphology, Plant growth and development, Water Relations and Mineral Nutrition, Water potential and its measurement, Water uptake and transport in plants, Mineral nutrients and their roles in plant growth, Nutrient uptake and transport mechanisms.
Module-2 (8 Hours)
Photosynthesis, Respiration and Energy Metabolism: Light absorption and chlorophyll pigments, Photosynthetic pigments and their functions, Calvin cycle and carbon fixation, Factors affecting photosynthesis, Respiration and Energy Metabolism - Cellular respiration and ATP production, Glycolysis, Krebs cycle, and electron transport chain, Aerobic and anaerobic respiration.
Module-3 (8 Hours)
Plant Hormones: Introduction to phytohormones, Auxins: functions and physiological effects, Gibberellins: functions and physiological effects, cytokinins: functions and physiological effects, Abscisic acid: functions and physiological effects, Ethylene: functions and physiological effects.
Module-4 (8 Hours)
Plant Growth, Development & plant movements: Seed germination and dormancy, Photomorphogenesis and photoperiodism, Flowering and reproduction, Senescence and aging, Tropisms: phototropism, gravitropism, thigmotropism, Nastic movements: nyctinasty, eismonasty, Movements in response to environmental cues.
Module-5 (8 Hours)

Plant-Environment Interactions and Stress Physiology: Plant responses to abiotic stress (e.g., temperature, light, drought), Plant responses to biotic stress (e.g., pathogens, herbivores), Plant defence mechanisms, Signal transduction pathways in stress responses, Plant responses to light and photomorphogenesis, Plant responses to temperature, Water, and nutrients
Course outcome (Course Skill Set) At the end of the course, the student will be able to: 1. comprehend the fundamental principles of plant physiology. 2. Examining the mechanisms of plant hormone action. 3. Analysing the interaction between phytohormones and the environment.

BIOPESTICIDES AND BIOFERTILIZERS		Semester	IV
Course Code	**BBT456D**	CIE Marks	50
Teaching Hours/Week (L: T:P: S)	1:0:0:0	SEE Marks	50
Total Hours of Pedagogy	15	Total Marks	100
Credits	01	Exam Hours	1
Examination type (SEE)	Theory		

Course objectives:

- To familiarize the students on bio-pesticides and bio-fertilizers that are free from harmful chemicals and are more environment friendly for the purposes of achieving better crop production

Teaching-Learning Process (General Instructions)
These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

- Explanation via real life problem, situation modelling, and deliberation of solutions, hands-on sessions, reflective and questioning /inquiry based teaching.
- Instructions with interactions in classroom lectures (physical/hybrid).
- Use of ICT tools, including YouTube videos, related MOOCs, AR/VR/MR tools.
- Flipped classroom sessions (~10% of the classes).
- Industrial visits, Guests talks and competitions for learning beyond the syllabus.
- Students' participation through audio-video based content creation for the syllabus (as assignments).
- Use of gamification tools (in both physical/hybrid classes) for creative learning outcomes.
- Students' seminars (in solo or group) /oral presentations.

Module-1 (3 Hours)

PATHOGENS AND PESTS MANAGEMENT:
Pathogens and Pests Management, Natural Enemies, Reduviids and Their Merits in Biological Control, Weaver Ants and Biocontrol of the Nuisance Pest Luprops tristis (Coleoptera: Tenebrionidae), Ground Beetles (Coleoptera: Carabidae): Their Potential as Bio-agents in Agroecosystems, Eco-friendly Control of Three Common Mosquito Larvae Species by Odonata Nymphs, Spiders as Potential Eco-friendly Predators Against Pests.

Module-2 (3 Hours)

BIOFERTILIZERS:
Types and importance of bio-fertilizers, Bio-pesticides and bio-agents in agriculture and organic farming system, History of bio-fertilizers production Classification of bio-fertilizers microorganisms used in bio-fertilizers production

Module-3 (3 Hours)

NITROGEN FIXATION:
Concept of Nitrogen fixation. Structure and characteristic features of bacterial biofertilizers - *Azotobacter, Bacillus, Rhizobium; Cynobacterial* biofertilizers - Anabaena, and fungal biofertilizers - VAM.
Module-4 (3 Hours)
BIOPESTICIDES :
General account of microbes used as bioinsecticides and their advantages over synthetic pesticides, *Bacillus thuringiensis*, Mechanism of phosphate solubilization and phosphate mobilization, K solubilization. Botanicals: botanical pesticides, and biorationales. Botanicals and their uses. Plant Essential Oils and Pest Management
Module-5 (3 Hours)
PRODUCTION AND QUALITY CONTROL :
Strain selection, sterilization, growth and fermentation, mass production of biofertiizers. Storage, shelf life, quality control and marketing. Factors influencing the efficacy of biofertilizers/Biopesticides, FCO specifications and quality control of biofertilizers. Application technology for seeds, seedlings, tubers, etc.

BIOLOGY FOR ENGINEERS		Semester	IV
Course Code	**BBOK407**	CIE Marks	50
Teaching Hours/Week (L: T:P: S)	3:0:0:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	3
Examination type (SEE)	Theory		

Course objectives:

- To familiarize the students with the basic biological concepts and their engineering applications.
- To enable the students with an understanding of biodesign principles to create novel devices and structures.
- To provide the students an appreciation of how biological systems can be re-designed as substitute products for natural systems.
- To motivate the students to develop interdisciplinary vision of biological engineering.

Teaching-Learning Process (General Instructions)

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

- Explanation via real life problem, situation modelling, and deliberation of solutions, hands-on sessions, reflective and questioning /inquiry-based teaching.
- Instructions with interactions in classroom lectures (physical/hybrid).
- Use of ICT tools, including YouTube videos, related MOOCs, AR/VR/MR tools.
- Flipped classroom sessions (~10% of the classes).
- Industrial visits, Guests talks and competitions for learning beyond the syllabus.
- Students' participation through audio-video based content creation for the syllabus (as assignments).
- Use of gamification tools (in both physical/hybrid classes) for creative learning outcomes.
- Students' seminars (in solo or group) /oral presentations.

Module-1 (8 Hours)

INTRODUCTION TO BIOLOGY:

The cell: the basic unit of life, Structure and functions of a cell. The Plant Cell and animal cell, Prokaryotic and Eukaryotic cell, Stem cells and their application. Biomolecules: Properties and functions of Carbohydrates, Nucleic acids, proteins, lipids. Importance of special biomolecules; Enzymes (Classification (with one example each), Properties and functions), vitamins and hormones.

Module-2 (8 Hours)

BIOMOLECULES AND THEIR APPLICATIONS (QUALITATIVE):

Carbohydrates (cellulose-based water filters, PHA and PLA as bioplastics), Nucleic acids (DNA Vaccine for Rabies and RNA vaccines for Covid19, Forensics – DNA fingerprinting), Proteins (Proteins as food – whey protein and meat analogs, Plant based proteins), lipids (biodiesel, cleaning agents/detergents), Enzymes
(glucose-oxidase in biosensors, lignolytic enzyme in bio-bleaching).

Module-3 (8 Hours)

HUMAN ORGAN SYSTEMS AND BIO DESIGNS (QUALITATIVE):

Brain as a CPU system (architecture, CNS and Peripheral Nervous System, signal transmission, EEG, Robotic arms for prosthetics. Engineering solutions for Parkinson's disease). Eye as a Camera system (architecture of rod and cone cells, optical corrections, cataract, lens materials, bionic eye). Heart as a pump system (architecture, electrical signalling - ECG monitoring and heart related issues, reasons for blockages of blood vessels, design of stents, pace makers, defibrillators). Lungs as purification system (architecture, gas exchange mechanisms, spirometry, abnormal lung physiology - COPD, Ventilators, Heart-lung machine). Kidney as a filtration system (architecture, mechanism of filtration, CKD, dialysis systems).

Module-4 (8 Hours)

NATURE-BIOINSPIRED MATERIALS AND MECHANISMS (QUALITATIVE):

Echolocation (ultrasonography, sonars), Photosynthesis (photovoltaic cells, bionic leaf). Bird flying (GPS and aircrafts), Lotus leaf effect (Super hydrophobic and self-cleaning surfaces), Plant burrs (Velcro), Shark skin (Friction reducing swim suits), Kingfisher beak (Bullet train). Human Blood substitutes - hemoglobin-based oxygen carriers (HBOCs) and perflourocarbons (PFCs).

Module-5 (8 Hours)

TRENDS IN BIOENGINEERING (QUALITATIVE):

Muscular and Skeletal Systems as scaffolds (architecture, mechanisms, bioengineering solutions for muscular dystrophy and osteoporosis), scaffolds and tissue engineering, Bioprinting techniques and materials, 3D printing of ear, bone and skin. 3D printed foods. Electrical tongue and electrical nose in food science, DNA origami and Biocomputing, Bioimaging and Artificial Intelligence for disease diagnosis. Self- healing Bioconcrete (based on bacillus spores, calcium lactate nutrients and biomineralization processes) and Bioremediation and Biomining via microbial surface adsorption (removal of heavy metals like Lead,
Cadmium, Mercury, Arsenic).

Module-5 (8 hours)
MICROBIOLOGY OF AIR, WATER & SOIL Aerobiology, Air sampling techniques. and commonly found atmospheric microbe profile. Water sampling techniques, Microbiology of potable water and wastewater treatment. Microbiology of soil: Soil fertility, Biofertilizers: VAM, Rhizobium and Azotobacter. Biogeochemical cycles. Case studies.
Course outcome (Course Skill Set) 1. Be able to classify microorganism along with their structural and functional roles 2. Apply learning of microscopy and microbial techniques in identification and enumeration 3. Identify microbes through use of appropriate culture, characterize them under given conditions and study the microbial growth along with its control 4. Describe and relate the occurrence of microbes caused diseases. 5. Explain the occurrence and role of general microflora of air, water and soil.

B. E. BIOTECHNOLOGY Outcome Based Education (OBE) and Choice Based Credit System (CBCS) SEMESTER - VII			
BIOETHICS , BIOSAFETY & IPR			
Course Code	**18BT741**	CIE Marks	40
Teaching Hours/Week (L:T:P)	(3:0:0)	SEE Marks	60
Credits	03	Exam Hours	03

Course Learning Objectives: : This course will enable students

- To introduce the biosafety regulations
- To understand the ethical concepts in biotechnology
- To emphasize on IPR issues and need for knowledge in patents in biotechnology

Module-1

BIOTECHNOLOGY AND SOCIETY

Introduction to science, technology and society, issues of access-Case studies/experiences from developing and developed countries. Ownership, monopoly, traditional knowledge, biodiversity, benefit sharing, environmental sustainability, public vs. private funding, biotechnology in international relations, globalization and development divide. Public acceptance issues for biotechnology: Biotechnology and hunger: Challenges for the Indian Biotechnological research and industries.

Module-2

BIOETHICS & LEGAL ISSUES:

Principles of bioethics: Legality, morality and ethics, autonomy, human rights, beneficence, privacy, justice, equity etc. The expanding scope of ethics from biomedical practice to biotechnology, bioethics vs. business ethics, ethical dimensions of IPR, technology transfer and other global biotech issues.

The legal, institutional and socioeconomic impacts of biotechnology; biotechnology and social responsibility, Public education to increase the awareness of bioethics with regard to generating new forms of life for informed decision making – with case studies.

Module-3

BIOSAFETY CONCEPTS AND ISSUES:

Ethical conflicts in biotechnology - interference with nature, fear of unknown, unequal distribution of risks and benefits of biotechnology, Rational vs. subjective perceptions of risks and benefits, relationship between risk, hazard, exposure and safeguards, Biotechnology and biosafety concerns at the level of individuals, institutions, society, region, country and the world. The Cartagena protocol on biosafety. Biosafety management. Ethical implications of biotechnological products and techniques.

Module-4

REGULATIONS:

Biosafety assessment procedures in India and abroad. International dimensions in biosafety, bioterrorism and convention on biological weapons. Social and ethical implications of biological weapons. Biosafety regulations and national and international guidelines with regard to recombinant DNA technology. Guidelines for research in transgenic plants. Good manufacturing practice and Good lab practices (GMP and GLP). National and international regulations for food and pharma products.

Module-5

IPR, PATENTS AND PATENT LAWS:

Intellectual property rights-TRIP- GATT International conventions patents Methods of application of patents Legal implications Biodiversity and farmer rights

Objectives of the patent system Basic principles and general requirements of patent law Biotechnological inventions and patent law .Legal development-Patentable subjects and protection in biotechnology .The patenting of living organisms.

Course Outcomes: At the end of the course the student will be able to

- Describe the rules governing manufacture, use/import/export and storage of hazardous microorganisms/genetically engineered organisms or cells.
- Describe the ethical issues related to biotechnology research
- Explain the various forms of IPR, methods of application of Patents, Protection of Plant varieties and farmer rights

- Overview of the Indian Patent Law, knowledge on patentability requirements, patenting biotechnological inventions and innovations

V Semester

Environmental Studies			
Course Code	**21CIV57**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1+2+0+0	SEE Marks	50
Total Hours of Pedagogy	15	Total Marks	100
Credits	01	Exam Hours	01

Course objectives:
- To create environmental awareness among the students.
- To gain knowledge on different types of pollution in the environment.

Teaching-Learning Process (General Instructions)
These are sample Strategies; which teacher can use to accelerate the attainment of the various course outcomes.
1. Apart from conventional lecture methods various types of innovative teaching techniques through videos, and animation films may be adopted so that the delivered lesson can progress the students in theoretical, applied and practical skills.
2. Environmental awareness program for the in house campus
3. Encourage collaborative (Group Learning) Learning in the class.
4. Seminars, surprise tests and Quizzes may be arranged for students in respective subjects to develop skills.

Module-1

Ecosystems (Structure and Function): Forest, Desert, Wetlands, River, Oceanic and Lake. Biodiversity: Types, Value; Hot-spots; Threats and Conservation of biodiversity, Forest Wealth, and Deforestation.

Teaching-Learning Process	Chalk and talk, PowerPoint presentation and animation tools

Module-2

Advances in Energy Systems (Merits, Demerits, Global Status and Applications): Hydrogen, Solar, OTEC, Tidal and Wind.
Natural Resource Management (Concept and case-studies): Disaster Management, Sustainable Mining,case studiesng, and Carbon Trading.

Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools

Module-3

Environmental Pollution (Sources, Impacts, Corrective and Preventive measures, Relevant Environmental Acts, Case-studies): Surface and Ground Water Pollution; Noise pollution; Soil Pollution and Air Pollution.
Waste Management & Public Health Aspects: Bio-medical Wastes; Solid waste; Hazardous wastes; E-wastes; Industrial and Municipal Sludge.

Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools

Module-4

Global Environmental Concerns (Concept, policies and case-studies): Ground water depletion/recharging, Climate Change; Acid Rain; Ozone Depletion; Radon and Fluoride problem in drinking water; Resettlement and rehabilitation of people, Environmental Toxicology.

Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools

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Module-5	
Latest Developments in Environmental Pollution Mitigation Tools (Concept and Applications): G.I.S. & Remote Sensing, Environment Impact Assessment, Environmental Management Systems, ISO14001; Environmental Stewardship- NGOs. Field work: Visit to an Environmental Engineering Laboratory or Green Building or Water Treatment Plant or Waste water treatment Plant; ought to be Followed by understanding of process and its brief documentation.	
Teaching-Learning Process	Chalk and talk, power point presentation and animation tools

Course outcome (Course Skill Set)

At the end of the course the student will be able to :

- CO1: Understand the principles of ecology and environmental issues that apply to air, land, and water issues on a global scale,
- CO2: Develop critical thinking and/or observation skills, and apply them to the analysis of a problem or question related to the environment.
- CO3: Demonstrate ecology knowledge of a complex relationship between biotic and a biotic components.
- • CO4: Apply their ecological knowledge to illustrate and graph a problem and describe the realities that managers face when dealing with complex issues.

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50)in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together

Continuous Internal Evaluation:

Three Unit Tests each of **20 Marks (duration 01 hour**)

1. First test at the end of 5th week of the semester
2. Second test at the end of the 10th week of the semester
3. Third test at the end of the 15th week of the semester

Two assignments each of **10 Marks**

4. First assignment at the end of 4th week of the semester
5. Second assignment at the end of 9th week of the semester

Group discussion/Seminar/quiz any one of three suitably planned to attain the COs and POs for **20 Marks** (**duration 01 hours**)

6. At the end of the 13th week of the semester

The sum of three tests, two assignments, and quiz/seminar/group discussion will be out of 100 marks and will be **scaled down to 50 marks**

(to have less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course).

CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

Semester End Examination:

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 01 hours)**

Question paper pattern:

1. The Question paper will have 50 objective questions.

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V Semester

Environmental Studies			
Course Code	**21CIV57**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1+2+0+0	SEE Marks	50
Total Hours of Pedagogy	15	Total Marks	100
Credits	01	Exam Hours	01

Course objectives:
- To create environmental awareness among the students.
- To gain knowledge on different types of pollution in the environment.

Teaching-Learning Process (General Instructions)
These are sample Strategies; which teacher can use to accelerate the attainment of the various course outcomes.
1. Apart from conventional lecture methods various types of innovative teaching techniques through videos, and animation films may be adopted so that the delivered lesson can progress the students in theoretical, applied and practical skills.
2. Environmental awareness program for the in house campus
3. Encourage collaborative (Group Learning) Learning in the class.
4. Seminars, surprise tests and Quizzes may be arranged for students in respective subjects to develop skills.

Module-1

Ecosystems (Structure and Function): Forest, Desert, Wetlands, River, Oceanic and Lake. Biodiversity: Types, Value; Hot-spots; Threats and Conservation of biodiversity, Forest Wealth, and Deforestation.

Teaching-Learning Process	Chalk and talk, PowerPoint presentation and animation tools

Module-2

Advances in Energy Systems (Merits, Demerits, Global Status and Applications): Hydrogen, Solar, OTEC, Tidal and Wind.
Natural Resource Management (Concept and case-studies): Disaster Management, Sustainable Mining,case studiesng, and Carbon Trading.

Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools

Module-3

Environmental Pollution (Sources, Impacts, Corrective and Preventive measures, Relevant Environmental Acts, Case-studies): Surface and Ground Water Pollution; Noise pollution; Soil Pollution and Air Pollution.
Waste Management & Public Health Aspects: Bio-medical Wastes; Solid waste; Hazardous wastes; E-wastes; Industrial and Municipal Sludge.

Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools

Module-4

Global Environmental Concerns (Concept, policies and case-studies): Ground water depletion/recharging, Climate Change; Acid Rain; Ozone Depletion; Radon and Fluoride problem in drinking water; Resettlement and rehabilitation of people, Environmental Toxicology.

Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools

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Module-5	
Latest Developments in Environmental Pollution Mitigation Tools (Concept and Applications): G.I.S. & Remote Sensing, Environment Impact Assessment, Environmental Management Systems, ISO14001; Environmental Stewardship- NGOs. Field work: Visit to an Environmental Engineering Laboratory or Green Building or Water Treatment Plant or Waste water treatment Plant; ought to be Followed by understanding of process and its brief documentation.	
Teaching-Learning Process	Chalk and talk, power point presentation and animation tools

Course outcome (Course Skill Set)

At the end of the course the student will be able to :

- CO1: Understand the principles of ecology and environmental issues that apply to air, land, and water issues on a global scale,
- CO2: Develop critical thinking and/or observation skills, and apply them to the analysis of a problem or question related to the environment.
- CO3: Demonstrate ecology knowledge of a complex relationship between biotic and a biotic components.
- • CO4: Apply their ecological knowledge to illustrate and graph a problem and describe the realities that managers face when dealing with complex issues.

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50)in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together

Continuous Internal Evaluation:

Three Unit Tests each of **20 Marks (duration 01 hour**)

1. First test at the end of 5th week of the semester
2. Second test at the end of the 10th week of the semester
3. Third test at the end of the 15th week of the semester

Two assignments each of **10 Marks**

4. First assignment at the end of 4th week of the semester
5. Second assignment at the end of 9th week of the semester

Group discussion/Seminar/quiz any one of three suitably planned to attain the COs and POs for **20 Marks** (**duration 01 hours**)

6. At the end of the 13th week of the semester

The sum of three tests, two assignments, and quiz/seminar/group discussion will be out of 100 marks and will be **scaled down to 50 marks**

(to have less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course).

CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

Semester End Examination:

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 01 hours)**

Question paper pattern:

1. The Question paper will have 50 objective questions.

CONSERVATION OF NATURAL RESOURCES

Course Code	**21CV654**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	2+2+0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	3	Exam Hours	3

Course objectives: Make the students to learn

1. Learn types of land forms, soil conservation and sustainable land use planning.
2. Apprehend water resources, types, distribution, planning and conservation. Water pollution and types of uses.
3. Know the types of minerals and rocks.
4. Know the atmospheric composition of air, pollution and effects on human beings, animals and plants. Air pollution control.
5. Apprehend basics of biodiversity and ecosystems.

Teaching-Learning Process (General Instructions)
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

1. Power point Presentation
2. Video tube, NPTEL materials
3. Quiz/Assignments/Open book test to develop skills
4. Adopt problem based learning (PBL)to develop analytical and thinking skills
5. Encourage collaborative learning, site visits related to subject and impart practical knowledge
6. Mini projects

Module-1

Land: Land as a resource, types of lands, conservation of land forms, deforestation, effect of land use changes. Soil health, ecological and economic importance of soil, impact of soil degradation on agriculture and food security, need for soil conservation, sustainable land use planning.

Teaching-Learning Process	Chalk and talk, PowerPoint Presentation & PBL

Module-2

Water: Global water resources, Indian water resources, Resources system planning. Water use sectors- domestic, industrial, agriculture. Water deficit and water surplus basins in India, equitable distribution, Inter-basin water transfers, Interlinking of rivers – Himalayan component, peninsular component, issues involved. Ground water, its potential in India, conjunctive use, recharge of ground water. Contamination of ground water, sea water ingress, problems and solutions.

Teaching-Learning Process	Chalk and talk, PowerPoint Presentation & PBL

Module-3

Air: Introduction, composition, sources and classification of air pollutants, National Ambient Air quality standards (NAAQS), Air quality index, effects of air pollution on human health. Economic effects of air pollution. Control of air pollution by equipment, smoke and its control. Ozone depletion –impacts, photochemical changes.

