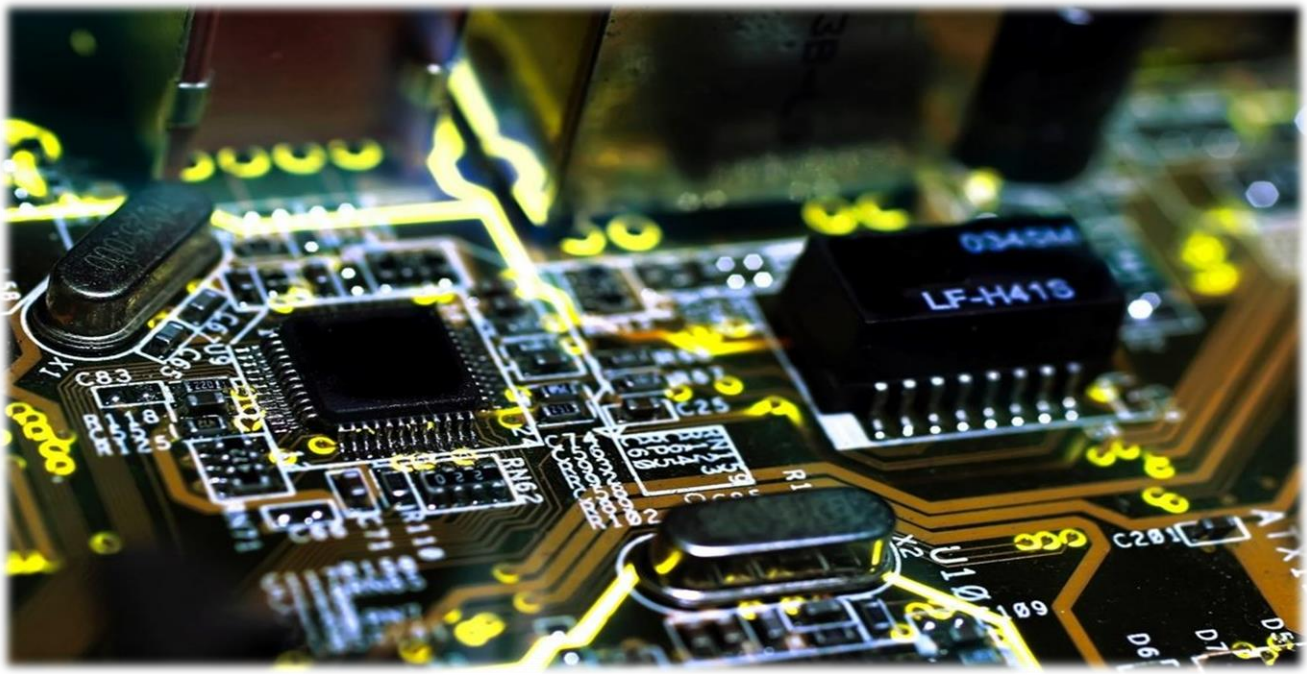

UEM

श्रद्धावान लभते ज्ञानम्

UNIVERSITY OF ENGINEERING & MANAGEMENT

Good Education, Good Jobs

SYLLABUS FOR DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

PREAMBLE

Education plays enormously significant role in building of a nation. There are quite a large number of educational institutions, engaged in imparting education in our country. Majority of them have entered recently into semester system to match with international educational pattern. However, our present education system is churning out youth who have to compete locally, regionally, nationally as well as globally. The present alarming situation necessitates transformation and/or redesigning of system, not only by introducing innovations but developing "learner-centric approach.

Majority of Indian higher education institutions have been following the system, which obstructs the flexibility for the students to study the subjects/courses of their choice and their mobility to different institutions. There is need to allow the flexibility in education system, so that students depending upon their interests can choose inter-disciplinary, intra-disciplinary and skill-based courses. This can only be possible when choice based credit system (CBCS), an internationally acknowledged system, is adopted. The choice based credit system not only offers opportunities and avenues to learn core subjects but also explore additional avenues of learning beyond the core subjects for holistic development of an individual. The CBCS will undoubtedly facilitate benchmarking of our courses with best international academic practices.