Teaching-Learning Process	Chalk and talk, PowerPoint Presentation and Model preparation

Module-4

Biodiversity: Introduction, Flora and Fauna, Importance of biodiversity, Economic values-medicinal plants, drugs, fisheries biogeochemical cycling. Threat to biodiversity, natural & anthropogenic disturbance, habitat loss. Conservation of biodiversity, National parks, wild life sanctuaries, zoological gardens, gene banks, pollen culture, ecological restoration, social forestry. Ecosystem: Definition, Types: forest, grass land, marine, desert, wetlands, estuarine, lotic, lentic. Abiotic & biotic components of ecosystem.	
Teaching-Learning Process	Chalk and talk, PowerPoint Presentation and Field visits
Module-5	
Global warming: concept, indicators, factor and effects. Global climate change-indicators, health impacts, effect on biodiversity. Introduction to global efforts in conservation of biodiversity. .EIA regulations in India, status of EIA in India, list of projects needing environmental clearance under EIA notifications. Case study of hydro power/ thermal power projects	
Teaching-Learning Process	Chalk and talk, PowerPoint Presentation and Mini-projects

B. E. ELECTRICAL AND ELECTRONICS ENGINEERING
CHOICE BASED CREDIT SYSTEM (CBCS) AND OUTCOME BASED EDUCATION (OBE)
SEMESTER – VII

DISASTERS MANAGEMENT (OPEN ELECTIVE)

Course Code	18EE753	CIE Marks	40
Teaching Hours/Week (L:T:P)	(3:0:0)	SEE Marks	60
Credits	03	Exam Hours	03

Disaster Management Plan (DMP): - General.
Cyclones and their Hazard Potential: Classification of Low-Pressure Systems, Statistics of Cyclonic Storms Over Indian Seas, Movement of Cyclqnes in Indian Seas, Storm Surges.

Module-2

India Meteorological Department and Cyclone Warnings in India: Hazard Potential of Cyclonic Storms, Cyclone Prediction and Dissemination of Warnings, Dissemination of Cyclone Warnings, Cydone Warnings through INSAT, Port Warnings with Day and Night hoisting Sib'Tlals.
Cyclones Disaster Management – Plan: Hazard Potentials Associated with Cyclones, Vulnerability Reduction, Early Warning.

Module-3

Action Plan for Cyclone Disaster Management.
Role of Different Institutions in Natural Disaster Management: Role of Zilla Parishad, Role of PRA Groups in Disaster Management, Role of NGOs, Self Help Groups in Disaster Management, Role of Red Cross in Disaster Management.
The Role of Defence and other Services in Disaster Management: Role of Air Force in Disaster Management, Role of Medical and Health Department in Cyclone disaster management, National Disaster Response Force (NDRF), Role of Remote Sensing in Disaster Management, Role of Broadcast, Educational Media in disaster management.

Module-4

4Floods: Water Wealth of India, Definition of Flood, Role of Central Water Commission, Monsoons, Flood Warning Signals and Precautionary Actions, Water Purification Technologies in Flood Affected Areas.
Drought: Meteorological Drought, Breaks in the Monsoon, Drought Management Plan, Drought Years for Different Met Subdivision of India, Drought Assesment, Drought Parameters, Role of Banking, Insurance, Microfinance in drought mitigation, Drought Monitoring, Drought Research Unit (IMD), Rainwater harvesting.

Module-5

Earth quakes: Interior Structure of the Earth, Plate Techtonics, Seismcity of India, Earthquake Forecast and disaster management, Tsunamis, Landslides and Avalanches, Volcanoes.
Hazards associated with Convective Clouds: Climatology of World Thunderstorms, Lightning, Some Effects of Electric Shock, Favours and Frownings of Thunderstorms, Hailstorms, Tornadoes, Waterspouts, Dust-Devils, Nowcasting, Summer Thunderstorms over India, Cold Waves and Heat Waves - Cold Waves in India, Heat Waves in India.

Course Outcomes: At the end of the course the student will be able to:

I/II Semester

ENGINEERING CHEMISTRY			
Course Code	**21CHE12/22**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	2:2:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	3Hour

Course Objectives: The course will enable the students to
CLO1: Impart the basic knowledge of chemistry and its principles involved in electrochemistry, energy storage devices and its commercial applications.
CLO2: Understand the basic principles of corrosion and its prevention, metal finishing and its technological importance
CLO3: Master the knowledge of synthesis, properties and utilization of engineering materials like polymers & Nano materials.
CLO4: Apply the knowledge of Green Chemistry principles for production of chemical compounds. understanding the concepts of alternative energy sources.
CLO5: Understand the basic concepts of water chemistry & theory, basic principle and applications of volumetric analysis and analytical instruments.

Pedagogy (General Instructions):
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.
1. Lecturer method (L) does not mean only traditional lecture method, but different type of teaching methods may be adopted to develop the outcomes.
2. Show Video/animation films to explain methods of synthesis of nanomaterials.
4. Encourage collaborative (Group Learning) Learning in the class
5. Ask at least three HOTS (Higher order Thinking) questions in the class, which promotes critical thinking
6. Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develop thinking skills such as the ability to evaluate, generalize, and analyse information rather than simply recall it.
7. Topics will be introduced in a multiple representation.
8. Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.
9. Discuss how every concept can be applied to the real world - and when that's possible, it helps improve the students' understanding.

Module-1

Electrochemistry and energy storage systems:
Electrochemistry: Introduction, EMF of cell, Free Energy, Single electrode potential-Derivation of Nernst equation, Numerical problems based on Nernst Equation (E, E° & Ecell).
Reference Electrodes: Introduction, construction, working and applications of calomel electrode, ion selective electrodes: Introduction, construction, working and applications of Glass electrode, determination of pH using Glass electrode.
Energy storage Systems: Introduction, Classification of batteries (primary, secondary and reserved batteries). Construction, working and applications of Li-ion batteries. Advantages of Li-ion battery as

Module-4	
Green Chemistry and Alternative energy resources Green Chemistry: Introduction, definition, Major environmental pollutants - Oxides Nitrogen, Sulphur and Carbon (Mansion the impact of these pollutants on environment), Basic principles of green chemistry -brief discussion on 12 principles of green chemistry. Various green chemical approaches – Microwave synthesis, Bio catalysed reaction (only explanation with examples), Solvent-free reactions- advantages and conditions Synthesis of typical organic compounds by conventional and green route; i) Adipic acid – Conventional synthesis from Benzene, Green synthesis from glucose. ii) Paracetamol- Conventional and Green synthesis from Phenol Industrial applications of Green Chemistry **Green fuel**: Hydrogen-production (Photo electrocatalytic and photo catalytic water splitting) and applications in hydrogen fuel cells. Construction, working and applications of Methanol-Oxygen fuel cell (H_2SO_4 as electrolyte). **Solar Energy:** Introduction, construction, working and applications of photovoltaic cell.	
Teaching Learning process	Chalk and talk/power point presentation - Basic principles of green chemistry Videos: Various green chemical approaches, Self-study material: Atom economy-synthesis of ethylene oxide and methyl methacrylate. Advantages & disadvantages of photovoltaic cell.
Module-5	
Water Chemistry, chemical analysis and Instrumental methods of analysis **Water chemistry:** Introduction, sources and impurities in water, Potable water; meaning and specifications (as per WHO standards), Hardness of water, types, determination of hardness using EDTA titration, numerical problems on hardness of water. Definition of Biological oxygen demand (BOD) and Chemical Oxygen Demand (COD), determination of COD of waste water sample and Numerical problems on COD. **Methods of Chemical Analysis:** **Volumetric Analysis:** Introduction, principles of titrimetric analysis, requirement of titrimetric analysis, primary and secondary standards. Requirement of a primary standard solution, units of standard solutions- Definition of normality, molarity, molality, mole fraction, ppm. **Instrumental methods of analysis:** Introduction, Theory, Instrumentation and applications of Colorimetry, Flame Photometry, Potentiometry, Conductometry (Strong acid with strong base, weak acid with a strong base, mixture of strong acid and a weak acid with a strong base)	
Teaching	Chalk and talk/power point presentation – principles of titrimetric analysis, requirement of titrimetric analysis, Classification of titrimetric analysis, Ostwald's theory of acid-base

Department of Mechanical Engineering

Electric and Hybrid Vehicle Technology		Semester	3
Course Code	BME306A	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	3:0:0:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	3
Examination type (SEE)	Theory		

Course objectives:

- To understand the models, describe hybrid vehicles and their performance.
- To understand the different possible ways of energy storage.
- To understand the different strategies related to hybrid vehicle operation & energy management.

Teaching-Learning Process (General Instructions)
These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

- Adopt different types of teaching methods to develop the outcomes through PowerPoint presentations and Videodemonstrations or Simulations.
- Chalk and Talk method for Problem Solving.
- Adopt flipped classroom teaching method.
- Adopt collaborative (Group Learning) learning in the class.
- Adopt Problem Based Learning (PBL), which fosters students' analytical skills and develops thinking skills such asevaluating, generalizing, and analyzing information.

Module-1

Introduction to Electric Vehicle (EV) & Hybrid Vehicle(HV):
A brief history of Electric and Hybrid vehicles, basic architecture of hybrid drive train, vehicle motion and the dynamic equations for the vehicle, types of HV and EV, advantages over conventional vehicles, limitations of EV and HV, impact on environment of EV and HV technology, disposal of battery, cell and hazardous material and their impact on environment.

Module-2

Power Management and Energy Sources of EV and HV:
Power and Energy management strategies and its general architecture of EV and HV, various battery sources, energy storage, battery based energy storage, Battery Management Systems (BMS), fuel cells, their characteristics, Super capacitor based energy storage, flywheel, hybridization of various energy storage devices, Selection of the energy storage technology.

Module-3

DC and AC Machines & Drives in EV & HV:
Various types of motors, selection and size of motors, **Induction** motor drives and control characteristics, **Permanent** magnet motor drives and characteristics, **Brushed & Brushless** DC motor drive and characteristics, **switched reluctance motors** and characteristics, **IPM motor drives** and characteristics, mechanical and electrical connections of motors.

V Semester

Environmental Studies			
Course Code	**21CIV57**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1+2+0+0	SEE Marks	50
Total Hours of Pedagogy	15	Total Marks	100
Credits	01	Exam Hours	01

Course objectives:

- To create environmental awareness among the students.
- To gain knowledge on different types of pollution in the environment.

Teaching-Learning Process (General Instructions)

These are sample Strategies; which teacher can use to accelerate the attainment of the various course outcomes.

1. Apart from conventional lecture methods various types of innovative teaching techniques through videos, and animation films may be adopted so that the delivered lesson can progress the students in theoretical, applied and practical skills.
2. Environmental awareness program for the in house campus
3. Encourage collaborative (Group Learning) Learning in the class.
4. Seminars, surprise tests and Quizzes may be arranged for students in respective subjects to develop skills.

Module-1	
Ecosystems (Structure and Function): Forest, Desert, Wetlands, River, Oceanic and Lake. Biodiversity: Types, Value; Hot-spots; Threats and Conservation of biodiversity, Forest Wealth, and Deforestation.	
Teaching-Learning Process	Chalk and talk, PowerPoint presentation and animation tools
Module-2	
Advances in Energy Systems (Merits, Demerits, Global Status and Applications): Hydrogen, Solar, OTEC, Tidal and Wind. Natural Resource Management (Concept and case-studies): Disaster Management, Sustainable Mining,case studiesng, and Carbon Trading.	
Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools
Module-3	
Environmental Pollution (Sources, Impacts, Corrective and Preventive measures, Relevant Environmental Acts, Case-studies): Surface and Ground Water Pollution; Noise pollution; Soil Pollution and Air Pollution. **Waste Management & Public Health Aspects**: Bio-medical Wastes; Solid waste; Hazardous wastes; E-wastes; Industrial and Municipal Sludge.	
Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools
Module-4	
Global Environmental Concerns (Concept, policies and case-studies): Ground water depletion/recharging, Climate Change; Acid Rain; Ozone Depletion; Radon and Fluoride problem in drinking water; Resettlement and rehabilitation of people, Environmental Toxicology.	
Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools

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Activity Based Learning (Suggested Activities in Class)/ Practical Based learning
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Semester VI

RENEWABLE ENERGY POWER PLANTS (OPEN ELECTIVE)			
Course Code	21ME652	**CIE Marks**	50
Teaching Hours/Week (L:T:P: S)	3-0-0-0	**SEE Marks**	50
Total Hours of Pedagogy	40	**Total Marks**	100
Credits	03	**Exam Hours**	03

Course objectives:

- To introduce the concepts and principles of solar energy, its radiation, collection, storage and application.
- To understand application aspects of Wind, Biomass, Geothermal, hydroelectric and Ocean energy.
- To examine energy sources and systems, including fossil fuels and nuclear energy, and then focus on other forms of alternate energy sources.

Teaching-Learning Process (General Instructions)

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

1. Adopt different types of teaching methods to develop the outcomes through PowerPoint presentations and Video demonstrations or Simulations.
2. Chalk and Talk method for Problem Solving.
3. Adopt flipped classroom teaching method.
4. Adopt collaborative (Group Learning) learning in the class.
5. Adopt Problem Based Learning (PBL), which fosters students' analytical skills and develops thinking skills such as evaluating, generalizing, and analyzing information.

Module-1

Introduction: Energy sources (including fossil fuels and nuclear energy), India's production and reserves of commercial energy sources, need for nonconventional energy sources, energy alternatives, Indian and global energy scenario.

Solar Radiation & Measurement: Extra-Terrestrial radiation, spectral distribution of extra-terrestrial radiation, solar constant, solar radiation at the earth's surface, beam, diffuse and global radiation, solar radiation data. Pyrometer, shading ring Pyrheliometer, sunshine recorder, schematic diagrams, and principle of working, actinometer and bolometer.

Teaching-Learning Process	1. Power-point Presentation, 2. Video demonstration or Simulations, 3. Chalk and Talk are used for Problem Solving. /White board

Module-2

Solar Radiation Geometry: Flux on a plane surface, latitude, declination angle, surface azimuth angle, hour angle, zenith angle, solar altitude angle, expressions for the angle between the incident beam and the normal to a plane surface (No derivation) local apparent time, apparent motion of sun, day length, numerical problems.

Solar Thermal Systems: Flat plate collector, Evacuated Tubular Collector, Solar air collector, Solar concentrator, Solar distillation, Solar cooker, Thermal energy storage systems, Solar Pond, Solar Chimney (Tower).

Solar Photovoltaic Systems: Introduction, Solar cell Fundamentals, Characteristics and classification, Solar cell: Module, panel and array construction.

Teaching-Learning	1. Power-point Presentation, 2. Video demonstration or Simulations,

Process	3. Chalk and Talk are used for Problem Solving. /White board
Module-3	
Wind Energy: Properties of wind, availability of wind energy in India, wind velocity and power from wind; major problems associated with wind power, wind machines; Types of wind machines and their characteristics, horizontal and vertical axis windmills, elementary design principles; coefficient of performance of a windmill rotor, design aspects, numerical examples. **Energy from Biomass**: Energy plantation, biogas production from organic wastes by anaerobic fermentation, description of bio-gas plants, transportation of biogas, problems associated with bio-gas production, application of biogas, application of biogas in engines, cogeneration plant, advantages & disadvantages.	
Teaching-Learning Process	1. Power-point Presentation, 2. Video demonstration or Simulations, 3. Chalk and Talk are used for Problem Solving. /White board
Module-4	
Hydroelectric plants: Advantages & disadvantages of waterpower, Hydrographs and flow duration curves-numericals, Storage and pondage, General layout of hydel power plants- components such as Penstock, surge tanks, spill way and draft tube and their applications, pumped storage plants, Detailed classification of hydroelectric plants. **Tidal Power:** Tides and waves as energy suppliers and their mechanics, fundamental characteristics of tidal power, harnessing tidal energy, limitations of tidal energy. **Energy from ocean waves**: Wave energy conversion, Wave energy technologies, advantages, and disadvantages.	
Teaching-Learning Process	1. Power-point Presentation, 2. Video demonstration or Simulations, 3. Chalk and Talk are used for Problem Solving. /White board
Module-5	
Ocean Thermal Energy Conversion: Principle of working, Rankine cycle, OTEC power stations in the world, problems associated with OTEC, case studies. **Geothermal energy:** Introduction, Principle of working, types of geothermal stations with schematic diagram Estimates of Geothermal Power, Nature of geothermal fields, Geothermal resources, Hydrothermal, Resources Geo pressured resources, Hot dry rock resources of petro-thermal systems, Magma Resources-Interconnection of geothermal fossil systems, Advantages, and disadvantages of geothermal energy over other energy forms, Geothermal stations in the world	
Teaching-Learning Process	1. Power-point Presentation, 2. Video demonstration or Simulations, 3. Chalk and Talk are used for Problem Solving. /White board
Course outcome (Course Skill Set) At the end of the course the student will be able to : • Describe the various forms of non-conventional energy resources. • Apply the fundamental knowledge of mechanical engineering to design various renewable energy systems • Analyze the implications of renewable energy forms for selecting an appropriate system for a specific application • Discuss on the environmental aspects and impact of non-conventional energy resources, in comparison with various conventional energy systems, their prospects and limitations.	

B. E. MECHANICAL ENGINEERING Choice Based Credit System (CBCS) and Outcome Based Education (OBE) SEMESTER - VIII			
ENERGY ENGINEERING			
Course Code	18ME81	CIE Marks	40
Teaching Hours /Week (L:T:P)	3:0:0	SEE Marks	60
Credits	03	Exam Hours	03

Course Learning Objectives:

- Understand energy scenario, energy sources and their utilization
- Learn about energy conversion methods
- Study the principles of renewable energy conversion systems.

Module-1

STEAM GENERATORS Coal and ash handling, Generation of steam using forced circulation, high and supercritical pressures, LaMount, Benson, Velox, Loeffer, Schmidt steam generators, Cooling towers and Ponds, Accessories such as Superheaters, De-superheater, Economizers, Air preheaters.

Module-2

Solar Energy: Introduction, Solar radiation at the earth's surface, Solar radiation measurements, Flat plate collectors, Focussing collectors, Solar pond, Solar electric power generation-Solar photovoltaics.
Biomass Energy: Photosynthesis, photosynthetic oxygen production, energy plantation. Bio Chemical Route: Biogas production from organic wastes by anaerobic fermentation, Bio gas plants-KVIC, Janta, Deenbhandu models, factors affecting bio gas generation. Thermal gasification of biomass, updraft and downdraft

Module-3

Geothermal Energy: Forms of geothermal energy, Dry steam, wet steam, hot dry rock and magmatic chamber systems.
Tidal Energy: Tidal power, Site selection, Single basin and double basin systems, Advantages and disadvantages of tidal energy.
Wind Energy: Wind energy-Advantages and limitations, wind velocity and wind power, Basic components of wind energy conversion systems, horizontal and vertical axis wind mills, coefficient of performance of a wind mill rotor, Applications of wind energy.

Module-4

Hydroelectric plants: Advantages & disadvantages of water power, Hydrographs and flow duration curves-numericals, Storage and pondage, General layout of hydel power plants- components such as Penstock, surge tanks, spill way and draft tube and their applications, pumped storage plants, Detailed classification of hydroelectric plants, water hammer.
Ocean Thermal Energy: Ocean thermal energy conversion, Principle and working of Rankine cycle, Problems associated with OTEC.

Module-5

NUCLEAR ENERGY Principles of release of nuclear energy-Fusion and fission reactions. Nuclear fuels used in the reactors, Chain reaction, Moderation, breeding, Multiplication and thermal utilization factors. General components of a nuclear reactor and materials, Brief description-Pressurized water reactor, Boiling water reactor, Sodium graphite reactor, Fast Breeder reactor, Homogeneous graphite reactor and gas cooled reactor, Radiation hazards, Shielding, Nuclear waste, Radioactive waste disposal.

Course Outcomes: At the end of the course the student will be able to:

CO1: Understand the construction and working of steam generators and their accessories.

I/II Semester

ENGINEERING CHEMISTRY			
Course Code	**21CHE12/22**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	2:2:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	3Hour

Course Objectives: The course will enable the students to

CLO1: Impart the basic knowledge of chemistry and its principles involved in electrochemistry, energy storage devices and its commercial applications.

CLO2: Understand the basic principles of corrosion and its prevention, metal finishing and its technological importance

CLO3: Master the knowledge of synthesis, properties and utilization of engineering materials like polymers & Nano materials.

CLO4: Apply the knowledge of Green Chemistry principles for production of chemical compounds. understanding the concepts of alternative energy sources.

CLO5: Understand the basic concepts of water chemistry & theory, basic principle and applications of volumetric analysis and analytical instruments.

Pedagogy (General Instructions):

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

1. Lecturer method (L) does not mean only traditional lecture method, but different type of teaching methods may be adopted to develop the outcomes.
2. Show Video/animation films to explain methods of synthesis of nanomaterials.
4. Encourage collaborative (Group Learning) Learning in the class
5. Ask at least three HOTS (Higher order Thinking) questions in the class, which promotes critical thinking
6. Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develop thinking skills such as the ability to evaluate, generalize, and analyse information rather than simply recall it.
7. Topics will be introduced in a multiple representation.
8. Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.
9. Discuss how every concept can be applied to the real world - and when that's possible, it helps improve the students' understanding.

Module-1

Electrochemistry and energy storage systems:

Electrochemistry: Introduction, EMF of cell, Free Energy, Single electrode potential-Derivation of Nernst equation, Numerical problems based on Nernst Equation (E, E° & Ecell).

Reference Electrodes: Introduction, construction, working and applications of calomel electrode, ion selective electrodes: Introduction, construction, working and applications of Glass electrode, determination of pH using Glass electrode.

Energy storage Systems: Introduction, Classification of batteries (primary, secondary and reserved batteries). Construction, working and applications of Li-ion batteries. Advantages of Li-ion battery as

Module-4	
Green Chemistry and Alternative energy resources Green Chemistry: Introduction, definition, Major environmental pollutants - Oxides Nitrogen, Sulphur and Carbon (Mansion the impact of these pollutants on environment), Basic principles of green chemistry -brief discussion on 12 principles of green chemistry. Various green chemical approaches – Microwave synthesis, Bio catalysed reaction (only explanation with examples), Solvent-free reactions- advantages and conditions Synthesis of typical organic compounds by conventional and green route; i) Adipic acid – Conventional synthesis from Benzene, Green synthesis from glucose. ii) Paracetamol- Conventional and Green synthesis from Phenol Industrial applications of Green Chemistry **Green fuel**: Hydrogen-production (Photo electrocatalytic and photo catalytic water splitting) and applications in hydrogen fuel cells. Construction, working and applications of Methanol-Oxygen fuel cell (H_2SO_4 as electrolyte). **Solar Energy:** Introduction, construction, working and applications of photovoltaic cell.	
Teaching Learning process	Chalk and talk/power point presentation - Basic principles of green chemistry Videos: Various green chemical approaches, Self-study material: Atom economy-synthesis of ethylene oxide and methyl methacrylate. Advantages & disadvantages of photovoltaic cell.
Module-5	
Water Chemistry, chemical analysis and Instrumental methods of analysis **Water chemistry:** Introduction, sources and impurities in water, Potable water; meaning and specifications (as per WHO standards), Hardness of water, types, determination of hardness using EDTA titration, numerical problems on hardness of water. Definition of Biological oxygen demand (BOD) and Chemical Oxygen Demand (COD), determination of COD of waste water sample and Numerical problems on COD. **Methods of Chemical Analysis:** **Volumetric Analysis:** Introduction, principles of titrimetric analysis, requirement of titrimetric analysis, primary and secondary standards. Requirement of a primary standard solution, units of standard solutions- Definition of normality, molarity, molality, mole fraction, ppm. **Instrumental methods of analysis:** Introduction, Theory, Instrumentation and applications of Colorimetry, Flame Photometry, Potentiometry, Conductometry (Strong acid with strong base, weak acid with a strong base, mixture of strong acid and a weak acid with a strong base)	
Teaching	Chalk and talk/power point presentation – principles of titrimetric analysis, requirement of titrimetric analysis, Classification of titrimetric analysis, Ostwald's theory of acid-base

Department of Computer Science & Engineering

V Semester

Environmental Studies			
Course Code	**21CIV57**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1+2+0+0	SEE Marks	50
Total Hours of Pedagogy	15	Total Marks	100
Credits	01	Exam Hours	01

Course objectives:
- To create environmental awareness among the students.
- To gain knowledge on different types of pollution in the environment.

Teaching-Learning Process (General Instructions)
These are sample Strategies; which teacher can use to accelerate the attainment of the various course outcomes.
1. Apart from conventional lecture methods various types of innovative teaching techniques through videos, and animation films may be adopted so that the delivered lesson can progress the students in theoretical, applied and practical skills.
2. Environmental awareness program for the in house campus
3. Encourage collaborative (Group Learning) Learning in the class.
4. Seminars, surprise tests and Quizzes may be arranged for students in respective subjects to develop skills.

Module-1

Ecosystems (Structure and Function): Forest, Desert, Wetlands, River, Oceanic and Lake. Biodiversity: Types, Value; Hot-spots; Threats and Conservation of biodiversity, Forest Wealth, and Deforestation.

Teaching-Learning Process	Chalk and talk, PowerPoint presentation and animation tools

Module-2

Advances in Energy Systems (Merits, Demerits, Global Status and Applications): Hydrogen, Solar, OTEC, Tidal and Wind.
Natural Resource Management (Concept and case-studies): Disaster Management, Sustainable Mining,case studiesng, and Carbon Trading.

Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools

Module-3

Environmental Pollution (Sources, Impacts, Corrective and Preventive measures, Relevant Environmental Acts, Case-studies): Surface and Ground Water Pollution; Noise pollution; Soil Pollution and Air Pollution.
Waste Management & Public Health Aspects: Bio-medical Wastes; Solid waste; Hazardous wastes; E-wastes; Industrial and Municipal Sludge.

Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools

Module-4

Global Environmental Concerns (Concept, policies and case-studies): Ground water depletion/recharging, Climate Change; Acid Rain; Ozone Depletion; Radon and Fluoride problem in drinking water; Resettlement and rehabilitation of people, Environmental Toxicology.

Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools

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B. E. ELECTRICAL AND ELECTRONICS ENGINEERING
CHOICE BASED CREDIT SYSTEM (CBCS) AND OUTCOME BASED EDUCATION (OBE)
SEMESTER – VII

DISASTERS MANAGEMENT (OPEN ELECTIVE)

Course Code	18EE753	CIE Marks	40
Teaching Hours/Week (L:T:P)	(3:0:0)	SEE Marks	60
Credits	03	Exam Hours	03

Disaster Management Plan (DMP): - General.
Cyclones and their Hazard Potential: Classification of Low-Pressure Systems, Statistics of Cyclonic Storms Over Indian Seas, Movement of Cyclqnes in Indian Seas, Storm Surges.

Module-2

India Meteorological Department and Cyclone Warnings in India: Hazard Potential of Cyclonic Storms, Cyclone Prediction and Dissemination of Warnings, Dissemination of Cyclone Warnings, Cydone Warnings through INSAT, Port Warnings with Day and Night hoisting Sib'Tlals.
Cyclones Disaster Management – Plan: Hazard Potentials Associated with Cyclones, Vulnerability Reduction, Early Warning.

Module-3

Action Plan for Cyclone Disaster Management.
Role of Different Institutions in Natural Disaster Management: Role of Zilla Parishad, Role of PRA Groups in Disaster Management, Role of NGOs, Self Help Groups in Disaster Management, Role of Red Cross in Disaster Management.
The Role of Defence and other Services in Disaster Management: Role of Air Force in Disaster Management, Role of Medical and Health Department in Cyclone disaster management, National Disaster Response Force (NDRF), Role of Remote Sensing in Disaster Management, Role of Broadcast, Educational Media in disaster management.

Module-4

4Floods: Water Wealth of India, Definition of Flood, Role of Central Water Commission, Monsoons, Flood Warning Signals and Precautionary Actions, Water Purification Technologies in Flood Affected Areas.
Drought: Meteorological Drought, Breaks in the Monsoon, Drought Management Plan, Drought Years for Different Met Subdivision of India, Drought Assesment, Drought Parameters, Role of Banking, Insurance, Microfinance in drought mitigation, Drought Monitoring, Drought Research Unit (IMD), Rainwater harvesting.

Module-5

Earth quakes: Interior Structure of the Earth, Plate Techtonics, Seismcity of India, Earthquake Forecast and disaster management, Tsunamis, Landslides and Avalanches, Volcanoes.
Hazards associated with Convective Clouds: Climatology of World Thunderstorms, Lightning, Some Effects of Electric Shock, Favours and Frownings of Thunderstorms, Hailstorms, Tornadoes, Waterspouts, Dust-Devils, Nowcasting, Summer Thunderstorms over India, Cold Waves and Heat Waves - Cold Waves in India, Heat Waves in India.

I/II Semester

ENGINEERING CHEMISTRY			
Course Code	**21CHE12/22**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	2:2:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	3Hour

Course Objectives: The course will enable the students to

CLO1: Impart the basic knowledge of chemistry and its principles involved in electrochemistry, energy storage devices and its commercial applications.

CLO2: Understand the basic principles of corrosion and its prevention, metal finishing and its technological importance

CLO3: Master the knowledge of synthesis, properties and utilization of engineering materials like polymers & Nano materials.

CLO4: Apply the knowledge of Green Chemistry principles for production of chemical compounds. understanding the concepts of alternative energy sources.

CLO5: Understand the basic concepts of water chemistry & theory, basic principle and applications of volumetric analysis and analytical instruments.

Pedagogy (General Instructions):

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

1. Lecturer method (L) does not mean only traditional lecture method, but different type of teaching methods may be adopted to develop the outcomes.
2. Show Video/animation films to explain methods of synthesis of nanomaterials.
4. Encourage collaborative (Group Learning) Learning in the class
5. Ask at least three HOTS (Higher order Thinking) questions in the class, which promotes critical thinking
6. Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develop thinking skills such as the ability to evaluate, generalize, and analyse information rather than simply recall it.
7. Topics will be introduced in a multiple representation.
8. Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.
9. Discuss how every concept can be applied to the real world - and when that's possible, it helps improve the students' understanding.

Module-1

Electrochemistry and energy storage systems:

Electrochemistry: Introduction, EMF of cell, Free Energy, Single electrode potential-Derivation of Nernst equation, Numerical problems based on Nernst Equation (E, E° & Ecell).

Reference Electrodes: Introduction, construction, working and applications of calomel electrode, ion selective electrodes: Introduction, construction, working and applications of Glass electrode, determination of pH using Glass electrode.

Energy storage Systems: Introduction, Classification of batteries (primary, secondary and reserved batteries). Construction, working and applications of Li-ion batteries. Advantages of Li-ion battery as

Module-4	
Green Chemistry and Alternative energy resources Green Chemistry: Introduction, definition, Major environmental pollutants - Oxides Nitrogen, Sulphur and Carbon (Mansion the impact of these pollutants on environment), Basic principles of green chemistry -brief discussion on 12 principles of green chemistry. Various green chemical approaches – Microwave synthesis, Bio catalysed reaction (only explanation with examples), Solvent-free reactions- advantages and conditions Synthesis of typical organic compounds by conventional and green route; i) Adipic acid – Conventional synthesis from Benzene, Green synthesis from glucose. ii) Paracetamol- Conventional and Green synthesis from Phenol Industrial applications of Green Chemistry **Green fuel**: Hydrogen-production (Photo electrocatalytic and photo catalytic water splitting) and applications in hydrogen fuel cells. Construction, working and applications of Methanol-Oxygen fuel cell (H_2SO_4 as electrolyte). **Solar Energy:** Introduction, construction, working and applications of photovoltaic cell.	
Teaching Learning process	Chalk and talk/power point presentation - Basic principles of green chemistry Videos: Various green chemical approaches, Self-study material: Atom economy-synthesis of ethylene oxide and methyl methacrylate. Advantages & disadvantages of photovoltaic cell.
Module-5	
Water Chemistry, chemical analysis and Instrumental methods of analysis **Water chemistry:** Introduction, sources and impurities in water, Potable water; meaning and specifications (as per WHO standards), Hardness of water, types, determination of hardness using EDTA titration, numerical problems on hardness of water. Definition of Biological oxygen demand (BOD) and Chemical Oxygen Demand (COD), determination of COD of waste water sample and Numerical problems on COD. **Methods of Chemical Analysis:** **Volumetric Analysis:** Introduction, principles of titrimetric analysis, requirement of titrimetric analysis, primary and secondary standards. Requirement of a primary standard solution, units of standard solutions- Definition of normality, molarity, molality, mole fraction, ppm. **Instrumental methods of analysis:** Introduction, Theory, Instrumentation and applications of Colorimetry, Flame Photometry, Potentiometry, Conductometry (Strong acid with strong base, weak acid with a strong base, mixture of strong acid and a weak acid with a strong base)	
Teaching	Chalk and talk/power point presentation – principles of titrimetric analysis, requirement of titrimetric analysis, Classification of titrimetric analysis, Ostwald's theory of acid-base

CHILDREN'S EDUCATION SOCIETY (Regd.)
Administrative Office:
1st Phase, JP Nagar, Bengaluru – 560 078
✆: 080-61754501 – 502 Fax: 080-2654 8658

THE OXFORD COLLEGE OF ENGINEERING

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Bommanahalli, Hosur Road, Bangalore –560068. ✆: 080 -61754601/602
E-mail: engprincipal@theoxford.edu Web: www.theoxfordengg.org

Department of Electrical and Communication Engineering

V Semester

Environmental Studies			
Course Code	**21CIV57**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1+2+0+0	SEE Marks	50
Total Hours of Pedagogy	15	Total Marks	100
Credits	01	Exam Hours	01

Course objectives:

- To create environmental awareness among the students.
- To gain knowledge on different types of pollution in the environment.

Teaching-Learning Process (General Instructions)

These are sample Strategies; which teacher can use to accelerate the attainment of the various course outcomes.

1. Apart from conventional lecture methods various types of innovative teaching techniques through videos, and animation films may be adopted so that the delivered lesson can progress the students in theoretical, applied and practical skills.
2. Environmental awareness program for the in house campus
3. Encourage collaborative (Group Learning) Learning in the class.
4. Seminars, surprise tests and Quizzes may be arranged for students in respective subjects to develop skills.

Module-1	
Ecosystems (Structure and Function): Forest, Desert, Wetlands, River, Oceanic and Lake. Biodiversity: Types, Value; Hot-spots; Threats and Conservation of biodiversity, Forest Wealth, and Deforestation.	
Teaching-Learning Process	Chalk and talk, PowerPoint presentation and animation tools

Module-2	
Advances in Energy Systems (Merits, Demerits, Global Status and Applications): Hydrogen, Solar, OTEC, Tidal and Wind. Natural Resource Management (Concept and case-studies): Disaster Management, Sustainable Mining,case studiesng, and Carbon Trading.	
Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools

Module-3	
Environmental Pollution (Sources, Impacts, Corrective and Preventive measures, Relevant Environmental Acts, Case-studies): Surface and Ground Water Pollution; Noise pollution; Soil Pollution and Air Pollution. **Waste Management & Public Health Aspects**: Bio-medical Wastes; Solid waste; Hazardous wastes; E-wastes; Industrial and Municipal Sludge.	
Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools

Module-4	
Global Environmental Concerns (Concept, policies and case-studies): Ground water depletion/recharging, Climate Change; Acid Rain; Ozone Depletion; Radon and Fluoride problem in drinking water; Resettlement and rehabilitation of people, Environmental Toxicology.	
Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools

Department of Mechatronics

V Semester

Environmental Studies			
Course Code	**21CIV57**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1+2+0+0	SEE Marks	50
Total Hours of Pedagogy	15	Total Marks	100
Credits	01	Exam Hours	01

Course objectives:

- To create environmental awareness among the students.
- To gain knowledge on different types of pollution in the environment.

Teaching-Learning Process (General Instructions)
These are sample Strategies; which teacher can use to accelerate the attainment of the various course outcomes.

1. Apart from conventional lecture methods various types of innovative teaching techniques through videos, and animation films may be adopted so that the delivered lesson can progress the students in theoretical, applied and practical skills.
2. Environmental awareness program for the in house campus
3. Encourage collaborative (Group Learning) Learning in the class.
4. Seminars, surprise tests and Quizzes may be arranged for students in respective subjects to develop skills.

Module-1

Ecosystems (Structure and Function): Forest, Desert, Wetlands, River, Oceanic and Lake. Biodiversity: Types, Value; Hot-spots; Threats and Conservation of biodiversity, Forest Wealth, and Deforestation.

Teaching-Learning Process	Chalk and talk, PowerPoint presentation and animation tools

Module-2

Advances in Energy Systems (Merits, Demerits, Global Status and Applications): Hydrogen, Solar, OTEC, Tidal and Wind.
Natural Resource Management (Concept and case-studies): Disaster Management, Sustainable Mining,case studiesng, and Carbon Trading.

Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools

Module-3

Environmental Pollution (Sources, Impacts, Corrective and Preventive measures, Relevant Environmental Acts, Case-studies): Surface and Ground Water Pollution; Noise pollution; Soil Pollution and Air Pollution.
Waste Management & Public Health Aspects: Bio-medical Wastes; Solid waste; Hazardous wastes; E-wastes; Industrial and Municipal Sludge.

Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools

Module-4

Global Environmental Concerns (Concept, policies and case-studies): Ground water depletion/recharging, Climate Change; Acid Rain; Ozone Depletion; Radon and Fluoride problem in drinking water; Resettlement and rehabilitation of people, Environmental Toxicology.

Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools

1

I/II Semester

ENGINEERING CHEMISTRY			
Course Code	**21CHE12/22**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	2:2:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	3Hour

Course Objectives: The course will enable the students to

CLO1: Impart the basic knowledge of chemistry and its principles involved in electrochemistry, energy storage devices and its commercial applications.

CLO2: Understand the basic principles of corrosion and its prevention, metal finishing and its technological importance

CLO3: Master the knowledge of synthesis, properties and utilization of engineering materials like polymers & Nano materials.

CLO4: Apply the knowledge of Green Chemistry principles for production of chemical compounds. understanding the concepts of alternative energy sources.

CLO5: Understand the basic concepts of water chemistry & theory, basic principle and applications of volumetric analysis and analytical instruments.

Pedagogy (General Instructions):

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

1. Lecturer method (L) does not mean only traditional lecture method, but different type of teaching methods may be adopted to develop the outcomes.
2. Show Video/animation films to explain methods of synthesis of nanomaterials.
4. Encourage collaborative (Group Learning) Learning in the class
5. Ask at least three HOTS (Higher order Thinking) questions in the class, which promotes critical thinking
6. Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develop thinking skills such as the ability to evaluate, generalize, and analyse information rather than simply recall it.
7. Topics will be introduced in a multiple representation.
8. Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.
9. Discuss how every concept can be applied to the real world - and when that's possible, it helps improve the students' understanding.

Module-1

Electrochemistry and energy storage systems:

Electrochemistry: Introduction, EMF of cell, Free Energy, Single electrode potential-Derivation of Nernst equation, Numerical problems based on Nernst Equation (E, E° & Ecell).

Reference Electrodes: Introduction, construction, working and applications of calomel electrode, ion selective electrodes: Introduction, construction, working and applications of Glass electrode, determination of pH using Glass electrode.

Energy storage Systems: Introduction, Classification of batteries (primary, secondary and reserved batteries). Construction, working and applications of Li-ion batteries. Advantages of Li-ion battery as

Module-4	
Green Chemistry and Alternative energy resources Green Chemistry: Introduction, definition, Major environmental pollutants - Oxides Nitrogen, Sulphur and Carbon (Mansion the impact of these pollutants on environment), Basic principles of green chemistry -brief discussion on 12 principles of green chemistry. Various green chemical approaches – Microwave synthesis, Bio catalysed reaction (only explanation with examples), Solvent-free reactions- advantages and conditions Synthesis of typical organic compounds by conventional and green route; i) Adipic acid – Conventional synthesis from Benzene, Green synthesis from glucose. ii) Paracetamol- Conventional and Green synthesis from Phenol Industrial applications of Green Chemistry **Green fuel**: Hydrogen-production (Photo electrocatalytic and photo catalytic water splitting) and applications in hydrogen fuel cells. Construction, working and applications of Methanol-Oxygen fuel cell (H_2SO_4 as electrolyte). **Solar Energy:** Introduction, construction, working and applications of photovoltaic cell.	
Teaching Learning process	Chalk and talk/power point presentation - Basic principles of green chemistry Videos: Various green chemical approaches, Self-study material: Atom economy-synthesis of ethylene oxide and methyl methacrylate. Advantages & disadvantages of photovoltaic cell.
Module-5	
Water Chemistry, chemical analysis and Instrumental methods of analysis **Water chemistry:** Introduction, sources and impurities in water, Potable water; meaning and specifications (as per WHO standards), Hardness of water, types, determination of hardness using EDTA titration, numerical problems on hardness of water. Definition of Biological oxygen demand (BOD) and Chemical Oxygen Demand (COD), determination of COD of waste water sample and Numerical problems on COD. **Methods of Chemical Analysis:** **Volumetric Analysis:** Introduction, principles of titrimetric analysis, requirement of titrimetric analysis, primary and secondary standards. Requirement of a primary standard solution, units of standard solutions- Definition of normality, molarity, molality, mole fraction, ppm. **Instrumental methods of analysis:** Introduction, Theory, Instrumentation and applications of Colorimetry, Flame Photometry, Potentiometry, Conductometry (Strong acid with strong base, weak acid with a strong base, mixture of strong acid and a weak acid with a strong base)	
Teaching	Chalk and talk/power point presentation – principles of titrimetric analysis, requirement of titrimetric analysis, Classification of titrimetric analysis, Ostwald's theory of acid-base

CHILDREN'S EDUCATION SOCIETY (Regd.)
Administrative Office:
1st Phase, JP Nagar, Bengaluru – 560 078
✆: 080-61754501 – 502 Fax: 080-2654 8658

THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,
Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),
Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24&Diamond Rating by QS I Guage)
Bommanahalli, Hosur Road, Bangalore –560068. ✆: 080 -61754601/602
E-mail: engprincipal@theoxford.edu Web: www.theoxfordengg.org

Department of Civil Engineering

V Semester

Environmental Studies			
Course Code	**21CIV57**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1+2+0+0	SEE Marks	50
Total Hours of Pedagogy	15	Total Marks	100
Credits	01	Exam Hours	01

Course objectives:

- To create environmental awareness among the students.
- To gain knowledge on different types of pollution in the environment.

Teaching-Learning Process (General Instructions)

These are sample Strategies; which teacher can use to accelerate the attainment of the various course outcomes.

1. Apart from conventional lecture methods various types of innovative teaching techniques through videos, and animation films may be adopted so that the delivered lesson can progress the students in theoretical, applied and practical skills.
2. Environmental awareness program for the in house campus
3. Encourage collaborative (Group Learning) Learning in the class.
4. Seminars, surprise tests and Quizzes may be arranged for students in respective subjects to develop skills.

Module-1	
Ecosystems (Structure and Function): Forest, Desert, Wetlands, River, Oceanic and Lake. Biodiversity: Types, Value; Hot-spots; Threats and Conservation of biodiversity, Forest Wealth, and Deforestation.	
Teaching-Learning Process	Chalk and talk, PowerPoint presentation and animation tools

Module-2	
Advances in Energy Systems (Merits, Demerits, Global Status and Applications): Hydrogen, Solar, OTEC, Tidal and Wind. Natural Resource Management (Concept and case-studies): Disaster Management, Sustainable Mining,case studiesng, and Carbon Trading.	
Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools

Module-3	
Environmental Pollution (Sources, Impacts, Corrective and Preventive measures, Relevant Environmental Acts, Case-studies): Surface and Ground Water Pollution; Noise pollution; Soil Pollution and Air Pollution. **Waste Management & Public Health Aspects**: Bio-medical Wastes; Solid waste; Hazardous wastes; E-wastes; Industrial and Municipal Sludge.	
Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools

Module-4	
Global Environmental Concerns (Concept, policies and case-studies): Ground water depletion/recharging, Climate Change; Acid Rain; Ozone Depletion; Radon and Fluoride problem in drinking water; Resettlement and rehabilitation of people, Environmental Toxicology.	
Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools

VI Semester

ALTERNATE BUILDING MATERIALS			
Course Code	21CV646	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	2+2+0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	3	Exam Hours	03

Course objectives: This course will enable students to:

1. understand environmental issues due to building materials and the energy consumption in manufacturing building materials
2. study the various masonry blocks, masonry mortar and structural behavior of masonry under compression.
3. Study the alternative building materials in the present context.
4. understand the alternative building technologies which are followed in present construction field.