Advantages of the choice based credit system:

- Shift in focus from the teacher-centric to student-centric education.
- Student may undertake as many credits as they can cope with (without repeating all courses in a given semester if they fail in one/more courses).
- CBCS allows students to choose inter-disciplinary, intra-disciplinary courses, skill oriented papers (even from other disciplines according to their learning needs, interests and aptitude) and more flexibility for students.
- CBCS makes education broad-based and at par with global standards. One can take credits by combining unique combinations.
- CBCS offers flexibility for students to study at different times and at different institutions to complete one course (ease mobility of students). Credits earned at one institution can be transferred to another institution.

CHOICE BASED CREDIT SYSTEM

The Indian Higher Education Institutions have been moving from the conventional annual system to semester system. Currently many of the institutions have already introduced the Choice Based Credit System. The semester system accelerates the teaching-learning process and enables vertical and horizontal mobility in learning. The credit based semester system provides flexibility in designing curriculum and assigning credits based on the course content and hours of teaching. The Choice Based Credit System provides a 'cafeteria' type approach in which the students can take courses of their choice, learn at their own pace, undergo additional courses to acquire more than the required credits and adopt an interdisciplinary approach to learning.

PROGRAMME EDUCATIONAL OBJECTIVES

This scheme and courses are related to four-year Electronics & Communication Engineering programme with following Programme Educational Objectives (PEO).

1. Graduates of the program will have successful technical and professional careers in industry, academia, govt. and entrepreneurship.

2. Graduates of the program will hold strong professional ethics with good team skills and communication

3. Graduates of the program will engage in lifelong learning to acquire new knowledge in an evolving technological landscape.

TYPES OF COURSES

1. Courses are the subjects that comprise the Electronics & Communication Programme.

2. A course may be designed to comprise lectures, tutorials, laboratory work, fieldwork, outreach activities, project work, vocational training, viva, seminars, term papers, assignments, presentations, self-study etc. or a combination of some of these components.

3. The learning outcomes of each course will be defined before the start of a semester.

4. Following are the course types:

i. **Core Course (CC):** This is a course, which is to be compulsorily studied by a student as a core requirement to complete the requirement of B.Tech. Electronics & Communication Engineering.

ii. **Elective Course:** An elective course is a course, which can be chosen from a pool of courses. It is intended to support the discipline of study by providing an expanded scope, enabling exposure to another discipline/domain and nurturing a student's proficiency and skill. An elective may be of following types:

a) **Discipline Specific Elective (DE):** It is an elective course that adds proficiency to the students in the discipline.

b) **Generic Elective (GE):** It is an elective course taken from other engineering disciplines and enhances the generic proficiency and interdisciplinary perspective of students.

c) **Dissertation/Project/Training/Internship(PTI):** An elective course designed to acquire special/advanced knowledge, such as supplement study/support study to a project work, and a candidate studies such a course on his own with an advisory support by a teacher/faculty member is called dissertation/project

d) **Humanities, Social Sciences & Management (HSM):** It is an elective course taken from non-engineering disciplines (humanities, social sciences and management) that broadens the perspective of an engineering student.

e) **Basic Science Courses (BSC):** It is based upon content that leads to fundamental knowledge enhancement in sciences, and basic engineering principles.

f) **NPTEL (NPT):** Online MOOC courses are based on the respective year's offered courses.

iii. a) **Mandatory Courses (MC):** It can be taken from among a pool of foundation courses, which aim at value-based education. They may provide hands-on training to improve competencies and skills or provide education on human, societal, environmental and national values.

5. Each credit course contributes certain credits to the programme. A course can be offered either as a full course (4 credits) or as a half course (2 credits). A full course is conducted with 3 hours of lectures and either 1 hour of tutorial or 2 hours of practical work per week. A half course is conducted with 2 hours of lectures. There are also some exceptional electives with 3 credits and 1 credit.