Teaching-Learning Process (General Instructions)
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

1. Blackboard teaching/PowerPoint presentations (if needed)
2. Regular review of students by asking questions based on topics covered in the class,

Module-1

Environmental Implications of Buildings
Energy use, carbon emissions, water use, waste disposal; Building materials: sources, methods of production and environmental Implications. Embodied Energy in Building Materials: Transportation Energy for Building Materials; Maintenance Energy for Buildings.BUILDINGS 9 Framed Construction, Masonry Construction. Resources for Building Materials, Alternative concepts. Recycling of Industrial and Buildings Wastes. Biomass Resources for buildings.

Teaching-Learning Process	1.Blackboard teaching/PowerPoint presentations (if needed) 2.Regular review of students by asking questions based on topics covered in the class,

Module-2

Elements of Structural Masonry :
Elements of Structural Masonry, Masonry materials, requirements of masonry units' characteristics of bricks, stones, clay blocks, concrete blocks, stone boulders, lateriteBlocks, Fal- G blocks and Stabilized mud block. Manufacture of stabilized blocks.
Structural Masonry Mortars: Mortars, cementations materials, sand, natural & manufactured, types of mortars, classification of mortars as per BIS, characteristics and requirements of mortar, selection of mortar. Uses of masonry, masonry bonding, Compressive strength of masonry elements, Factors affecting compressive strength, Strength of Prisms/wallets and walls, Effect of brick bond on strength, Bond strength of masonry: Flexure and shear, Elastic properties of masonry materials and masonry, Design of masonry compression elements subjected to axial load.

Teaching-Learning Process	1.Blackboard teaching/PowerPoint presentations (if needed) 2.Regular review of students by asking questions based on topics covered in the class,

Module-3

Alternate Building Materials:
Lime, Pozzolana cements, Raw materials, Manufacturing process, Properties and uses. Fibers- metal and synthetic, Properties and applications. Fiber reinforced plastics, Matrix materials, Fibers organic and synthetic, Properties and applications. Building materials from agro and industrial wastes ,Types of agro wastes, Types of industrial and mine wastes, Properties and applications. Masonry blocks using industrial wastes. Construction and demolition wastes.

I/II Semester

ENGINEERING CHEMISTRY			
Course Code	**21CHE12/22**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	2:2:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	3Hour

Course Objectives: The course will enable the students to

CLO1: Impart the basic knowledge of chemistry and its principles involved in electrochemistry, energy storage devices and its commercial applications.

CLO2: Understand the basic principles of corrosion and its prevention, metal finishing and its technological importance

CLO3: Master the knowledge of synthesis, properties and utilization of engineering materials like polymers & Nano materials.

CLO4: Apply the knowledge of Green Chemistry principles for production of chemical compounds. understanding the concepts of alternative energy sources.

CLO5: Understand the basic concepts of water chemistry & theory, basic principle and applications of volumetric analysis and analytical instruments.

Pedagogy (General Instructions):

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

1. Lecturer method (L) does not mean only traditional lecture method, but different type of teaching methods may be adopted to develop the outcomes.
2. Show Video/animation films to explain methods of synthesis of nanomaterials.
4. Encourage collaborative (Group Learning) Learning in the class
5. Ask at least three HOTS (Higher order Thinking) questions in the class, which promotes critical thinking
6. Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develop thinking skills such as the ability to evaluate, generalize, and analyse information rather than simply recall it.
7. Topics will be introduced in a multiple representation.
8. Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.
9. Discuss how every concept can be applied to the real world - and when that's possible, it helps improve the students' understanding.

Module-1

Electrochemistry and energy storage systems:

Electrochemistry: Introduction, EMF of cell, Free Energy, Single electrode potential-Derivation of Nernst equation, Numerical problems based on Nernst Equation (E, E° & Ecell).

Reference Electrodes: Introduction, construction, working and applications of calomel electrode, ion selective electrodes: Introduction, construction, working and applications of Glass electrode, determination of pH using Glass electrode.

Energy storage Systems: Introduction, Classification of batteries (primary, secondary and reserved batteries). Construction, working and applications of Li-ion batteries. Advantages of Li-ion battery as

Module-4	
Green Chemistry and Alternative energy resources Green Chemistry: Introduction, definition, Major environmental pollutants - Oxides Nitrogen, Sulphur and Carbon (Mansion the impact of these pollutants on environment), Basic principles of green chemistry -brief discussion on 12 principles of green chemistry. Various green chemical approaches – Microwave synthesis, Bio catalysed reaction (only explanation with examples), Solvent-free reactions- advantages and conditions Synthesis of typical organic compounds by conventional and green route; i) Adipic acid – Conventional synthesis from Benzene, Green synthesis from glucose. ii) Paracetamol- Conventional and Green synthesis from Phenol Industrial applications of Green Chemistry **Green fuel**: Hydrogen-production (Photo electrocatalytic and photo catalytic water splitting) and applications in hydrogen fuel cells. Construction, working and applications of Methanol-Oxygen fuel cell (H_2SO_4 as electrolyte). **Solar Energy:** Introduction, construction, working and applications of photovoltaic cell.	
Teaching Learning process	Chalk and talk/power point presentation - Basic principles of green chemistry Videos: Various green chemical approaches, Self-study material: Atom economy-synthesis of ethylene oxide and methyl methacrylate. Advantages & disadvantages of photovoltaic cell.
Module-5	
Water Chemistry, chemical analysis and Instrumental methods of analysis **Water chemistry:** Introduction, sources and impurities in water, Potable water; meaning and specifications (as per WHO standards), Hardness of water, types, determination of hardness using EDTA titration, numerical problems on hardness of water. Definition of Biological oxygen demand (BOD) and Chemical Oxygen Demand (COD), determination of COD of waste water sample and Numerical problems on COD. **Methods of Chemical Analysis:** **Volumetric Analysis:** Introduction, principles of titrimetric analysis, requirement of titrimetric analysis, primary and secondary standards. Requirement of a primary standard solution, units of standard solutions- Definition of normality, molarity, molality, mole fraction, ppm. **Instrumental methods of analysis:** Introduction, Theory, Instrumentation and applications of Colorimetry, Flame Photometry, Potentiometry, Conductometry (Strong acid with strong base, weak acid with a strong base, mixture of strong acid and a weak acid with a strong base)	
Teaching	Chalk and talk/power point presentation – principles of titrimetric analysis, requirement of titrimetric analysis, Classification of titrimetric analysis, Ostwald's theory of acid-base

Department of Electrical & Electronics Engineering

V Semester

Environmental Studies			
Course Code	**21CIV57**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1+2+0+0	SEE Marks	50
Total Hours of Pedagogy	15	Total Marks	100
Credits	01	Exam Hours	01

Course objectives:

- To create environmental awareness among the students.
- To gain knowledge on different types of pollution in the environment.

Teaching-Learning Process (General Instructions)

These are sample Strategies; which teacher can use to accelerate the attainment of the various course outcomes.

1. Apart from conventional lecture methods various types of innovative teaching techniques through videos, and animation films may be adopted so that the delivered lesson can progress the students in theoretical, applied and practical skills.
2. Environmental awareness program for the in house campus
3. Encourage collaborative (Group Learning) Learning in the class.
4. Seminars, surprise tests and Quizzes may be arranged for students in respective subjects to develop skills.

Module-1	
Ecosystems (Structure and Function): Forest, Desert, Wetlands, River, Oceanic and Lake. Biodiversity: Types, Value; Hot-spots; Threats and Conservation of biodiversity, Forest Wealth, and Deforestation.	
Teaching-Learning Process	Chalk and talk, PowerPoint presentation and animation tools

Module-2	
Advances in Energy Systems (Merits, Demerits, Global Status and Applications): Hydrogen, Solar, OTEC, Tidal and Wind. Natural Resource Management (Concept and case-studies): Disaster Management, Sustainable Mining,case studiesng, and Carbon Trading.	
Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools

Module-3	
Environmental Pollution (Sources, Impacts, Corrective and Preventive measures, Relevant Environmental Acts, Case-studies): Surface and Ground Water Pollution; Noise pollution; Soil Pollution and Air Pollution. **Waste Management & Public Health Aspects**: Bio-medical Wastes; Solid waste; Hazardous wastes; E-wastes; Industrial and Municipal Sludge.	
Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools

Module-4	
Global Environmental Concerns (Concept, policies and case-studies): Ground water depletion/recharging, Climate Change; Acid Rain; Ozone Depletion; Radon and Fluoride problem in drinking water; Resettlement and rehabilitation of people, Environmental Toxicology.	
Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools

Module-5	
Latest Developments in Environmental Pollution Mitigation Tools (Concept and Applications): G.I.S. & Remote Sensing, Environment Impact Assessment, Environmental Management Systems, ISO14001; Environmental Stewardship- NGOs. Field work: Visit to an Environmental Engineering Laboratory or Green Building or Water Treatment Plant or Waste water treatment Plant; ought to be Followed by understanding of process and its brief documentation.	
Teaching-Learning Process	Chalk and talk, power point presentation and animation tools

Course outcome (Course Skill Set)

At the end of the course the student will be able to :

- CO1: Understand the principles of ecology and environmental issues that apply to air, land, and water issues on a global scale,
- CO2: Develop critical thinking and/or observation skills, and apply them to the analysis of a problem or question related to the environment.
- CO3: Demonstrate ecology knowledge of a complex relationship between biotic and a biotic components.
- • CO4: Apply their ecological knowledge to illustrate and graph a problem and describe the realities that managers face when dealing with complex issues.

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50)in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together

Continuous Internal Evaluation:

Three Unit Tests each of **20 Marks (duration 01 hour**)

1. First test at the end of 5th week of the semester
2. Second test at the end of the 10th week of the semester
3. Third test at the end of the 15th week of the semester

Two assignments each of **10 Marks**

4. First assignment at the end of 4th week of the semester
5. Second assignment at the end of 9th week of the semester

Group discussion/Seminar/quiz any one of three suitably planned to attain the COs and POs for **20 Marks (duration 01 hours**)

6. At the end of the 13th week of the semester

The sum of three tests, two assignments, and quiz/seminar/group discussion will be out of 100 marks and will be **scaled down to 50 marks**

(to have less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course).

CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

Semester End Examination:

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 01 hours)**

Question paper pattern:

1. The Question paper will have 50 objective questions.

Semester VI

RENEWABLE ENERGY POWER PLANTS (OPEN ELECTIVE)			
Course Code	21ME652	**CIE Marks**	50
Teaching Hours/Week (L:T:P: S)	3-0-0-0	**SEE Marks**	50
Total Hours of Pedagogy	40	**Total Marks**	100
Credits	03	**Exam Hours**	03

Course objectives:

- To introduce the concepts and principles of solar energy, its radiation, collection, storage and application.
- To understand application aspects of Wind, Biomass, Geothermal, hydroelectric and Ocean energy.
- To examine energy sources and systems, including fossil fuels and nuclear energy, and then focus on other forms of alternate energy sources.

Teaching-Learning Process (General Instructions)

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

1. Adopt different types of teaching methods to develop the outcomes through PowerPoint presentations and Video demonstrations or Simulations.
2. Chalk and Talk method for Problem Solving.
3. Adopt flipped classroom teaching method.
4. Adopt collaborative (Group Learning) learning in the class.
5. Adopt Problem Based Learning (PBL), which fosters students' analytical skills and develops thinking skills such as evaluating, generalizing, and analyzing information.

Module-1

Introduction: Energy sources (including fossil fuels and nuclear energy), India's production and reserves of commercial energy sources, need for nonconventional energy sources, energy alternatives, Indian and global energy scenario.

Solar Radiation & Measurement: Extra-Terrestrial radiation, spectral distribution of extra-terrestrial radiation, solar constant, solar radiation at the earth's surface, beam, diffuse and global radiation, solar radiation data. Pyrometer, shading ring Pyrheliometer, sunshine recorder, schematic diagrams, and principle of working, actinometer and bolometer.

Teaching-Learning Process	1. Power-point Presentation, 2. Video demonstration or Simulations, 3. Chalk and Talk are used for Problem Solving. /White board

Module-2

Solar Radiation Geometry: Flux on a plane surface, latitude, declination angle, surface azimuth angle, hour angle, zenith angle, solar altitude angle, expressions for the angle between the incident beam and the normal to a plane surface (No derivation) local apparent time, apparent motion of sun, day length, numerical problems.

Solar Thermal Systems: Flat plate collector, Evacuated Tubular Collector, Solar air collector, Solar concentrator, Solar distillation, Solar cooker, Thermal energy storage systems, Solar Pond, Solar Chimney (Tower).

Solar Photovoltaic Systems: Introduction, Solar cell Fundamentals, Characteristics and classification, Solar cell: Module, panel and array construction.

Teaching-Learning	1. Power-point Presentation, 2. Video demonstration or Simulations,

Process	3. Chalk and Talk are used for Problem Solving. /White board
Module-3	
Wind Energy: Properties of wind, availability of wind energy in India, wind velocity and power from wind; major problems associated with wind power, wind machines; Types of wind machines and their characteristics, horizontal and vertical axis windmills, elementary design principles; coefficient of performance of a windmill rotor, design aspects, numerical examples. **Energy from Biomass**: Energy plantation, biogas production from organic wastes by anaerobic fermentation, description of bio-gas plants, transportation of biogas, problems associated with bio-gas production, application of biogas, application of biogas in engines, cogeneration plant, advantages & disadvantages.	
Teaching-Learning Process	1. Power-point Presentation, 2. Video demonstration or Simulations, 3. Chalk and Talk are used for Problem Solving. /White board
Module-4	
Hydroelectric plants: Advantages & disadvantages of waterpower, Hydrographs and flow duration curves-numericals, Storage and pondage, General layout of hydel power plants- components such as Penstock, surge tanks, spill way and draft tube and their applications, pumped storage plants, Detailed classification of hydroelectric plants. **Tidal Power:** Tides and waves as energy suppliers and their mechanics, fundamental characteristics of tidal power, harnessing tidal energy, limitations of tidal energy. **Energy from ocean waves**: Wave energy conversion, Wave energy technologies, advantages, and disadvantages.	
Teaching-Learning Process	1. Power-point Presentation, 2. Video demonstration or Simulations, 3. Chalk and Talk are used for Problem Solving. /White board
Module-5	
Ocean Thermal Energy Conversion: Principle of working, Rankine cycle, OTEC power stations in the world, problems associated with OTEC, case studies. **Geothermal energy:** Introduction, Principle of working, types of geothermal stations with schematic diagram Estimates of Geothermal Power, Nature of geothermal fields, Geothermal resources, Hydrothermal, Resources Geo pressured resources, Hot dry rock resources of petro-thermal systems, Magma Resources-Interconnection of geothermal fossil systems, Advantages, and disadvantages of geothermal energy over other energy forms, Geothermal stations in the world	
Teaching-Learning Process	1. Power-point Presentation, 2. Video demonstration or Simulations, 3. Chalk and Talk are used for Problem Solving. /White board

Course outcome (Course Skill Set)

At the end of the course the student will be able to :

- Describe the various forms of non-conventional energy resources.
- Apply the fundamental knowledge of mechanical engineering to design various renewable energy systems
- Analyze the implications of renewable energy forms for selecting an appropriate system for a specific application
- Discuss on the environmental aspects and impact of non-conventional energy resources, in comparison with various conventional energy systems, their prospects and limitations.

I/II Semester

ENGINEERING CHEMISTRY			
Course Code	**21CHE12/22**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	2:2:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	3Hour

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Module-4	
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Teaching Learning process	Chalk and talk/power point presentation - Basic principles of green chemistry Videos: Various green chemical approaches, Self-study material: Atom economy-synthesis of ethylene oxide and methyl methacrylate. Advantages & disadvantages of photovoltaic cell.
Module-5	
Water Chemistry, chemical analysis and Instrumental methods of analysis **Water chemistry:** Introduction, sources and impurities in water, Potable water; meaning and specifications (as per WHO standards), Hardness of water, types, determination of hardness using EDTA titration, numerical problems on hardness of water. Definition of Biological oxygen demand (BOD) and Chemical Oxygen Demand (COD), determination of COD of waste water sample and Numerical problems on COD. **Methods of Chemical Analysis:** **Volumetric Analysis:** Introduction, principles of titrimetric analysis, requirement of titrimetric analysis, primary and secondary standards. Requirement of a primary standard solution, units of standard solutions- Definition of normality, molarity, molality, mole fraction, ppm. **Instrumental methods of analysis:** Introduction, Theory, Instrumentation and applications of Colorimetry, Flame Photometry, Potentiometry, Conductometry (Strong acid with strong base, weak acid with a strong base, mixture of strong acid and a weak acid with a strong base)	
Teaching	Chalk and talk/power point presentation – principles of titrimetric analysis, requirement of titrimetric analysis, Classification of titrimetric analysis, Ostwald's theory of acid-base

Children's Education Society ®
THE OXFORD COLLEGE OF ENGINEERING
DEPARTMENT OF MCA
(Approved by AICTE & Accredited by NAAC, New Delhi & Affiliated to VTU, Belgaum)

Report on "Road Safety &Traffic Awareness Campaign " on

21th July 2023 at Bommanahalli Junction , Bangalore -560068

Traffic Awareness campaign conducted by Dept of MCA, The Oxford College of Engineering in the association of Seva Brigade Foundation , Bangalore .

" It is necessary that everyone should follow traffic rules. All those rebels who don't care to follow the rules are in constant danger. It is our moral duty to follow road safety rules", following words were said by Principal Dr N Kannak on the occasion of Traffic awareness campaign done in The Oxford College of Engineering , Bangalore .

"Traffic Awareness Campaign was organized by Dept. of MCA and Seva Brigade Foundation Bangalore . The Chief Guest of the event Mr. Praveen Pandey , Founder & President - Seva Brigade Foundation Bangalore, Mr. Datttraiya M R and Mr. Venugopal S from Madiwala Traffic Police came on behalf of Madiwala Traffic police Station . Principal Dr N Kannan and Dr. Puja Shashi HOD-MCA welcomed the delegation .

Our students have made aware to people about the fact that every year in our country near about 3 lakh and 50 thousand people lose their life in road accident. Lakhs and lakhs of people become disabled due to recklessness shown while not properly following traffic rules. The main cause for all the pain and loss of life is the fast and furious driving done by the people. We can stop these accidents if we follow the traffic rules properly. The main reason behind spreading traffic rule awareness is to make people realise the loss they have cause of accident they cause, with their ignorance to traffic rule.

The students also gave information about "motor vehicle act and traffic rules" and also said that the best way to keep others and yourself safe is to follow proper traffic rules. Whenever you drive a car follow the traffic rules, it is important to wear helmet while driving a two wheeler , obey the traffic lights to avoid accidents. One should always wear seat belt while driving a car. Avoid rash driving as fast speed is the core reason of accidents. Always carry all the paper of the vehicle.

To improve the traffic of the city, the team of traffic police gave their whatsapp number and helpline number and also said if any one breaks the traffic rules just make a video and send it to them.

Principal Dr. N Kannan said that this interactive session for creating traffic awareness among people was very important as it makes them aware about the importance of their and others life. Students should come forward and follow these traffic rules obediently . Everyone should wear helmets and seatbelts while driving the vehicle . Be aware and also aware others. Foreign country implies traffic rules properly which cause more safety on roads than ours , where having accident on road is story of everyday. Follow the traffic rules it is very important.

The Chief Guest of the event Mr. Praveen Pandey , Founder & President - Seva Brigade Foundation Bangalore, said Be aware and also aware others. Foreign country implies traffic rules properly which cause more safety on roads than ours , where having accident on road is story of everyday. Follow the traffic rules it is very important.

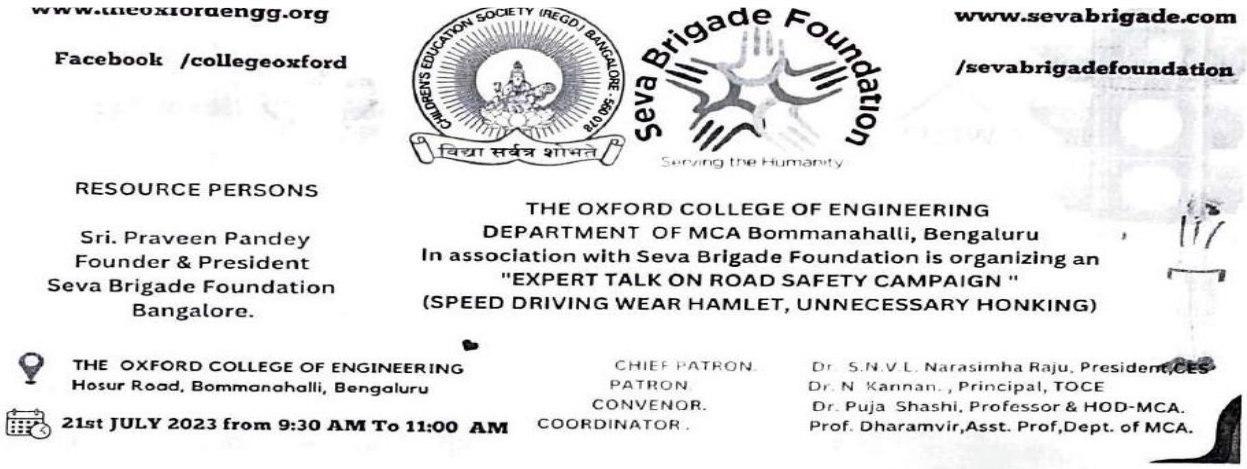


Figure 1: Banner of the Traffic Awareness Event, TOCE

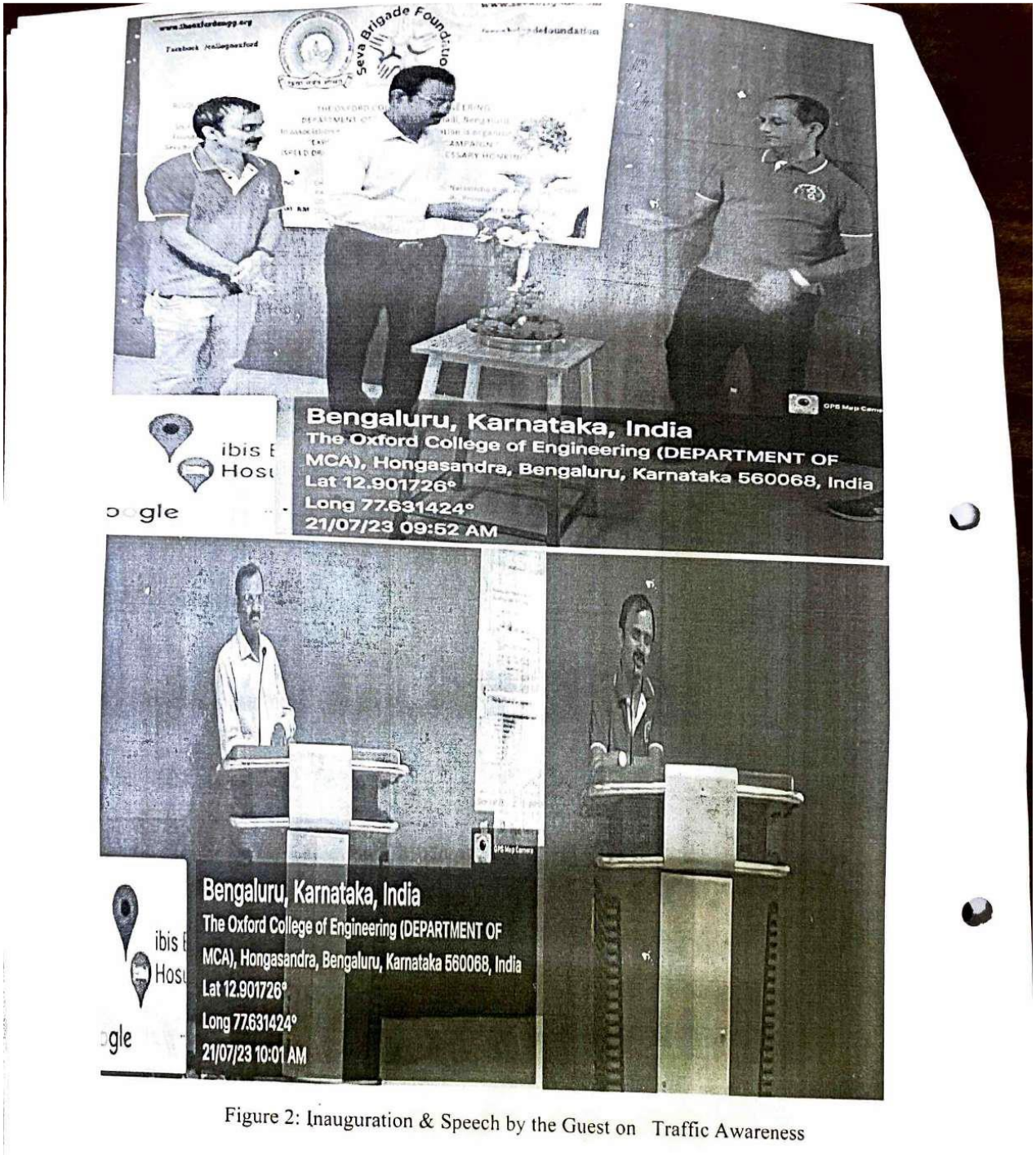


Figure 2: Inauguration & Speech by the Guest on Traffic Awareness

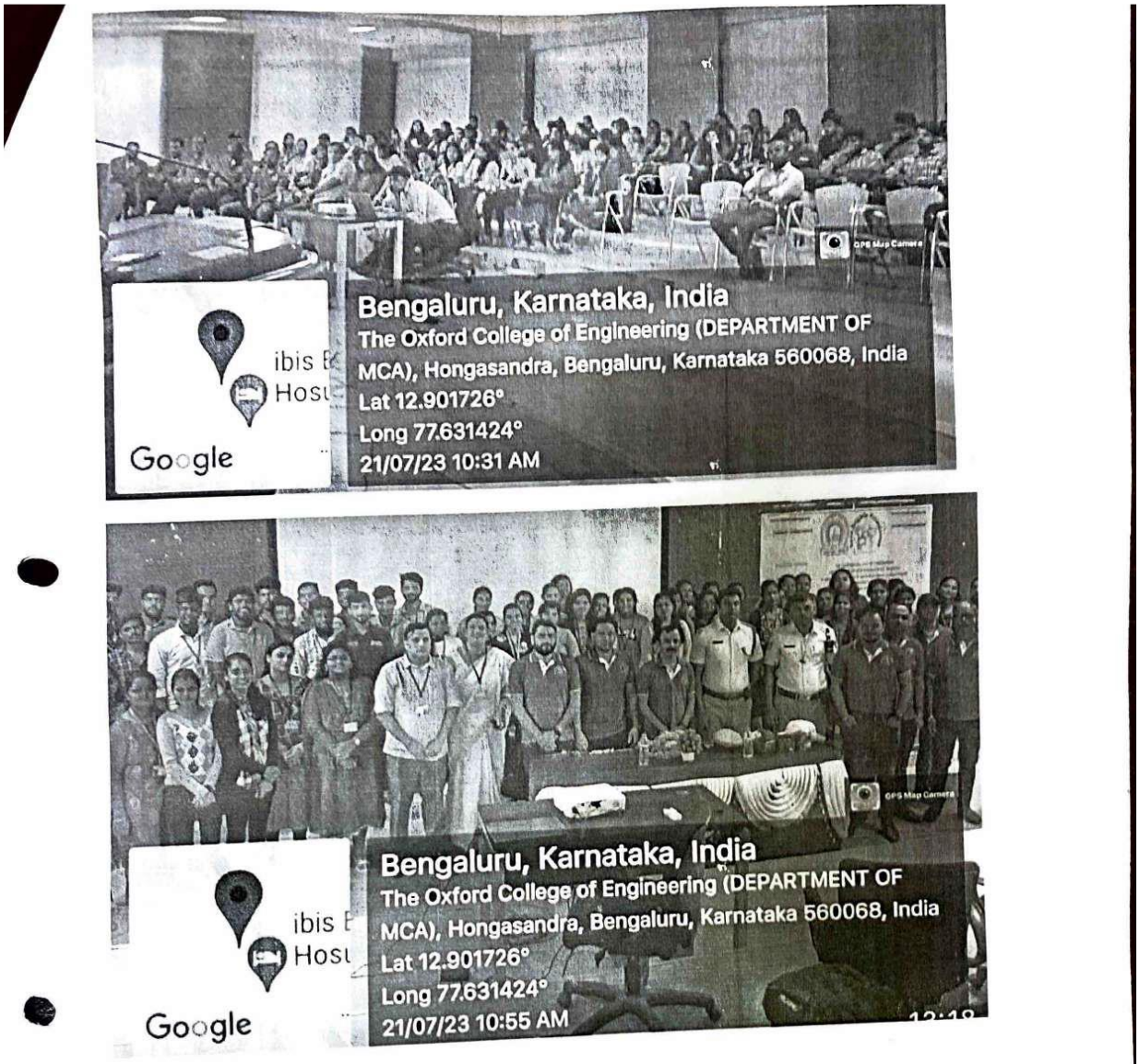


Figure 3: Activity Organizing Committee Group Photo

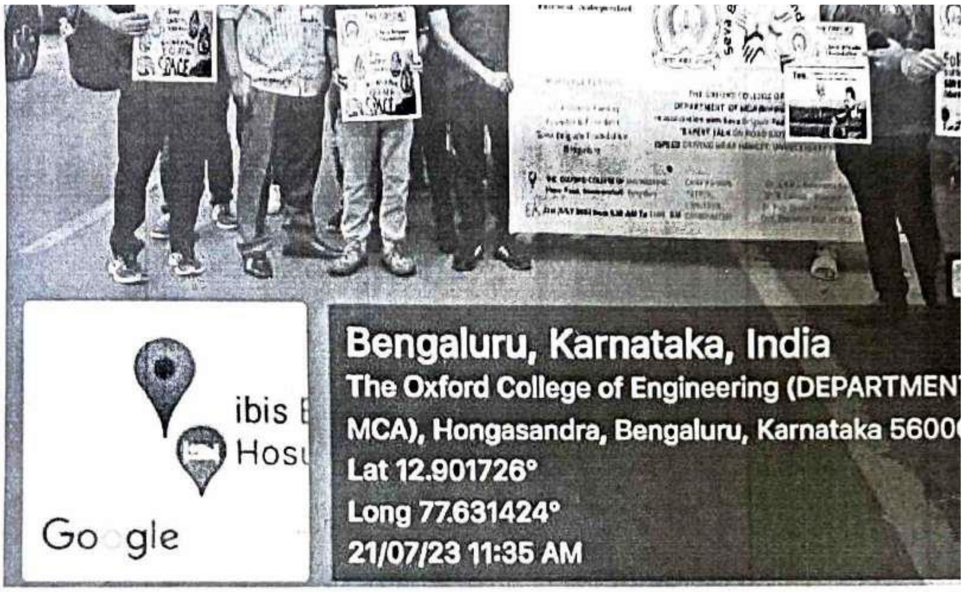


Figure 4: Explanation about necessity of Traffic Awareness

दस्तक प्रभात
हिन्दी दैनिक

संक्षिप्त खबरें

सेवा ब्रिगेड फाउंडेशन ने यतायात जागरूकता अभियान चलाया

DAKSHIN BHARAT RASHTRAMAT HINDI DAILY

दक्षिण भारत राष्ट्रमत

यातायात जागरूकता कार्यक्र में 300 विद्यार्थियों ने लिया भा

दक्षिण भारत राष्ट्रमत
dakshinbharat.com

हुए कहा कि गाड़ी चलाते समय हेलमेट व सीट बेल्ट अवश्य पहनना चाहिए। अनावश्यक रूप से हॉर्न बजाने, शराब पीकर गाड़ी चलाने से बचना चाहिए।

सेवा ब्रिगेड फाउंडेशन ने ऑक्सफोर्ड कॉलेज ऑफ इंजीनियरिंग में यातायात जागरूकता कार्यक्रम का किया आयोजन किया

हिन्द सागर, बेंगलुरु

सेवा ब्रिगेड फाउंडेशन ने ऑक्सफोर्ड कॉलेज ऑफ इंजीनियरिंग के सहयोग से 21 जुलाई 2023 को ऑक्सफोर्ड कॉलेज ऑफ इंजीनियरिंग में यातायात जागरूकता कार्यक्रम का आयोजन किया।

सेवा ब्रिगेड फाउंडेशन के संस्थापक और अध्यक्ष प्रवीण पांडेय द्वारा यातायात जागरूकता और यातायात सुरक्षा पर विशेषज्ञ वार्ता दी गई। जो स्पीड ड्राइविंग, हेलमेट पहनें और सीट बेल्ट अनावश्यक रूप से हॉर्न बजाना, शराब पीकर गाड़ी चलाना जैसी बातों पे केंद्रित था। प्रवीण पांडे ने पावरप्वाइंट प्रेजेंटेशन के माध्यम से सड़क दुर्घटना एवं विभिन्न नियम, यातायात चिन्हों पर प्रस्तुत किया गया साथ मे पिछले 5 वर्षों मे भारत मे सड़क दुर्घटना के विभिन्न ग्राफ प्रस्तुत किए गएइसके बाद यातायात सुरक्षा के बारे में लोगों के बीच जागरूकता फैलाने के लिए जागरूकता बैनर और पोस्टर के साथ बोम्मनहल्ली सिग्नल पर जागरूकता मार्च निकाला गया।हम कार्यक्रम संयोजन के लिए सेवा ब्रिगेड के सदस्य ब्रिजेश राय,कमलेश यादव,धीरज मिश्रा, शरदेंदु, राजीव, राधेश्याम मिश्रा,अतुल ठाकुर,विवेक को धन्यवाद दिया।प्रोफेसर धर्मवीर ने बताया कि जागरूकता सत्र और जागरूकता मार्च में 300 से अधिक विद्यार्थियों ने भाग लियामढीवाला ट्रैफिक के दो ट्रैफिक पुलिस श्री चंद गौड़ा और श्री राहुल डीएस यात्र जागरूकता शिविर के वक्ता थे 3 वास्तविक समय के उदाहरण के साथ छात्र को यातायात सुरक्षा के बारे में शिक्षित कियाहम मदद और समन्वय के लिए डीसीपी बैंगलोर दक्षिण मोहम्मद सुजीथा को धन्यवाद दिया हम संस्थापक एवं अध्यक्ष श्री. एस.एन.वी.एल. नरसिम्हा राजू, प्राचार्य डॉ. एन कन्ननलआयोजन के संयोजक एचओडी एमसीए डॉ. पूजा शशि, कार्यक्रम के समन्वयक प्रो. धर्मवीर ऑक्सफोर्ड इंजीनियरिंग कॉलेज को धन्यवाद दिया।

Figure 5: Traffic Awareness Newspaper coverage

Dr. Puja Shashi
HOD-MCA
Head
Department of MCA
The Oxford College of Engineering
TOCE-Bangalore
Hosur Road, BANGALORE

Dr. N Kannan
Principal
TOCE-Bangalore -68
PRINCIPAL
The Oxford College of Engineering
Bommanahalli, Hosur Road
Bengaluru-560 068

CHILDREN'S EDUCATION SOCIETY (Regd.)
THE OXFORD COLLEGE OF ENGINEERING
(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi.
Accreditated NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))
Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602,Fax:080-25730551
E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

Department of MBA

Name of The Event	CSR Activity- Promoting Education
Date of event	27.7.2023
Venue	Mathrubhoomi, Singasandra
Organized by	MBA Department in Association with NSS UNIT-The Oxford College of Engineering
Purpose	To promote education among the needy children.
No. of Participants	83 Students and 4 Faculty Members from MBA
Convenor	Dr Tharaka Rami Reddy K, HOD, MBA, TOCE
Faculty Coordinators	Dr.M. Kathiravan , Associate Professor Dr. A Sahana, Associate Professor, Dr. V Lakshmi Suneetha, Assistant Professor

The MBA department of The Oxford College of Engineering conducted an outreach program on27th July 2023, with a visit to the Mathrubhoomi, a non-profit organization registered under Karnataka Societies Act 1960. It is a residential Hostel for Boys promoting better education, Better Care and better future for boys. Children in this residential hostel have been handpicked from slum areas, children who have lost a parent and who are from slums, wandering around and not going to school.

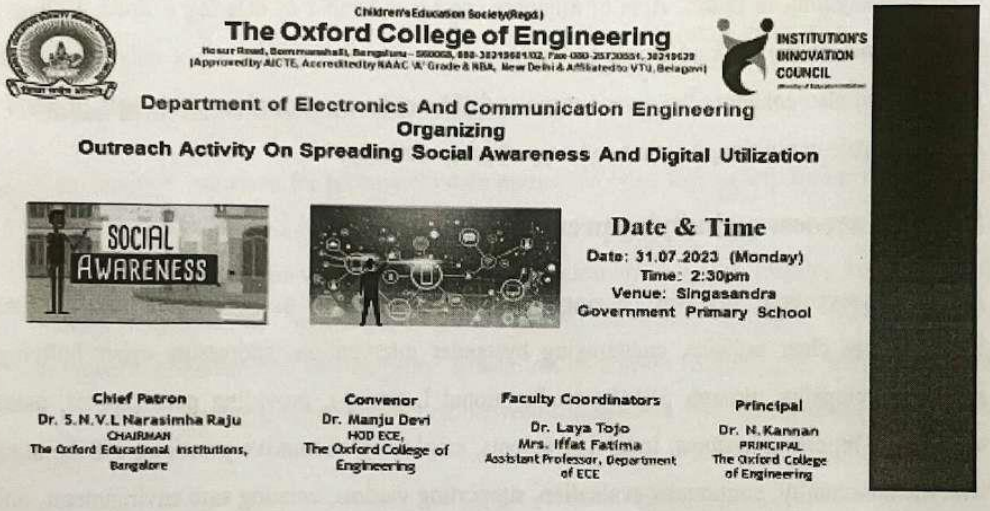
There are 15 children at the residential hostel aged from 4 to 11 years. They reside at the hostel and attend the school at the government school at the main road. Stationary items comprising of ruled books, lead pencils, colour pencils, blue and red pens were purchased and distributed it to 17 children of Mathrubhoomi.

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
THE OXFORD COLLEGE OF ENGINEERING
Hosur Road, Bengaluru-560 068
Website:www.theoxford.edu Email : enghodise@theoxford.edu
(Approved by AICTE, New Delhi, Accredited by NBA, NAAC, New Delhi & Affiliated to VTU, Belgaum)

REPORT

Organizing Outreach Activity on Spreading Social Awareness and Digital Utilization

An Outreach activity on Spreading Social awareness and Digital Utilization was organized by Dept. of ECE, TOCE on 31st July 2023 by 4th semester students and coordinated by Dr. Laya Tojo and Mrs.Iffat Fatima ,Assisstant Professors, Dept. of ECE,TOCE at Higher Primary Govt. school , Singasandra to encourage school students on Social awareness and Digital Utilization.



Awareness to the students were given on following topics :

- Social awareness on respect and kindness

- Social awareness on bullying prevention
- Social awareness on environment
- Social awareness on community engagement
- Awareness about digital utilization

Social awareness on respect and kindness

Respect: Respect is a positive attitude and behavior towards others, recognizing their worth, dignity, and individuality. It involves treating others with courtesy, consideration, and esteem. When we show respect to others, we acknowledge their rights, opinions, and feelings, even if they differ from our own. Respecting others fosters harmonious relationships, promotes empathy, and creates a sense of trust and mutual understanding.

Kindness: Kindness is the act of being friendly, compassionate, and considerate towards others. It involves showing care and concern for people's well-being and being helpful without expecting anything in return. Acts of kindness can be as simple as offering a smile, lending a helping hand, or saying kind words to brighten someone's day. Kindness not only benefits the recipient but also enhances the giver's sense of fulfillment and connection with others. It plays a significant role in building a caring and supportive community.

Social awareness on bullying prevention

Bullying prevention involves raising awareness, fostering a positive school culture, implementing clear policies, encouraging bystander intervention, addressing cyber bullying, promoting empathy through SEL(Social-Emotional Learning), prcviding peer support, using anonymous reporting systems, involving parents, employing restorative practices, collaborating with the community, continuous evaluation, supporting victims, creating safe environments, and emphasizing respect and kindness.

Bullying prevention is a collective effort that requires commitment from schools, parents, communities, and students themselves. By creating a culture of respect, empathy, and kindness, we can build safe and inclusive environments where bullying is less likely to occur. Through

education, clear policies, support systems, and continuous evaluation, we can empower students to be active bystanders, report incidents, and promote positive interactions. Together, we can make a significant impact on reducing bullying and nurturing a generation of compassionate and caring individuals who contribute to a more harmonious society.

Social awareness on environment

Environmental awareness is the conscious recognition of the impact human activities have on the natural world and the understanding of our responsibility to preserve and protect it. It involves educating individuals about environmental issues, such as pollution, deforestation, climate change, and the depletion of natural resources. Environmental awareness aims to inspire a sense of urgency and commitment to adopting sustainable practices that promote ecological balance and reduce our ecological footprint. By raising awareness and promoting environmental consciousness, we can encourage individuals to make informed decisions that contribute to the conservation of biodiversity and the well-being of our planet for future generations.

Social awareness on community engagement

Community engagement for primary children means involving kids in activities that benefit their local community. It encourages children to participate in events and projects that make a positive impact on their neighborhood. It can be as simple as cleaning up a park, planting trees, or helping elderly neighbors. By engaging young children in community activities, they learn about teamwork, responsibility, and empathy. It also instills a sense of belonging and pride in their community, fostering a strong connection between children and their surroundings from a young age.

Awareness about digital utilization

Students involving in this activity are:

Sl.no	USN	Name
1	1OX21EC016	Brinda
2	1OX21EC106	Vinila
3	1OX21EC110	Yashasvi
4	1OX21EC109	Yellamma
5	1OX21EC021	Darshan
6	1OX21EC022	Deepank Reddy
7	1OX21EC029	Gunaanidhi
8	1OX21EC053	Navya
9	1OX21EC102	Vaibhavi
10	1OX21EC089	Shravya
11	1OX21EC107	Vinutha
12	1OX21EC080	Sai Bhaktha Varshini
13	1OX21EC069	Punith Kumar
14	1OX21EC057	Niranjan Reddy
15	1OX21EC056	Niranjan Kumar
16	1OX21EC064	Pranith
17	1OX21EC087	Shashank
18	1OX21EC077	Rohith US
19	1OX21EC059	Nithin
20	1OX21EC060	Nuthan

PHOTO COLLAGE

https://photos.app.goo.gl/8aaNX1Z19EiCugeH6

9/8/2023

Professor & HOD of E&C Engineering
The Oxford College of Engineering
Bommananalli, Bangalore-560 068

Report on "Awareness on Tree Plantation" on 31th July 2023 at Bommanahalli, Bangalore

On 31/07/2023, a group of enthusiastic students from The Oxford College of Engineering participated in a tree plantation initiative organized by the Department of Mechanical engineering. The objective of the activity was to promote environmental awareness, encourage sustainable practices, and contribute to the conservation of the local ecosystem. The tree plantation activity took place in Shantipriya Layout and involved the planting of a variety of native trees and shrubs.The tree plantation activity had a positive impact on both the participants and the local environment. The activity fostered a deeper understanding of the importance of environmental conservation and sustainable practices among the participating students.The tree plantation initiative encouraged community engagement and collaboration, promoting a sense of shared responsibility for the preservation of the local ecosystem. By planting native tree species, the activity contributed to the preservation of local biodiversity and the restoration of natural habitats for various flora and fauna.

HOD –Mechanical Engg

Dr Madhu Sudana Reddy G


GPS Map Camera
Bengaluru, Karnataka, India
1413, Begur Rd, Shanthipriya Layout, Begur, Bengaluru, Karnataka 560068, India
Lat 12.882973°
Long 77.62414°
31/07/23 12:46 PM GMT +05:30
Google


GPS Map Camera
Bengaluru, Karnataka, India
VJMF+4M9, Begur, Bengaluru, Karnataka 560068, India
Lat 12.882758°
Long 77.62426°
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Google


GPS Map Camera
Bengaluru, Karnataka, India
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THE OXFORD COLLEGE OF ENGINEERING

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AZADI KA AMRITKAL- MERI MAATI MERA DESH

Name of The Event	**AZADI KA AMRITKAL- MERI MAATI MERA DESH**
Date	17-08-2023
Venue	The Oxford College of Engineering, Bangalore
Discussed Topic	**MERI MAATI MERA DESH**
Organized by	NSS UNIT, TOCE in association with Indian Youth Red Cross and IIC, TOCE
No. of Participants	200 students and 25 Faculty Members

Banner

"Meri Maati Mera Desh" envisions a unified celebration of India's soil and valour, commemorating the nation's journey of freedom and progress. By connecting with the land and honouring our culture, this program has instilled a sense of national pride and has inspired future generations to protect India's cherished heritage. The said event conducted by the NSS unit of The Oxford College of Engineering in association with Indian Youth Red Cross and IIC, TOCE on 17th August 2023, was attended by 200 students of TOCE and

25faculty members including Dr. N Kannan,Principal.