Definition of Credit: -

1 Hr. Lecture (L) per week	1 Credit
1 Hr. Tutorial (T) per week	1 Credit
1 Hr. Practical (P) per week Or 2 Hr. Practical (Lab)/week	0.5 Credits Or 1 Credit

6. A project work/dissertation is considered as a special course involving application of the knowledge gained during the course of study in exploring, analyzing and solving complex problems in real life applications. A candidate completes such a course with an advisory support by a faculty member.
7. **Mandatory Courses** may be offered. They do not carry credits but aim at expanding knowledge or bridging deficiency in knowledge or skill.
8. A course may have pre-requisite course(s) that are given in the Semester-wise Course Allocation scheme.
9. A student can opt for a course only if he/she has successfully passed its pre- requisite(s).
10. A student has to register for all courses before the start of a semester.
11. **Program codes:** The codes for various undergraduate programmes are as follows:
    i. Civil Engineering: CE
    ii. Computer Science & Engineering: CS
    iii. Electronics and Communication Engineering: EC
    iv. Electrical Engineering: EE
    v. Mechanical Engineering: ME
12. **Departmental Course Codes:** The codes for departmental core courses and discipline-specific electives are specific to each discipline. The first two characters are derived from departmental codes listed above. The third character is 'C' for core courses and 'D' for discipline-specific courses and 'PT' for Dissertation/Project/Training/Internship. This is followed by a digit sequence number:
    i. CSCyyy: Core Course
    ii. CSDyyy: Discipline-Specific Elective Course
    iii. CSPTyy: Dissertation/Project/Training/Internship

13. **Common Elective Course Codes:** All disciplines will follow a common code as shown below. The 3-digit sequence number 'yyy' is taken from the respective tables of different types of courses.

    i. HSMyyy: Humanities, Social Sciences& Management Course

    ii. BSCyyy: Basic Science Course

    iii. MCyyy: Mandatory Course

14. **General Electives:** A student may take a course under the category of General Elective (GE) offered by any other Department of the Institute under the categories of Core Course (CC) and Discipline Specific Electives (DE). However, such options shall be offered to a student as per prescribed guidelines of the Institute.
15. The opting of a course by the student will depend upon the requisites for that course and with the consent of the course advisor.

PROGRAM OUTCOMES

I. At the completion of the B.Tech. Electronics & Communication Engineering Program, a student will achieve the following outcomes:

II. Gain an ability to apply the knowledge of mathematics, science, Engineering fundamentals and Electronics & Communication engineering in solving complex engineering problems.

III. Acquire the ability to survey the literature, conduct experiments, interpret data and analyze complex engineering problems.

IV. Acquire the ability to design a system, its components and processes to meet requirements with due regard to social, economic and environmental considerations.

V. Acquire the ability to apply research based knowledge and methods to investigate complex engineering problems with focus on Electronics & Communication engineering.

VI. Acquire the ability to select existing tools, techniques and resources and create new ones to model complex engineering problems and activities.

VII. Understand the responsibilities of an engineering profession towards society, economy, health, safety and legal issues.

VIII. Understand an Electronics & Communication engineer's role in enhancing sustainable development.

IX. Demonstrate professional ethics and responsibilities with utmost integrity at all times

X. Acquire the ability to contribute effectively as members or leaders of diverse and multidisciplinary teams.

XI. Communicate effectively among professional and with society through reports, presentations, documentations and instructions.

XII. Engage in lifelong learning in ever evolving landscape of Electronics & Communication engineering.

SCHEME – SEMESTER WISE COURSE ALLOCATION

First Semester Syllabus

Sl No.	Type	Subject Code	Topic	L	T	P	Credit Points
1	BSC	BSC006	Chemistry	3	1	3	5.5
2	BSC	BSC---	Mathematics	3	1	0	4
3	GE	EEC001	Basic Electrical Engineering	3	1	2	5
4	GE	MEC001	Engineering Graphics & Design	1	0	4	3
5	CC	ECC001	Basic Electronics Engineering	2	0	0	2
			Total				19.5