The event was conducted to emphasize upon the importance of 'Maati' or soil on which we all depend upon for our survival and sustenance. The occasion was celebrated by Pledge-taking ceremony with MUD/MITTI DIYAS

Encourage students to take pledges to serve the nation and contribute positively to society. Singing the Mitti Anthem during assemblies: Reinforce the sense of unity and pride in our nation's identity by singing the Mitti Anthem together.

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Bangalore-560 068

Onam

ONAM CELEBRATION 2023

Onam Celebrations were held on 30th August 2023, 11:00 AM onwards at The Oxford College of Engineering, Old Building Quadrangle. The College Entrance was decorated with Pookkalam (Flora Carpet). The program begun with lighting the lamp by our beloved Chairman followed by respected Principal. Later students performed traditional Thiruvathira dance, traditional Onam song by faculty members,including entertainmentgames.

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Hosur Road, Bommanahalli, Bengaluru-560 068
Website: www.theoxford.edu Email : engprincipal@theoxford.edu
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Name of The Event	**Beti Bachao Beti Padhao**
Month of event	23.09.2023
Venue	Hongasandra
Discussed Topic	Creating awareness among the people about Beti Bachao Beti Padhao
Organized by	MCA- The Oxford College of Engineering
No. of Participants	52
Output	Our Faculties and NSS Student Volunteer have given the awareness process on drug consumption. We have successfully provided the information to have awareness and help people and professionals about the system .How Drugs are not the way to deal with stress. They change the way our brain works. This can lead to depression, anxiety, and other mental illnesses. If people are already having a mental health issue, drugs can worsen the condition. The main objective of this program is to make people Understand that it would affect them and even the people around them .Drug awareness enables children, youth and adults to develop the knowledge, skills, and attitudes to appreciate the benefits of living healthily (which may or may not include the use of psychoactive substances), promote responsibility towards the use of drugs and relate these to their own actions and those of others, .

Our Faculties giving awareness to Participants during the Session

Lists of Participants during the Events

SLNO	USN	NAME
1	1OX21MC002	ABHILASH TRIPATHY
2	1OX21MC006	AKHILESH M
3	1OX21MC009	AMBIKA CHATRA
4	1OX21MC010	ANIL KUMAR MISHRA
5	1OX21MC012	ANKUR KUMAR
6	1OX21MC014	ARSHIYA TARA S
7	1OX21MC017	ASHOK KUMAR
8	1OX21MC020	BABITA KUMARI
9	1OX21MC021	BASAVARAJ
10	1OX21MC025	BUNDELA MEET RAJESHBHAI
11	1OX21MC029	CHETHAN KUMAR N
12	1OX21MC030	DANIYA KOUSER
13	1OX21MC031	DEEPIKA S
14	1OX21MC034	GAYATHRI S
15	1OX21MC035	GOMEDHIKA K
16	1OX21MC036	GOPINATH S
17	1OX21MC037	HARISH M
18	1OX21MC040	IRESH TETARWAL
19	1OX21MC041	KAVYASHREE C L
20	1OX21MC042	KEERTHANA C
21	1OX21MC044	KUNWAR ABHAY PRATAP SINGH
22	1OX21MC045	LEKHANA V
23	1OX21MC047	MADHUSHREE S
24	1OX21MC049	MANOJ B R

25	1OX21MC053	MOHAMMED MAAZ
26	1OX21MC056	MONICA S
27	1OX21MC058	NANDINI N R
28	1OX21MC059	PARESI REVANTHKUMAR REDDY
29	1OX21MC060	PARIKSHITH
30	1OX21MC061	PAVAN KUMAR V
31	1OX21MC063	PAVITHRA D K
32	1OX21MC064	POLAKA SOMASEKHAR REDDY
33	1OX21MC067	PRASHANTHA E
34	1OX21MC069	PRIYA PATEL A
35	1OX21MC073	RAVEENA Y
36	1OX21MC074	REDDY PRAVEEN B
37	1OX21MC075	REKHA H
38	1OX21MC076	REKHA S
39	1OX21MC080	SACHIN A
40	1OX21MC081	SADHU VEERA MOHAN
41	1OX21MC085	SAHANA S
42	1OX21MC086	SAUDAGAR S
43	1OX21MC088	SHARMILA JANSY P
44	1OX21MC089	SHILPA N
45	1OX21MC090	SHINDE SANGRAM ANIL
46	1OX21MC098	SUGUMARAN A
47	1OX21MC101	SURIYA KUMAR K
48	1OX21MC105	THARUN N
49	1OX21MC108	THUSHAN I L
50	1OX21MC109	UDAYENDU PANIGRAHI
51	1OX21MC114	YASHASWINI R
52	1OX21MC117	R GIRIPRASAD REDDY

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Bommanahalli, Hosur Road
Bengaluru-560 068

Children's Education Society ®
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DEPARTMENT OF BIOTECHNOLOGY
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Report on Outreach Programme- Orphanage Visit on 16th of September , 2023.

An outreach program on "**Orphanage Visit**" was organized for the students of the Department of Biotechnology on the 16th of September , 2023 in association with the TOCE NSS unit organization at Pragathi Charitable Trust, Jayanagar.

Life becomes more meaningful when you encounter less privileged people. If life has been fair to you, it makes sense to give back to those who do not have it. No one was created by accident. Everyone deserves to have a life. A visit to an orphanage is a life-changing experience, filled with emotions and sentiments. We, the students of The Oxford College of Engineering, Department of Biotechnology, were lucky to get an opportunity to visit an orphanage named Pragathi Charitable Trust, jointly with NBI.The orphanage is housed in a one-storied building with a terrace. Upon arrival, we were asked to wait on the terrace as another group was engaging with the boys. After about 30 minutes, the boys rushed to the terrace with joy and excitement. There were around 61 children, aged between 6 to 14 years. We brought food, cold drinks, books, chocolates, pens, pencils, etc.We divided ourselves and interacted individually with each child to make them feel comfortable, as they were initially scared to talk. The orphanage housed kids from other states as well, but communication was not an issue as they spoke Kannada. Not all the children were orphans; some had parents who could not raise them due to various circumstances.We sang, danced, played games, and gave the kids an opportunity to showcase their talents. They performed a group dance with excitement, and we joined them in the end, hoping to make them happy.After visiting the orphanage, we started appreciating the little things in life when we saw those who don't have them. The visit was not only about short-term happiness but also about lifelong lessons on not taking things for granted and being grateful for our luxurious lifestyles. Despite many of the children having parents, they were left in that

situation. We have parents, relatives, and a family, but they have no one besides themselves. Happiness for them lies in little things while we often complain about even the good things we get. They have their own happy little world, and we have a lot to learn from them. Such experiences help us appreciate the bigger pict ure and value the significant things in life.

(Dr. K.Valarmathy)
Faculty Coordinator

Head of the department
DR. B.K MANJUNATHA
Professor & Head
Department of Biotechnology
The Oxford College of Engineering
Bengaluru-560 068

THE OXFORD COLLEGE OF ENGINEERING
BENGALURU, INDIA

INSTITUTION'S INNOVATION COUNCIL

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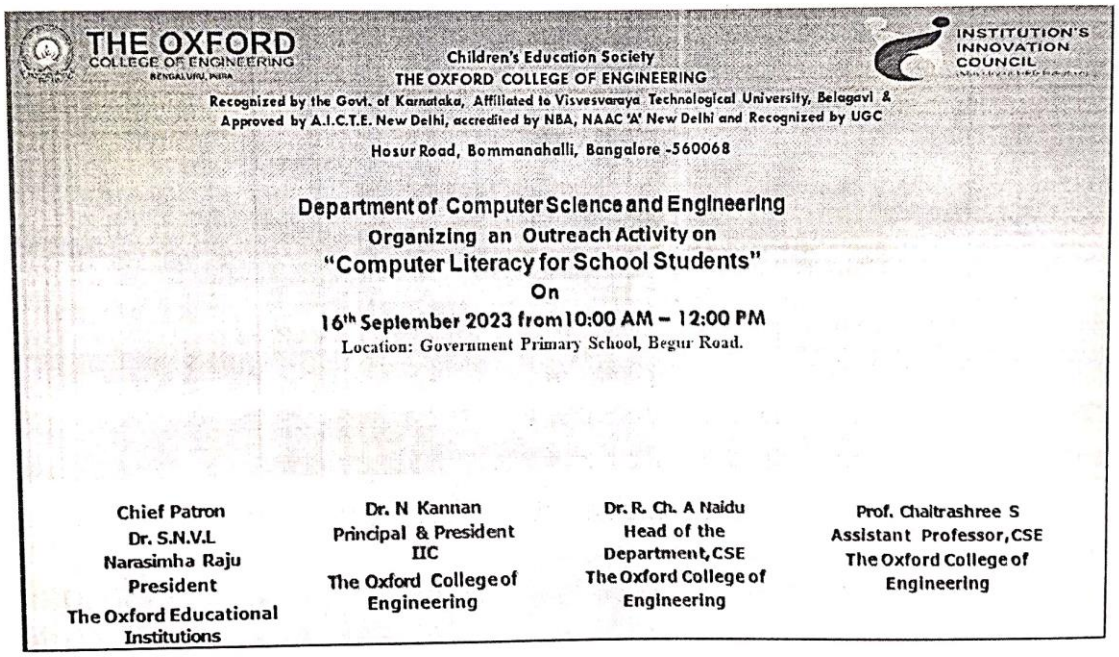
"OUTREACH PROGRAM"




Bengaluru,KA,India
Begur Main Road, Begur, Bengaluru, 560068, KA, India
Lat 12.881588, Long 77.623444
09/16/2023 10:12 AM GMT+05:30
be : Govt Primary School


GPS Map Camera
Bengaluru, Karnataka, India
Government school, Begur, Bengaluru, Karnataka 560078, India
Lat 12.881627°
Long 77.623644°
16/09/23 11:09 AM GMT +05:30
Google

The Oxford college of Engineering, Bangalore- Department of Computer Science and Engineering organized Outreach Activity on **"Computer Literacy for School Students"**on 16thSeptember2023.Regarding to this program, Mrs. Chaitrashree S,who is the Assistant

Professor of CSE Department of TOCE visited Government Primary School, Begur Road,Bengaluru.

Mrs. Chaitrashree S addressed the students of Government Primary School regarding Computer Literacy. She clearly explained about the Basics of Computer.It was an Interactive Session with the students.Our Students explained about hardware and sofware of the computer, and also motivated those students to upcome in the society.Many students got benefitted by the Outreach Program.

OBJECTIVE:

The main objective of the Outreach Program is to offer Organizations innovative ways to improve and to influence large audience to meet the needs of the community. During the Outreach Activity the students were taught about Basics of Computer such as Hardware, Software, Input and Output Devices.

Students were very much interested and it was an interactive session, Our students also motivated them to develop their skills such as

- Communication Skills
- Listening Skills

Students demonstrated their Laptops by showing Hardware and Software Devices and also explained in detail about Input and Output Devices, Prof. Chaitrashree S interacted with the students regarding their queries.

She concluded the session emphasizing on the importance of Computer. The session was very motivating and created positive thoughts among the students.

14 students from CSE and 1 faculty were participated in the Outreach program.

OUTCOMES:

- Build a sense of responsibility and sensibility towards the society.
- Inspire Skill development.
- Deepen students' awareness and understanding about Basics of Computer.

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1st Phase, JP Nagar, Bengaluru – 560 078
✆: 080-61754501 – 502 Fax: 080-2654 8658

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Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24&Diamond Rating by QS I Guage)
Bommanahalli, Hosur Road, Bangalore –560068. ✆: 080 -61754601/602
E-mail: engprincipal@theoxford.edu Web: www.theoxfordengg.org

PARTICIPANTS LIST:

S.NO	NAME	DESIGNATION
1	MRS. CHAITRASHREE S	ASST PROF,CSE

S.NO	USN	NAME OF THE STUDENT
1	1OX21CS002	A S SUDHARANI
2	1OX21CS013	ANARGHYA B
3	1OX21CS018	ANUSHA H G
4	1OX21CS019	ANUSHA R
5	1OX21CS024	ASHWINI SUNKAPUR
6	1OX21CS029	B KIRAN
7	1OX21CS033	CHAITANYA
8	1OX21CS034	CHANDANA NAIK
9	1OX21CS035	CHANDANA L
10	1OX21CS042	DEEPTHI RAO
11	1OX21CS052	MANOJ GOSALA
12	1OX21CS057	HEMANTH GOWDA
13	1OX21CS065	KAVYA
14	1OX21CS105	RAHUL

FACULTY CO-ORDINATOR

17/07/23
HOD
HEAD OF THE DEPARTMENT
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
THE OXFORD COLLEGE OF ENGINEERING
BENGALURU - 560 068

19/07/23
PRINCIPAL
PRINCIPAL
The Oxford College of Engineering
Bommanahalli, Hosur Road
Bengaluru-560 068

Report on Ganesha Chaturthi Celebrations

The Ganesh Chaturthi celebration at MCA department on 18th September 2023 was a beautiful expression of devotion, culture, and unity. It allowed students and staff to come together, celebrate, and seek the blessings of Lord Ganesha . The celebration began with a ceremonial pooja that was initiated by our respected Dr.Dharamvir sir the Head of the department. This marked the commencement of a spiritually significant day. The puja was conducted with traditional rituals, including the lighting of the lamp, Vedic chants, and offerings to Lord Ganesha's idol. After the Program a communal meal was organized for all students and staff members. This meal provided an opportunity for everyone to bond, share stories, and strengthen the sense of belonging within the university community.

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Report on "Awareness of Old Age Care" on 25th September 2023 at Bommanahalli, Bangalore

On 25/09/2023, a group of 35 students from The Oxford College of Engineering had the opportunity to visit Prashantha Charitable Trust as part of the community service program organized by the Department of Mechanical engineering. The visit aimed to provide students with a deeper understanding of the challenges faced by the elderly and to foster a sense of empathy and social responsibility within the student community. Students engaged in heartfelt conversations with the elderly residents, actively listening to their life stories, experiences, and insights, thereby fostering mutual understanding and respect. Students and residents exchanged knowledge and experiences on diverse topics, facilitating an intergenerational exchange of ideas, perspectives, and wisdom. Interacting with the elderly residents instilled in the students a deeper sense of empathy and compassion, fostering a greater understanding of the importance of respecting and cherishing the elderly within society. The visit reinforced the students' commitment to social responsibility and community engagement, emphasizing the significance of active participation in initiatives that promote the well-being of marginalized communities.

HOD –Mechanical Engg
Dr Madhu Sudana Reddy G


PRASHANTHA CHARITABLE TRUST (R)
PRASHANTHA OLD AGE HOME
Bengaluru, KA, India
Begur Main Road, Hongasandra,
Bengaluru, 560068, KA, India
Lat 12.888801, Long 77.625752
09/25/2023 12:45 PM
GMT+05:30
Note : Captured by GPS Map Camera


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09/25/2023 12:51 PM
GMT+05:30
Note : Captured by GPS Map Camera


GPS Map Camera
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Bengaluru, 560068, KA, India
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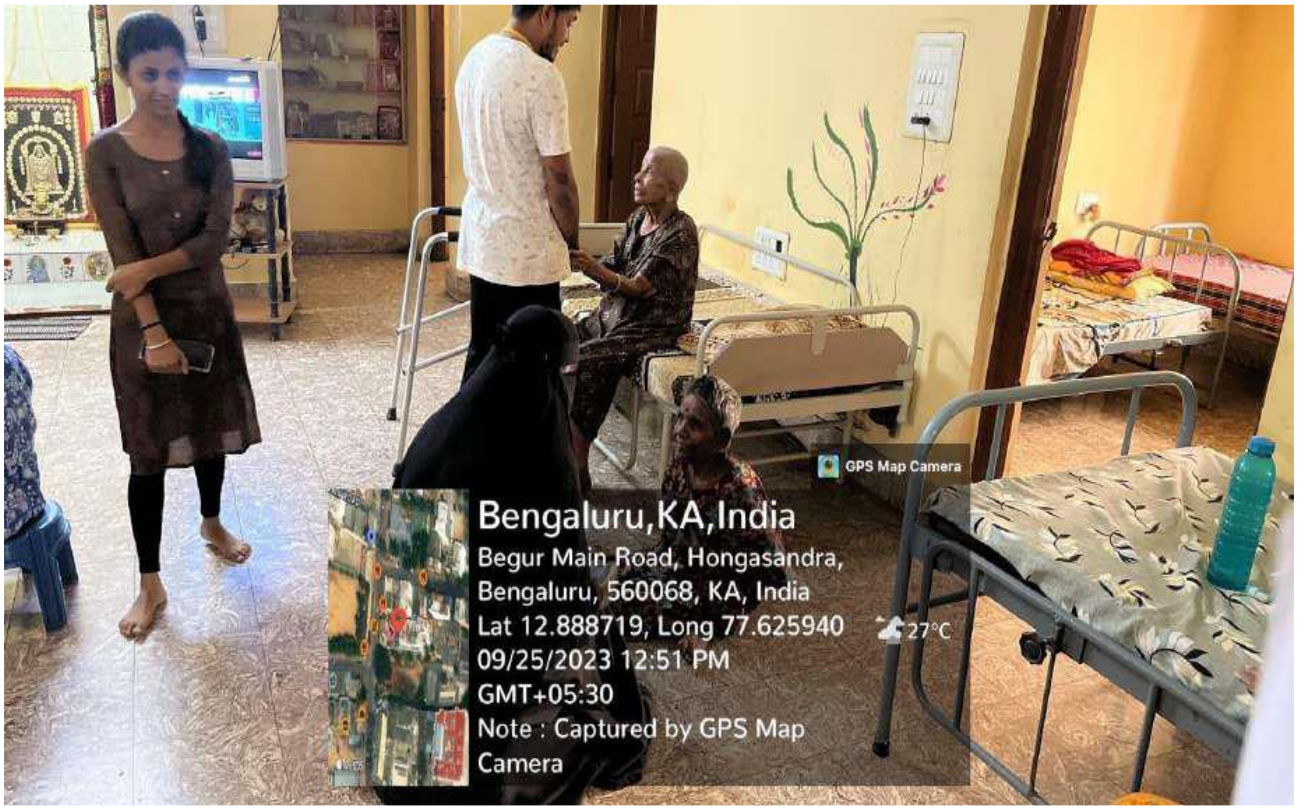
Camera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Note : Captured by GPS Map
Camera

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E-mail: engprincipal@theoxford.edu Web: www.theoxfordengg.org

Reports On Dussehra Celebrations

The Oxford College of Engineering celebrated Dussehra festival on 15th October 2023. The students and staff of all department participated in the festival. Colorful rangolis were drawn to decorate the premises. As per the tradition of "Ayudh Puja", the computer systems and textbooks were worshiped along with Lord Ganesh, Lakshmi and Saraswathi. The pooja started with a devotional song by Staff. Among the participants was the College Principal Dr. Kannan . Then, staff, students along with principal headed towards all the Lab . Later sweets were distributed.

Photographs&Brief reporton Celebration of Event under linguistic

Reports on Kannada Rajyotsava Celebrations –Nov 2023

The Rajyotsava Day is the state festival of Karnataka and is observed on November 1st every year. Today marks the 65th year since this beautiful land emerged as one state for all Kannada-speaking people. On November 1, 1956, several regions merged to form the state, which was originally called Mysore. Kannada Day has been celebrated on November 1 every year since 1956 to commemorate the formation of the state. The state was renamed Karnataka on November 1, 1973. The day is celebrated to commemorate the birthday of Karnataka as the state was formed on this day. The Rajyotsava day is celebrated with great joy and vigor all over the state of Karnataka. The state government asserts Rajyotsava awards on this day, which are awarded to people responsible for great contributions in the development of Karnataka. The Oxford College of Engineering, organized the Kannada Rajyotsava celebration event on 17th November 2023. The Event commenced with Flag hoisting by Principal, and the Cultural activities like dances from students and Kannada songs from staff members which were entertained the crowd. At the end sweets distributedtoall.

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Organizing Outreach Activity on

Teaching the Visually Impaired Citizens to Travel by Metro Rail

Date: 9th December, 2023

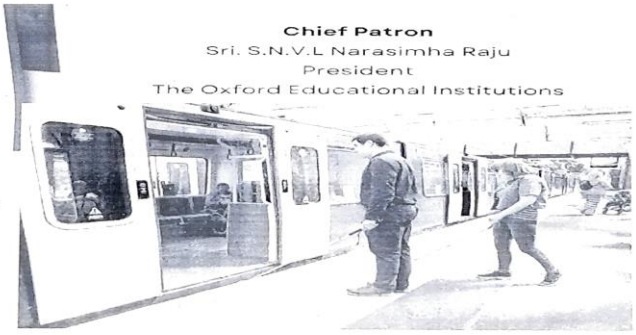
Venue: Lalbagh Metro Station to MG Road Metro Station

Dr. N Kannan
Principal, TOCE

Dr. Manju Devi
HOD-ECE, TOCE

Faculty Coordinator
Dr.B.Srilatha
Associate Professor, ECE, TOCE

Chief Patron
Sri. S.N.V.L Narasimha Raju
President
The Oxford Educational Institutions



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Organizing Outreach Activity on

Teaching the Visually Impaired Citizens to Travel by Metro Rail

Date: 9th December, 2023
Venue: Lalbagh Metro Station to MG Road Metro Station
Time: 1:00pm – 6:00pm

The outreach activity "**Teaching the Visually Impaired Citizens to Travel by Metro Rail**" was conducted by the students of 3rd semester 'A' section, ECE of The Oxford College of Engineering, in association with EnAble India, Koramangala, Bangalore.

The objective of the outreach activity was to teach the basic skills that are required to travel by metro rail around Bangalore, to the visually impaired. The students and student coordinator reached MG Road Metro Station by 2:30 pm. We were welcomed by the trainer of the organization, who gave us a brief introduction of the activity planned for the day and then introduced us to the visually impaired candidates. Students acquainted themselves with their respective candidates.

We then started by teaching them the various ways to buy a train ticket, then the process of entry into the train, the interchange at Majestic Station, the process of exiting the station, and all the safety and accessibility features available throughout the journey. We deboarded at Lalbagh Station and captured some pictures.

We then proceeded into the Lalbagh Botanical Garden. This was the second phase of our activity, where we shared information about this beautiful garden in our city to the candidates who were from across various parts of India. We helped them get familiarized with the various terrains present at the garden and also helped them "feel" their surroundings by orally describing each and every feature to them. This was a peak bonding moment for all the volunteers where we could understand their perspective of living.
We then bought some refreshments for the candidates and bid our goodbyes.

Convener	**Faculty Coordinator**	**Student Coordinator**
Dr. Manju Devi	Dr.B.Srilatha	Narein Anil Kumar
HOD-ECE	Associate Professor, ECE	(1GX22EC056)

List of Volunteers:

Sl. no	USN	Name
1	1OX22EC001	Arathi A
2	1OX22EC002	Abdur Rasheed Mujawar
3	1OX22EC007	Akshitha T
4	1OX22EC009	Amrutha H R
5	1OX22EC013	Bhumika Y H
6	1OX22EC015	Chandana M L
7	1OX22EC016	Chitesh S
8	1OX22EC022	Divya K
9	1OX22EC023	Dnyaneshwar Satish Patil
10	1OX22EC024	Ganavi K
11	1OX22EC033	Jyothi H U
12	1OX22EC036	Kavya D N
13	1OX22EC037	Keerthana S
14	1OX22EC040	Lalitha P
15	1OX22EC043	Madhu Shreedhar Ksheerasagar
16	1OX22EC044	Madhumitha B
17	1OX22EC045	Maithra K
18	1OX22EC048	Melisha K Sunny
19	1OX22EC054	Muskan Pandey
20	1OX22EC056	Narein Anil Kumar
21	1OX22EC061	Pamidi Arshiya Khanam

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E-mail: engprincipal@theoxford.edu Web: www.theoxfordengg.org

Faculty Co ordinator

HOD
Professor & HOD of E&C Engineering
The Oxford College of Engineering
Bommanahalli, Bangalore-560 068

DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING
THE OXFORD COLLEGE OF ENGINEERING
Hosur Road, Bommanahalli, Bengaluru-560 068
Website:www.theoxford.edu
Email : engprincipal@theoxford.edu
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This is to inform, the "Department of Information Science & Engineering" is organizing an outreach program on "ORPHANAGE HOME VISIT" on 09/12/2023 at Singasandra, Bangalore.

DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING

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Report on "An Orphanage Home Visit"

On 09th December 2023, the students of The Oxford College of Engineering, Department of Information Science and Engineering organized an event to visit an orphanage home. To understand the problems of orphan kids and how they are provided with primary requirements.

This was an eye opener visit where 06 volunteers from ISE 2nd Year visited an Orphanage Home in Singasandra, Bangalore. **Pragathi Charitable Trust** is located at two different places across Bengaluru one at Singasandra and other at JP Nagar.

Orphanage is home for 25 Children, between 8 to 13 years of age. We reached the Orphanage at around 01:45 PM. The children of Pragathi Charitable Trust were very pleasantly excited to receive the members. The students greeted us with great enthusiasm. We also met the caretaker. While interacting with the caretaker, we came across the way they care about the children. After that we the student volunteers distributed the snacks to the children. We interacted with the children. We also engaged them with various games and fun activities. All the children looked so excited and joyful.

Our team spent an about one and half hour with the children before saying good bye to them. It was indeed very satisfying experience for students, as they could bring smiles on children faces. They realized that one contribute and understand his/her social responsibilities towards society.

PRINCIPAL
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Bommanahalli, Hosur Road
Bangalore-560 068

CHRISTMAS

The Department of MCA celebrated Christmas in the MBA hall 7th floor on 20th December 2023 at 2.00 pm. Principal, HODs , Faculties and students were present in large numbers to celebrate the birth of Lord Jesus Christ. A specially ordered Christmas cake sweetened the already festive atmosphere. The prayer song and bible reading began by faculties. The Principal Dr.N.Kannan explained the spiritual meaning of Christmas to the students and pointed out the relevance of the teachings of Jesus Christ, in which Love, Joy, Forgiveness and Peace are core values to be practiced for world peace and harmony. There was great joy among the students and their teachers when the department choir sang the traditional Christmas carols with devotion and gusto. Our MCA students Plays the skit of Jesus Christ birth. And few words given by Santa Claus, after that gift exchange is done. Finally we distributed Christmas cake to everyone.

Reports On Makarshankranti Celebration

The harvest always brings hope, joy and a celebratory spirit. To mark this spirit of celebration, Makar Sankranti was celebrated at college. The event was conducted on 12th January 2024 .The event was entitled *Sankranti Suggi* which means "the day of harvest" in Kannada. Makara Sankranti is a festival celebrated all over India with several names like Lohri, Bihu, Pongal, Suggi etc. In many states of India, the festival is celebrated by flying kites and sharing delicacies made out of sesame seeds. The students of TOCE also followed the same custom to celebrate this festival. The event was coordinated by Dr.Valarmathy BioTechnology along with the student coordinator. The day's events included a kite-making competition, Rangoli, a chart making competition and cheerful kite-flying activity. Prasadam were distributed to the students and Faculties present in the celebration and the event was cherished by one and all.

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"OUTREACH PROGRAM"

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Department of Computer Science and Engineering
Organizing an Outreach Activity on
"Awareness about energy conservation and renewable energy"
On
20th January 2024 from 3:15PM – 6:15 PM
Location: Hegganadra, Bangalore.

Chief Patron			
Dr. S.N.V.L Narasimha Raju President The Oxford Educational Institutions	Dr. N Kannan Principal & President IIC The Oxford College of Engineering	Dr. R. Ch. A Naidu Head of the Department, CSE The Oxford College of Engineering	Prof. Chaitrashree S Assistant Professor, CSE The Oxford College of Engineering


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Karnataka 560068, India
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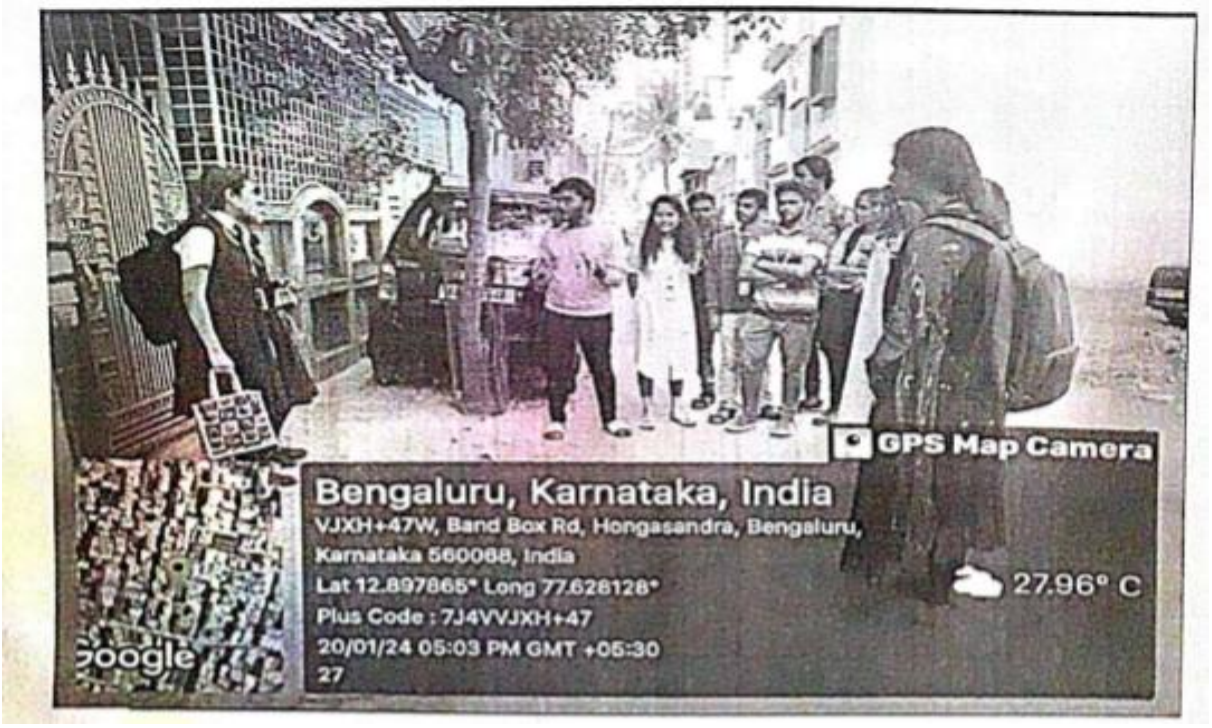
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"OUTREACH PROGRAM"


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Bengaluru, Karnataka 560078, India
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Google


GPS Map Camera
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Long 77.592322°
24/02/24 08:36 AM GMT +05:30
Google

The Oxford college of Engineering, Bangalore- Department of Computer Science and Engineering organized Outreach Activity on**"Awareness to Reduce Plastics and Save Green "**on 24thFebruary2024.Regarding to this program, Mrs. Chaitrashree S,who is the Assistant Professor of CSE Department of TOCE visited Doresannipalya Forest,JP Nagar,Bengaluru.

Mrs. Chaitrashree Shas taken part in the Walk and Plog which was held in Doresannipalya Forest in picking up of plastic waste around the forest.Our Students also participated in picking up of plastics and has collected upto 30kg of plastics from the forest area .Many Animals which walk around there got benefitted by the Outreach Program as we made some part of forest area plastic free such that we could avoid animals eating those plastics.

OBJECTIVE:

The Walk and Plog outreach program in Dorresannipalya Forest aims to achieve several key objectives. Firstly, it seeks to promote environmental awareness and stewardship among local communities by engaging them in the dual activities of walking and plogging (picking up litter while jogging). Secondly, the program aims to address the issue of litter and waste management within the forest area, thereby contributing to its conservation and enhancing its aesthetic value. Additionally, by involving residents in the cleanup efforts, the program encourages community participation and fosters a sense of ownership over the forest's well-being.

Lastly, the Walk and Plog outreach program serves as a platform for education and advocacy on sustainable practices, promoting a culture of environmental sustainability that extends beyond the duration of the program itself.

Students participated in picking up of plastic waste from the forest area ,our students have collected 30kg of plastic waste, it cultivates a sense of environmental responsibility and stewardship among the younger generation, instilling values of conservation and sustainability from an early age.

Prof. Chaitrashree Salso taken part in the Walk and Plog along with the students.

She concluded the session emphasizing on the effects of Non Biodegradable waste present in the forest area. The session was very motivating and created positive thoughts among the people.

18 students from CSE and 1 faculty were participated in the Outreach program.

OUTCOMES:

- Increased Public Awareness
- Community Engagement
- Environmental Stewardship
- Lifelong Learning

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"OUTREACH PROGRAM"


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Plus Code : 7J4VWJ2J+CG
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Plus Code : 7J4VWJ2J+CG
02/03/24 01:18 PM GMT +05:30
54
28.07° C
Google

The Oxford college of Engineering, Bangalore- Department of Computer Science and Engineering organised outreach activity on "Awareness about proper maintain of menstrual hygiene" on 2ndMarch 2024.Regarding to this program, Mrs. Chaitrashree S,who is the Assistant Professor of CSE Department of TOCE visited Vaddarapalya,Begur,Bengaluru.

Mrs. Chaitrashree S has taken part in the activityby giving simple explanation for biological and hormonal processes which most are unaware of due to lack of accurate information. She guided the women's to follow hygiene practices during menstruation to stay safe and healthy.

OBJECTIVE:

The "Awareness about proper maintain of menstrual hygiene" outreach program aims to achieve several key objectives like:

>Prevention of Infections: Proper menstrual hygiene practices aim to prevent infections such as urinary tract infections (UTIs), vaginal infections, and reproductive tract infections. Regular changing of menstrual hygiene products and maintaining cleanliness of genital areas help in reducing the risk of infections.

>Promotion of Reproductive Health: Good menstrual hygiene contributes to overall reproductive health. By using clean and appropriate menstrual products, women can avoid complications that may arise from unhygienic practices, such as pelvic inflammatory disease and cervical infections.

>Reduction of Health Risks: Improper menstrual hygiene can lead to various health risks, including skin irritation, rashes, and foul odors. Maintaining good menstrual hygiene reduces these risks and ensures comfort and confidence during menstruation.

>Enhancement of Confidence and Dignity: Adequate menstrual hygiene practices help in maintaining dignity and confidence among women and girls. Access to clean menstrual products and facilities for proper disposal of used products are essential for ensuring that menstruation does not hinder daily activities or lead to embarrassment.

>Prevention of Social Stigma: In many societies, menstruation is still surrounded by stigma and taboos. Proper menstrual hygiene education and practices can help dispel myths and misconceptions about menstruation, thereby reducing social stigma and discrimination against menstruating individuals.

Students gave simple explanation of how to remain hygiene during periods like using sanitary pads instead of cloth, changing it regularly. Also they explained about the causes of not remaining hygiene to the women's.

Prof. Chaitrashree S also taken part in the activity along with the students.

She concluded the session by providing gift pack containing sanitary pads to all the women's who was involved in the session.

20 students from CSE and 1 faculty were participated in the Outreach program.

OUTCOMES:

- Reduced Risk of Infections
- Empowerment
- Increased Access to Products
- Gender Equality

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Website: http://www.theoxford.edu/engineering/
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"OUTREACH PROGRAM"

The Oxford college of Engineering, Bangalore- Department of Computer Science and Engineering organised outreach activity on "Visiting Old Age Home" on 15th March 2024. Regarding to this program, Mrs. Chaitrashree S,who is the Assistant Professor of CSE Department of TOCE visited Prashanth Charitable Trust.

Mrs. Chaitrashree S has taken part in the activity by giving simple explanation about how should we care for the elderly.

OBJECTIVE:

The "Visiting Old Age Home" outreach program aims to achieve several key objectives like:

1. **Provide companionship and social interaction:** Many elderly individuals in old age homes may experience feelings of loneliness or isolation due to being away from their families or having limited social connections. Visiting them offers companionship and an opportunity for social interaction, which can significantly improve their mood and mental well-being.
2. **Offer emotional support:** Elderly residents may appreciate having someone to talk to and share their thoughts, experiences, and concerns with. Visitors can offer emotional support by lending a compassionate ear, showing empathy, and providing reassurance.
3. **Promote intergenerational bonding:** Visits from individuals of different age groups, especially children and young adults, can foster intergenerational relationships and mutual understanding. Such interactions provide valuable learning experiences for both the elderly residents and the visitors.
4. **Share knowledge and skills:** Visitors can engage in activities such as storytelling, playing games, or teaching new skills, which can stimulate cognitive function and keep the residents mentally active. Sharing knowledge and skills also helps bridge the generation gap and fosters a sense of connection and mutual respect.
5. **Celebrate special occasions:** Visiting old age homes on holidays, birthdays, or other special occasions allows residents to feel included in the festivities and adds joy to their lives. Bringing gifts, cards, or organizing small parties can make these occasions memorable and meaningful for the residents.
6. **Raise awareness and advocate for elderly rights:** Visits to old age homes provide an opportunity to observe firsthand the living conditions and challenges faced by elderly individuals. This experience can raise awareness about issues such as elder abuse, neglect, and

the importance of ensuring dignity and quality care for the elderly. Visitors can become advocates for elderly rights and support initiatives aimed at improving the welfare of seniors.

Overall, visiting an old age home can be a fulfilling and rewarding experience, benefiting both the residents and the visitors. It allows for meaningful connections, promotes empathy and understanding, and contributes to the well-being of elderly individuals in our communities.

Prof. Chaitrashree S also taken part in the activity along with the students. She concluded the session by providing Groceries, Fruits, Vegetables and Snacks for old people.

24 students from CSE and 1 faculty were participated in the Outreach program.

OUTCOMES:

- **Enhanced social interaction**
- **Educational opportunities**
- **Increased awareness and advocacy**
- **Boost in morale and mood**


PRASHANTHA CHARITABLE TRUST (R)
PRASHANTHA OLD AGE HOME
GPS Map Camera
Bengaluru, Karnataka, India
Prashanth OLD AGE HOME ,782, Begur - Hulimavu Rd, NEAR DLF, Classic Paradise Layout, Akshayanagar, Bengaluru, Karnataka 68, India
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DEPARTMENT OF SCIENCE AND HUMANITIES

In association with IIC organized an outreach activity on

Awareness on Water Conservation on 23.03.2024

Department of Science & Humanities In

Association with IIC Organizing

Water Conservation Outreach Programme

Date & Time
Date: 23.03.2024
(Saturday)
Time:3:00pm
Venue: VidyaRanya Trust
(1st block,koramangala)

Faculty Coordinator	Convenor	IIC Co-ordinator	Principal	Chief Patron
Prof. Moumita C	Dr. Gangavathi P	Dr.Manjula C	Dr. N.Kannan	Dr. S.N.V.L Narasimha Raju
Assistant Professor	HOD Science & Humanities	HOD Mechatronics	PRINCIPAL	CHAIRMAN
The Oxford College of Engineering	The Oxford College of Engineering	The Oxford College of Engineering	The Oxford College of Engineering	The Oxford Educational Institutions, Bangalore

Vidya Rranya Trust is an NGO, a non-profit organisation with a mission to provide children, holistic engagement, livelihood and empowerment to enable equitable growth in the society and ensure dignified a well as healthier lives for them.

We all had an objective of educating the children and bring a smile on their face. There was interactive session in which the children introduced themselves. We had a great time with all of them. We donated necessary groceries.

OBJECTIVE:

This outreach program of " Water Conservation" aims to achieve several key objectives like:

1. **Provide companionship and social interaction:**
Children growing in NGO may experience the feelings of loneliness or isolation duo to limited interaction with society. Interacting with them through such activities will build harmony between them.

2. **Educating about water importance:**
Now-a-days we know that there is water crisis everywhere. Its necessary to bring awareness about importance of water among children as well as elders.

3. **Interactive activities:**
As children love watching cartoons and playing games. They are one of the ways to convey our message on water. Depicting through animated videos and songs, involving them in quiz give them more information about importance of water.

4. **Celebrate special occasions:**
Visiting such NGO's during holidays or special occasions bring joy to them. Offering small gifts, cards and organizing eco-friendly parties would make the day memorable.

Prof. Moumita Chatterjee and Prof. Selastina Mary took part in the activity with students to interact with children. We conluded the program by providing Groceries and Fruits.
8 students and 2 faculties have participated in the outreach program.

OUTCOMES:

- **Advanced harmony among students**
- **Increased awareness on importance of water**
- **Enhanced moral values**

PO's	PO 9	PO 10	PO 12
Water Conservation	M	M	M

Members involved in this group activity are:

SL.NO	NAMES	DESIGNATION
1	MOUMITA CHATTERJEE	ASST. PROF, S&H
2	SELASTINA MARY	ASST. PROF, S&H

SL.NO	USN	NAMES
1	1OX23EC082	PRERANA D K
2	1OX23EC061	KUSHALYA M Y
3	1OX23EC097	SANNIDHI M
4	1OX23EC104	SHRUSTI S
5	1OX23EC083	PRITHVI RAJ
6	1OX23EC110	THARUN P
7	1OX23EC093	SACHIN Y R
8	1OX23EC102	SHIEKH MOHAMMAD AYAAN

Faculty Coordinator HOD PRINCIPAL

PRINCIPAL
The Oxford College of Engineering
Bommanahalli, Hosur Road

A REPORT ON

'NSS- WORK SHOP

on

PRODUCT IDENTIFICATION IN MSME SECTORS AND MSME SCHEMES APPLICATION

Under

UNNAT BHARATH ABHIYAAN

Organised by

TOCE - NSS UNIT

Bangalore

In association with

Department of Master of Business Administration

On

1st April 2024

Report on Seminar "Product Identification in MSME Sectors and MSME Schemes Application"- April 01, 2024.

Title: Product Identification in MSME Sectors and MSME Schemes Application

Resource Person: Shri R. Gopinath Rao, IEDS, Deputy Director, MSME DFO, Govt of India

Date: 01/04/2024

Venue: Seminar Hall, 6th floor, Department of MBA, The Oxford College of Engineering

Audience: MBA and MCA Students

Total no. of participants: 204

The seminar, led by Shri R. Gopinath Rao, aimed to elucidate product identification strategies within the Micro, Small, and Medium Enterprises (MSME) sectors and provide guidance on the application of various MSME schemes. This report encapsulates the seminar's key points, emphasizing the significance of product identification, the utilization of MSME schemes, and Udyam registration for MBA and MCA students.

Key Learnings:

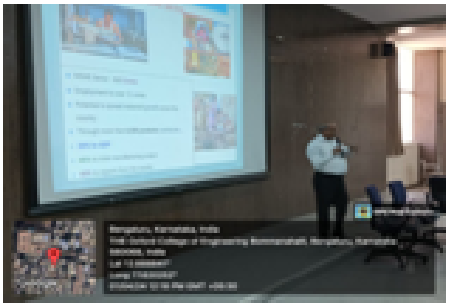
1. Understanding Product Identification:

- Definition and need for Entrepreneurship.
- Importance of product identification in MSMEs.

- Factors influencing product identification, including market demand, competition analysis, and technological advancements.
- Strategies for effective product identification, such as market research, SWOT analysis, and innovation.

2. Overview of MSME Schemes:

- Introduction to various government schemes supporting MSMEs, encompassing financial assistance, technology upgradation, marketing support, and skill development.
- Eligibility criteria and application procedures for MSME schemes.
- Examples of successful MSME scheme implementations by entrepreneurs.



3. Application of MSME Schemes:

- Guidance on selecting suitable schemes based on business requirements and objectives.
- Step-by-step process for applying to MSME schemes, including documentation and compliance requirements.
- Tips for maximizing the benefits of MSME schemes and addressing common challenges.