Students will undergo a mandatory induction program

Suggestive Choice Based Subjects

Sl No.	Type	Subject Code	Topic	L	T	P	Credit Points
1	BSC	BSC001	Physics - Semiconductor physics	3	1	3	5.5
2	BSC	BSC002	Physics - Introduction to Electromagnetic Theory	3	1	3	5.5
3	BSC	BSC003	Physics - Introduction to Mechanics	3	1	3	5.5
4	BSC	BSC004	Physics - Quantum Mechanics for Engineers	3	1	3	5.5
5	BSC	BSC005	Physics - Oscillation, Waves and Optics	3	1	3	5.5
6	BSC	BSC006	Chemistry	3	1	3	5.5
7	**BSC**	**BSC007**	**Mathematics - Calculus and Vector Calculus**	**3**	**1**	**0**	**4**
8	BSC	BSC008	Mathematics - Calculus & Differential Equation	3	1	0	4
9	BSC	BSC009	Mathematics - Probability and Statistics	3	1	0	4
10	BSC	BSC010	Mathematics - Discrete Mathematics	3	1	0	4
11	BSC	BSC011	Mathematics - Transform Calculus, Numerical Methods & Complex Variable	3	1	0	4
12	BSC	BSC012	Mathematics - Probability, Statistics & Stochastic Process	3	1	0	4
13	BSC	BSC013	Mathematics - Graph Theory	3	1	0	4

Second Semester Syllabus

Sl No.	Type	Subject Code	Topic	L	T	P	Credit Points
1	BSC	BSC---	Physics	3	1	3	5.5
2	BSC	BSC---	Mathematics	3	1	0	4
3	GE	CSC001	Programming for Problem Solving	3	0	4	5
4	GE	MEC002	Workshop/Manufacturing Practices	1	0	4	3
5	HSM	HSM001	English	2	0	2	3
6	NPT	NPT##	(NPTEL)	-	-	-	3
			Total				23.5

NPTEL courses are based on the respective year's offered course

Suggestive Choice Based Subjects

Sl No.	Type	Subject Code	Topic	L	T	P	Credit Points
1	BSC	BSC001	Physics - Semiconductor physics	3	1	3	5.5
2	**BSC**	**BSC002**	**Physics - Introduction to Electromagnetic Theory**	3	1	3	5.5
3	BSC	BSC003	Physics - Introduction to Mechanics	3	1	3	5.5
4	BSC	BSC004	Physics - Quantum Mechanics for Engineers	3	1	3	5.5
5	BSC	BSC005	Physics - Oscillation, Waves and Optics	3	1	3	5.5
6	BSC	BSC006	Chemistry	3	1	3	5.5
7	BSC	BSC007	Mathematics - Calculus and Vector Calculus	3	1	0	4
8	**BSC**	**BSC008**	**Mathematics - Calculus & Differential Equation**	**3**	**1**	**0**	**4**
9	BSC	BSC009	Mathematics - Probability and Statistics	3	1	0	4
10	BSC	BSC010	Mathematics - Discrete Mathematics	3	1	0	4
11	BSC	BSC011	Mathematics - Transform Calculus, Numerical Methods & Complex Variable	3	1	0	4
12	BSC	BSC012	Mathematics - Probability, Statistics & Stochastic Process	3	1	0	4
13	BSC	BSC013	Mathematics - Graph Theory	3	1	0	4

Third Semester Syllabus

Sl No.	Type	Subject Code	Topic	L	T	P	Credit Points
1	CC	ECC002	Electronics Devices	3	0	2	4
2	CC	ECC003	Digital System Design	3	0	2	4
3	CC	ECC004	Signals and Systems	3	0	0	3
4	GE	EED016	Network Theory	3	0	0	3
5	MC	MC0001	Basic Course in Entrepreneurship (From Idea to Business Model)	0	0	0	0
6	BSC	BSC--	Mathematics	3	1	0	4
7	NPT	NPT##	(NPTEL)	-	-	-	3
			Total Credits				21

NPTEL courses are based on the respective year's offered course

Suggestive Choice Based Subjects

Sl No.	Type	Subject Code	Topic	L	T	P	Credit Points
1	BSC	BSC007	Mathematics - Calculus and Vector Calculus	3	1	0	4
2	BSC	BSC008	Mathematics - Calculus & Differential Equation	3	1	0	4
3	BSC	BSC009	Mathematics - Probability and Statistics	3	1	0	4
4	BSC	BSC010	Mathematics - Discrete Mathematics	3	1	0	4
5	**BSC**	**BSC011**	**Mathematics - Transform Calculus, Numerical Methods & Complex Variable**	**3**	**1**	**0**	**4**
6	BSC	BSC012	Mathematics - Probability, Statistics & Stochastic Process	3	1	0	4
7	BSC	BSC013	Mathematics - Graph Theory	3	1	0	4