Conclusion:

The seminar provided invaluable insights into product identification strategies and the application of MSME schemes, tailored to the needs of MBA and MCA students. It underscored the importance of proactive product identification and leveraging government support to foster entrepreneurship and business growth in the MSME sector.

CHILDREN'S EDUCATION SOCIETY (Regd.)
Administrative Office:
1st Phase, JP Nagar, Bengaluru – 560 078
✆: 080-61754501 – 502 Fax: 080-2654 8658

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Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24&Diamond Rating by QS I Guage)
Bommanahalli, Hosur Road, Bangalore –560068. ✆: 080 -61754601/602
E-mail: engprincipal@theoxford.edu Web: www.theoxfordengg.org

A REPORT ON

'NSS- WORK SHOP

on

ENTREPRENEURSHIP AWARENESS PROGRAM

Under

UNNAT BHARATH ABHIYAAN

Organised by

TOCE - NSS UNIT

Bangalore

In association with

Department of Master of Business Administration

On

12th April 2024

Title: Workshop Report on One Day Entrepreneurship Awareness Program

Resource Persons:

1. Mrs. Bhuvana Suresh, Vice-President & Chairperson of Entrepreneurship & Skill Training, Association of Women Entrepreneurs of Karnataka (AWAKE)
2. Mr. Sadashiva S, Head- Training Co-ordination, Association of Women Entrepreneurs of Karnataka (AWAKE)

Date: 12/04/2024

Venue: Seminar Hall, 6th floor, Department of MBA, The Oxford College of Engineering.

Audience: MBA and MCA Students

Total no. of participants: 150

The One-Day Entrepreneurship Awareness Program offers a dynamic exploration of the entrepreneurial landscape, aimed at fostering a deeper understanding of entrepreneurship and empowering aspiring business leaders. Throughout the program, participants delve into the multifaceted world of entrepreneurship, gaining insights into the roles and responsibilities of entrepreneurs in driving innovation and economic growth. Through interactive discussions and practical exercises, participants develop a comprehensive understanding of key traits and how to cultivate them within themselves.

Moreover, the program provides invaluable guidance on essential areas of assistance for launching a business, ranging from project selection, registration, finance, technical, training, infrastructure, raw materials, plants and machines, and marketing information. By the end of the program, participants emerge equipped with the knowledge, skills, and resources needed to embark on their entrepreneurial journey with confidence and clarity.

Key Learnings:

1. Understanding Entrepreneurship:

- Deeper understanding of entrepreneurship, its significance in driving innovation, and its role in economic development.
- Identifying their personal strengths and areas for development in relation to entrepreneurial traits and qualities.
- Inspired participants to embrace an entrepreneurial mindset, fostering creativity, resilience, and a willingness to take calculated risks.
- Practical knowledge about essential aspects of starting a business, including market research, business planning, funding options, and legal considerations.

2. Overview of Key Areas of Assistance and Sources:

- Selection of a Project - MSME, DIC, TCOs, KSFCs
- Registration - DIC, LA
- Finance - Banks, KSFCs, NSIC

  (Through DIC/KSWDC/KSW&CD/NSIC/SIDBI/IDBI/DDU/SC-ST/Minority Corporation
- Technical - DIC, TCOs, CFTRI, MSME, NSIC, DFRL
- Training - AWAKE, MSME, TCOs, DIC, CFTRI

- Infrastructure - DIC, KIADB, KSSIDC, LA
- Raw Material - DIC, AWAKE
- Plants & Machinery - AWAKE, DIC, NSIC, MSME
- Marketing Information - DIC, EPC, AWAKE,

Conclusion:

The One-Day Entrepreneurship Program workshop proved to be a transformative experience for MBA and MCA students, providing them with invaluable insights and knowledge essential for their entrepreneurial journey. Throughout the day, students gained a deeper understanding of entrepreneurship, its core concepts, and the qualities required for success in the competitive business landscape. The workshop effectively fostered an entrepreneurial mindset among students, inspiring creativity, resilience, and a proactive approach to problem-solving.

As MBA and MCA students prepare to enter the dynamic world of business and technology, the insights gleaned from the workshop will undoubtedly serve as a solid foundation for their future endeavors. With a newfound understanding of entrepreneurship and a sharpened entrepreneurial mindset, students are poised to make meaningful contributions to innovation, economic growth, and societal development.

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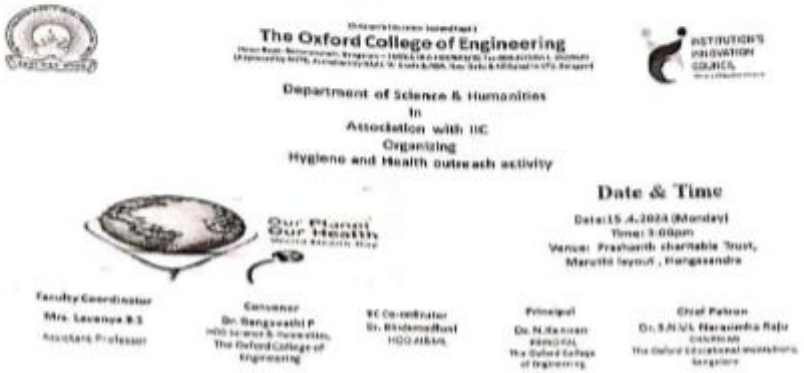
DEPARTMENT OF SCIENCE AND HUMANITIES

In association with IIC organized an outreach activity on

Awareness on Hygiene and Health on 15.04.2024



An Outreach activity on Hygiene and Health was organized by Dept.of Science and humanities, TOCE in Prashanth charitable Trust, Maruthi layout, Hongasandra on 15th April 2024. This was coordinated by Prof. Lavanya.B.S, Assistant Professor and 2nd sem students.

Objectives

The objective was to bring awareness among people about how to take care of their health and hygiene. April7thmarks the annual celebration of World Health Day – a Day dedicated to spreading awareness of the Health and Hygiene.

Personal hygiene is an integral aspect of our daily lives that encompasses a range of practices aimed at maintaining cleanliness and promoting overall well-being. It involves taking care of our bodies, surroundings and daily habits to prevent the spread of harmful germs, bacteria and viruses. Understanding the meaning of personal hygiene and recognizing its significance can lead to a healthier and more fulfilling life.

Prashanth charitable trust is a non-profit organisation with a mission to provide children, as well as the elderly with holistic engagement and empowerment programs to enable equitable growth in the society and ensure dignified as well as healthier lives for them.

We all had an objective of educating elderly people and bring a smile on their face. There was interactive session in which elderly people introduced themselves. We had a great time with all of them. We donated necessary groceries.

Outcomes:

- Student got the exposure to societal needs by building their relation with the people and helping them to fulfil their needs.
- Also they got the opportunity to enhance their communication skills.
- At the end we got a positive response of the activity were encouraged to bring up such useful activities in the society.

PO's	PO9	PO10	PO12
Hygiene and Health	M	M	M

Faculty Coordinator

HOD

PRINCIPAL

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Bommanahalli, Hosur Road
Bengaluru-560 068


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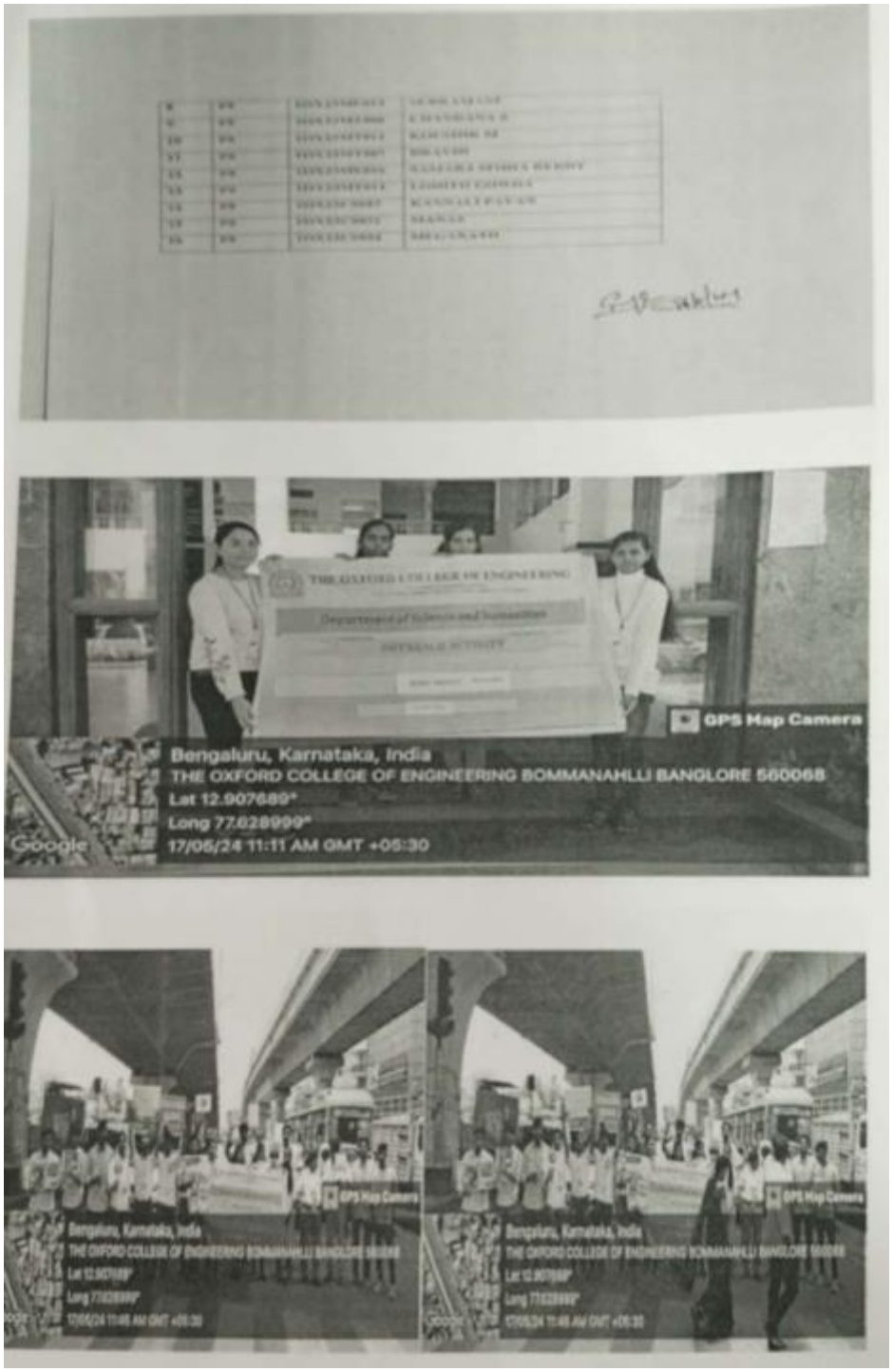
Department of Science and Humanities
THE OXFORD COLLEGE OF ENGINEERING
Department of Science and Humanities Association with IIC
ROAD SAFETY WALKATHON
to
Bommanahalli (Begur) Signal
Sri S.N.V.L Narasimha Raju
President
The Oxford Educational Institutions
Dr. N. Kannan
Principal & President (IC)
The Oxford College of Engineering
Dr.Gangavathi.P
Department of Science and Humanities
Prof. Chandran M
Dr. Madhwesha Moudgalya R
Department of Science and Humanities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Google

vehicle collisions and a lack of adherence to proper road safety measures. The number
fatalities continues to rise as a result of ignorance towards road safety regulations. Given the
circumstances, it is crucial for everyone to prioritize safety on the roads and comply with a
traffic rules and regulations. In conclusion, this social awareness experience will greatly bene
the participants in their academic and professional pursuits.

From,
HOD
Department of Science and Humanities
The Oxford College of Engineering

To,
Principal
The Oxford College of Engineering

16/5/24

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

Subject: Permission to Conduct an Outreach Activity Program about Road Safety near Bommanahalli (Hegur) Signal

Respected Sir,

I am writing to you as a concerned citizen who is deeply committed to enhancing public safety and well-being through increased awareness of traffic issues in our community.

I assure you that this will be beneficial for students in our college in character building and personal growth. Therefore, kindly grant permission to the below listed students to conduct this outreach program.

To represent the college, we are preparing the banner and would like to request that you please fund Rs. 500 for the banner and posters printing.

List of Students:

SLNO	Section	USN ID	Students Name
1	P5	1OX23ME016	TEJAS S
2	P5	1OX23MT019	SETRAVATHI
3	P5	1OX23MT026	SIRI B
4	P5	1OX23MT009	HEATH FANSNEEM
5	P5	1OX23MT013	KRISHNA KANTH
6	P5	1OX23MT002	AKHIL NEJU
7	P5	1OX23ME004	KUSHAL KUMAR

Report on ROAD SAFETY WALKATHON to Bommanahalli (Begur) Signal, on 17 May 2024.

The Department of Science and Humanities had organized an Outreach programme on Road Safety at Bommanahalli Signal (Begur), Bangalore, on 17th May 2024. To create Road Safety Awareness among the students and improve their knowledge and skills to reduce the accidents and develop young ambassadors to take up this to each individual. Educating motorist and members of the public on the importance of discipline on the highways. To provide an opportunity to students to be familiar with road safety educations. To facilitate student's participation in decision making in an area related to road safety while traveling by bus, car, and motorcycle. To involve students in action-based program related to safe road, safe speed, safe drive and safe vehicle.

Promotion of knowledge and understanding of traffic rules and situations. Improvement of skills through training and experience. Strengthening and changing attitudes towards risk awareness, personal safety and the safety of other road users.

- Cooperation with bodies or agencies or groups in road safety activities or in the prevention of accidents on the highways
- Prevention or minimization of accidents on the highway
- Enforcement of speed limits for all categories of roads and vehicles
- Regulation of the use of mobile phones by motorists, seat belts and other safety devices motorcycles on the highways.

Outcomes

The Outreach programme on Road Safety served as a social awareness initiative for all participants involved. It aimed to inspire students to embrace teamwork and develop self-confidence. Around 16 students from the first year of the Science & Humanities department organized a public awareness program. Road safety encompasses various methods and measures implemented to prevent fatalities and severe injuries among road users. These road users include pedestrians, cyclists, motorists, vehicle passengers, and passengers of on-road public transport. Unfortunately, road accidents have become increasingly common due to

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Report on Outreach Programme- "Gowshala Visit " on 9th of June , 2024.

An outreach program on "Gowshala Visit" was organized for the students of the Department of Biotechnology on the 9th of June , 2024 in association with the TOCE NSS unit organization at Malnad Gidda,Kumbalagodu .

On 9th June 2024,Sunday morning at around 9:30, we visited the Gaushala to experience its environment and learn about its operations. We were welcomed by MK Ramanuja Sir and Harsha Sir, the caretaker of the Gaushala. Harsha Sir emphasized the importance of understanding cows, bulls, their types, and their benefits to humanity before truly experiencing the Gaushala. Harsha Sir informed us that most of our epics highlight the significant contributions of cows to humanity. Cows are central to our culture, and from ancient times, monks and saints have conducted scientific research proving the efficiency of cows and their products. Various studies have shown that cows are capable of nurturing themselves and their caretakers. We learned that the cows at the Gaushala are divided into different sections based on their age, gender, physical fitness, milking status, and maternity condition. Each cow is tagged to give them a unique identity, ensuring proper management and care. The primary breed at the Gaushala is Malnad Gidda, also known as "Gidda," "Uradana," and "Varshagandhi." "Malnad" refers to a hilly region, and "Gidda" means small or dwarf. The breeding tract includes Chikmagalur, Dakshin Kannada, Hassan, Kodagu, Shimoga, Uttar Kannada, and Udupi districts of Karnataka. These cows play a crucial role in the rural economy by providing milk, manure, and draft power with minimal inputs. Adapted to the local agro-ecological systems of the Western Ghats, they are predominantly black with light fawn shades on the thigh and shoulder regions. They have small, straight, outward, upward, and inward horns, a compact body frame, and are around 90 centimeters tall. Malnad Gidda cattle thrive on low input systems, often sustaining solely on grazing. Elite cows produce 3-5 kg of milk per day, with an average lactation yield of around 220 kg. These animals are highly adapted to harsh climates, including heavy rainfall. We also learned about the benefits and uses of Desi cows, which include their nutritional, agricultural, and medicinal advantages.Our experience at the Gaushala was truly incredible and incomparable to any other form of tourism. Holding and hugging a calf, learning how to milk a cow, feeding cattle, riding a bullock cart, and enjoying pure and fresh dairy products provided us with ultimate satisfaction.Overall, visiting the Gaushala was an enriching experience. We recommend that everyone visit a Gaushala with their family, friends, and loved ones to gain a deeper appreciation for the contributions of cows to our culture and well-being.

(Dr. K.Valarmathy)
Faculty Coordinator

Head of the department
DR. B.K MANJUNATHA
Professor & Head
Department of Biotechnology
The Oxford College of Engineering
Bengaluru-560 068

InternationalYogaDayCelebrationReport

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Hosur Road, Bommanahalli, Bangalore -560068

NATIONAL SERVICE SCHEME (NSS)

Welcomes to Celebrate

"INTERNATIONAL YOGA DAY"

By
Namratha C Prabu
III Year Civil Engineering Student
TOCE, Bangalore

Date: 21/06/2024
Time: 10:30 am onwards
Venue: Smart Class Room: N206

Dr. S.N.V.L Narasimha Raju	Dr. N. Kannan	Prof.Yadhu Krishna	Prof. Prakash N
Chief Patron	Principal	NSS Coordinator	NSS Coordinator
President	The Oxford Collegeof	The Oxford College of	The Oxford College of
The Oxford Educational Institutions	Engineering	Engineering	Engineering

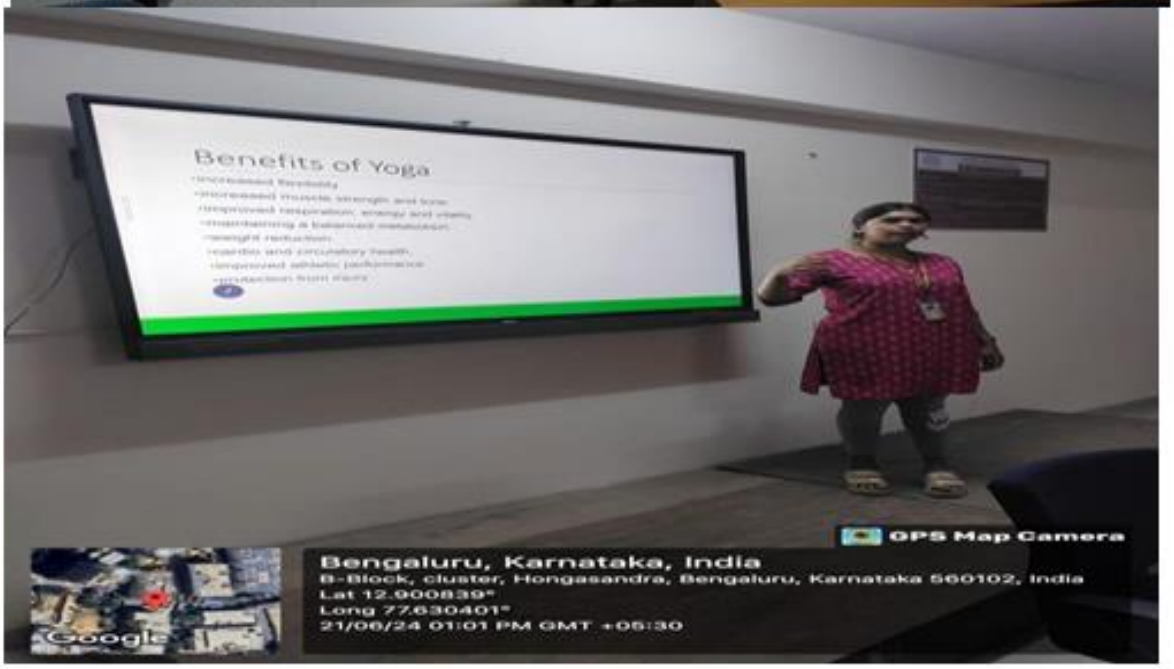
International Yoga Day is celebrated every year on the 21st June to raise awareness and celebrate the spiritual discipline of Yoga. It is anart and science of healthy living. Today, on the 21st June 2024, the National Service Scheme of TheOxford College of Engineering organized a small event on the account of the 10th International Yoga Day. It was attendedby professors and students fromvarious departments with great enthusiasm.

The event began with a brief introduction on Yoga Day by Ms. Namratha C Prabhu, a student from the 6th semester studying at The Oxford College Of Engineering, followed by welcoming Mr. Prakash and Mr. Yadukrishna, professors at TOCE who take great interest in the art of Yoga. A Presentation on the origin, history and importance of yoga was given by Ms. Namratha, including some interactive sessions with thestudents fromvarious departments who gave their full co-operation andparticipation. A talk on Surya Namaskara, its importance and benefits followed by demonstration by the students of the Civil Engineering Department, Ms. Anamika and Ms. Namratha was presented. The students also practiced pranayama in unison witnessing the benefits for themselves.

The session focused on motivating the students, the youth of thecountry to inculcatethe discipline of Yoga as it is presumedthat a good, balanced, integrated, truthful, clean, transparent, person willbe moreusefulto oneself, family, society, nation, nature and humanity at large. The importance of maintaining a harmony between mind and body was later discussed in a group discussion by the students present in the event and later promised to introduce the practice of Yoga in their everyday lives.

International Yoga Day celebration was thus a huge success under the supervision of Prof. Prakash, faculty of CivilEngineering. The function ended with a vote of thanks by Ms. Namratha followed by National Anthem.

Glimpses of NSS Yoga Day Celebrations.




GPS Map Camera
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B-Block, cluster, Hongasandra, Bengaluru, Karnataka 560102, India
Lat 12.900839°
Long 77.630401°
21/06/24 12:59 PM GMT +05:30
Google


GPS Map Camera
Bengaluru, Karnataka, India
B-Block, cluster, Hongasandra, Bengaluru, Karnataka 560102, India
Lat 12.900858°
Long 77.630419°
21/06/24 12:47 PM GMT +05:30
Google


GPS Map Camera
Bengaluru, Karnataka, India
B-Block, cluster, Hongasandra, Bengaluru, Karnataka 560102, India
Lat 12.900858°
Long 77.630419°
21/06/24 12:48 PM GMT +05:30
Google