Fourth Semester Syllabus

Sl No.	Type	Subject Code	Topic	L	T	P	Credit Points
1	CC	ECC005	Analog & Digital Communication	3	0	2	4
2	CC	ECC006	Analog Circuits	3	0	2	4
3	CC	ECC007	Microcontrollers	3	0	2	4
4	BSC	BSC---	Mathematics	3	1	0	4
5	GE	CSC003	Advanced OOPS using C++	2	0	2	3
6	MC	MC0002	Advanced Course In Entrepreneurship (From Business Model To Product Market Fit)	0	0	0	0
7	NPT	NPT##	(NPTEL)	-	-	-	3
			Total Credits				22

NPTEL courses are based on the respective year's offered course

Suggestive Choice Based Subjects

Sl No.	Type	Subject Code	Topic	L	T	P	Credit Points
1	BSC	BSC007	Mathematics - Calculus and Vector Calculus	3	1	0	4
2	BSC	BSC008	Mathematics - Calculus & Differential Equation	3	1	0	4
3	BSC	BSC009	Mathematics - Probability and Statistics	3	1	0	4
4	BSC	BSC010	Mathematics - Discrete Mathematics	3	1	0	4
5	BSC	BSC011	Mathematics - Transform Calculus, Numerical Methods & Complex Variable	3	1	0	4
6	**BSC**	**BSC012**	**Mathematics - Probability, Statistics & Stochastic Process**	**3**	**1**	**0**	**4**
7	BSC	BSC013	Mathematics - Graph Theory	3	1	0	4

Fifth Semester Syllabus

Sl No.	Type	Subject Code	Topic	L	T	P	Credit Points
1	CC	ECC008	Electromagnetic Waves	3	0	2	4
2	CC	ECC009	Digital Signal Processing	3	0	2	4
3	GE	CSD025	Computer Architecture	3	0	0	3
4	DE	ECD---	Discipline Specific Elective	-	-	-	3
5	GE	------	Generic Elective	-	-	-	4
6	MC	MC0003	Basic Environmental Science	0	0	0	0
7	NPT	NPT##	(NPTEL)	-	-	-	3
			Total Credits				21

NPTEL courses are based on the respective year's offered course

Suggestive Choice Based Subjects

Sl No.	Type	Subject Code	Topic	L	T	P	Credit Points
1	DE	ECD004	Mobile Communication and Network	3	0	0	3
2	GE	CSC002	Data Structure & Algorithms	3	0	2	4

Sixth Semester Syllabus

Sl No.	Type	Subject Code	Topic	L	T	P	Credit Points
1	GE	EED019	Control Systems	3	0	0	3
2	GE	CSC011	Computer Networks	3	0	4	5
3	PTI	ECPT01	Mini Project/Electronics Design Workshop	0	0	4	2
4	DE	ECD---	Discipline Specific Elective	-	-	-	4
5	GE	------	Generic Elective	-	-	-	3
6	MC	MC0004	Disaster management	0	0	0	0
7	HSM	HSM---	Humanities	-	-	-	3
8	PTI	ECPT02	Project I	-	-	6	3
9	NPT	NPT##	(NPTEL)	-	-	-	3
			Total credits				26

NPTEL courses are based on the respective year's offered course

Students will undergo project/training/internship in the industry / research organization / reputed Institute during the vacation

Suggestive Choice Based Subjects

Sl No.	Type	Subject Code	Topic	L	T	P	Credit Points
1	GE	CSC008	Database Management System	2	0	2	3
2	DE	ECD006	Antennas and Propagation	3	0	2	4

Seventh Semester Syllabus

Sl No.	Type	Subject Code	Topic	L	T	P	Credit Points
1	DE	ECD---	Discipline Specific Elective	-	-	-	3
2	DE	ECD---	Discipline Specific Elective	-	-	-	3
3	DE	ECD---	Discipline Specific Elective	-	-	-	3
4	GE	------	Generic Elective	-	-	-	3
5	PTI	ECPT03	Project II	0	0	12	6
6	BSC	HSM---	Humanities	3	0	0	3
7	MC	MC0005	Constitution of India	0	0	0	0
8	NPT	NPT##	(NPTEL)	-	-	-	3
					Total credits		24

NPTEL courses are based on the respective year's offered course

Students will undergo project/training/internship in the industry / research organization / reputed Institute during the vacation

Suggestive Choice Based Subjects

Sl No.	Type	Subject Code	Topic	L	T	P	Credit Points
1	DE	ECD013	Embedded System	3	0	0	3
2	DE	ECD014	Microwave Theory and Techniques	3	0	0	3
3	GE	CSC007	Object Oriented Programming	2	0	2	3
4	DE	ECD010	Fiber Optic Communication	3	0	0	3

Eighth Semester Syllabus

Sl No.	Type	Subject Code	Topic	L	T	P	Credit Points
1	DE	ECD---	Discipline Specific Elective	-	-	-	3
2	DE	ECD---	Discipline Specific Elective	-	-	-	3
3	DE	ECD---	Discipline Specific Elective	-	-	-	3
4	GE	------	Generic Elective	-	-	-	3
5	PTI	ECPT04	Project III	0	0	12	6
6	MC	MC0006	Essence of Indian Traditional Knowledge	0	0	0	0
7	NPT	NPT##	(NPTEL)	-	-	-	3
					Total credits		21

Students will undergo training/internship in the industry / research organization / reputed Institute during the vacation

Suggestive Choice Based Subjects

Sl No.	Type	Subject Code	Topic	L	T	P	Credit Points
1	DE	ECD012	Internet of Things using Raspberry Pi	1	0	4	3
2	DE	ECD016	CMOS Design	3	0	0	3
3	DE	ECD017	Satellite Communication	3	0	0	3
4	GE	CSD006	Digital Image and Video Processing	2	0	2	3

APPENDIX

LIST OF HUMANITIES, SOCIAL SCIENCES & MANAGEMENT COURSES (HSM)

Sl No.	Subject Code	Topic	L	T	P	Credit Points
1	HSM001	English	2	0	2	3
2	HSM002	Values and Ethics	3	0	0	3
3	HSM003	Organizational Behavior	3	0	0	3
4	HSM004	Industrial Psychology	3	0	0	3
5	HSM005	Operations Research	3	0	0	3
6	HSM006	Economics	3	0	0	3
7	HSM007	Finance & Accounting	3	0	0	3
8	HSM008	Principle of Management	3	0	0	3
9	HSM009	Total Quality Management	3	0	0	3
10	HSM010	Professional Practice, Law & Ethics	2	0	0	2
11	HSM011	Human Resource Development and Organizational Behavior	3	0	0	3
12	HSM012	Global Warming and Climate Change	2	0	0	2
13	HSM013	Values and Ethics in Profession	3	0	0	3
14	HSM014	E Commerce	3	0	0	3
15	HSM015	Civil Engineering- Societal & Global Impact	2	0	0	2

LIST OF BASIC SCIENCE COURSES (BSC)

Sl No.	Subject Code	Topic	L	T	P	Credit Points
1	BSC001	Physics - Semiconductor physics	3	1	3	5.5
2	BSC002	Physics - Introduction to Electromagnetic Theory	3	1	3	5.5
3	BSC003	Physics - Introduction to Mechanics	3	1	3	5.5
4	BSC004	Physics - Quantum Mechanics for Engineers	3	1	3	5.5

Sl No.	Subject Code	Topic	L	T	P	Credit Points
5	BSC005	Physics - Oscillation, Waves and Optics	3	1	3	5.5
6	BSC006	Chemistry	3	1	3	5.5
7	BSC007	Mathematics - Calculus and Vector Calculus	3	1	0	4
8	BSC008	Mathematics – Advanced Calculus & Differential Equation	3	1	0	4
9	BSC009	Mathematics - Probability and Statistics	3	1	0	4
10	BSC010	Mathematics - Discrete Mathematics	3	1	0	4
11	BSC011	Mathematics - Transform Calculus, Numerical Methods & Complex Variable	3	1	0	4
12	BSC012	Mathematics - Probability, Statistics & Stochastic Process	3	1	0	4
13	BSC013	Mathematics - Graph Theory	3	1	0	4
14	BSC014	Life Science	1	0	2	2
15	BSC015	Biology	3	0	0	3
16	BSC016	Operations Research	3	0	0	3
17	BSC017	Statistics & Data Analysis	3	1	0	4
18	BSC018	Physics - Semiconductor Optoelectronics	3	1	3	5.5

LIST OF MANDATORY COURSES (MC)

Sl No.	Subject Code	Topic	L	T	P	Credit Points
1	MC0001	Basic Course in Entrepreneurship (From Idea to Business Model)	0	0	0	0
2	MC0002	Advanced Course In Entrepreneurship (From Business Model To Product Market Fit)	0	0	0	0
3	MC003	Environmental Science	0	0	0	0
4	MC004	Disaster Management	0	0	0	0
5	MC005	Constitution of India	0	0	0	0
6	MC006	Essence of Indian Traditional Knowledge	0	0	0	0

LIST OF CORE COURSES (CSE)

Sl No.	Subject Code	Topic	L	T	P	Credit Points
1	CSC001	Programming for Problem Solving	3	0	4	5
2	CSC002	Data Structure & Algorithms	3	0	4	5
3	CSC003	Advanced OOPS using C++	3	0	2	4
4	CSC004	Computer Organization and Architecture	3	0	4	5
5	CSC005	Operating System	3	0	4	5
6	CSC006	Design and Analysis of Algorithms	3	0	4	5
7	CSC007	Object Oriented Programming	2	0	4	4
8	CSC008	Data Base Management System	3	0	4	5
9	CSC009	Formal Language & Automata Theory	3	0	0	3
10	CSC010	Compiler Design	3	0	4	5
11	CSC011	Computer Networks	3	0	4	5
12	CSC012	IT Workshop on MATLAB	1	0	4	3

LIST OF DISCIPLINE SPECIFIC ELECTIVES (CSE)

Sl No.	Subject Code	Topic	L	T	P	Credit Points
1	CSD001	Distributed Systems	3	0	0	3
2	CSD002	Advanced Computer Architecture	3	0	0	3
3	CSD003	Software Engineering	3	0	0	3
4	CSD004	Data Mining	3	0	0	3
5	CSD005	Data Communication & Networks	3	0	0	3
6	CSD006	Digital Image and Video Processing	3	0	0	3
7	CSD007	Distributed Database	3	0	0	3
8	CSD008	Internet Security	3	0	0	3
9	CSD009	Mobile Computing	3	0	0	3
10	CSD010	Sensor Networks	3	0	0	3

Sl No.	Subject Code	Topic	L	T	P	Credit Points
11	CSD011	Soft computing	3	0	0	3
12	CSD012	Cloud Computing	3	0	0	3
13	CSD013	Cryptography & Network Security	3	0	0	3
14	CSD014	Speech and Natural Language Processing	3	0	0	3
15	CSD015	Artificial Intelligence	3	0	0	3
16	CSD016	Compiler Design	3	0	0	3
17	CSD017	Cryptography & Network Security	3	0	0	3
18	CSD018	Neural Network and application	3	0	0	3
19	CSD019	Internet of Things	3	0	0	3
20	CSD020	Advanced Algorithms	3	0	0	3
21	CSD021	Advanced Operating Systems	3	0	0	3
22	CSD022	Machine Learning	3	0	0	3
23	CSD023	Data Analytics	3	0	0	3
24	CSD024	Cyber Law and Ethics	3	0	0	3
25	CSD025	Computer Architecture (ECE)	3	0	0	3
26	CSD026	Computer Graphics	3	0	0	3

LIST OF CORE COURSES (ECE)

Sl No.	Subject Code	Topic	L	T	P	Credit Points
1	ECC001	Basic Electronics Engineering	2	0	0	2
2	ECC002	Electronic Devices	3	0	2	4
3	ECC003	Digital System Design	3	0	2	4
4	ECC004	Signals and Systems	3	0	0	3
5	ECC005	Analog & Digital Communication	3	0	2	4
6	ECC006	Analog Electronic Circuits	3	0	2	4
7	ECC007	Microcontrollers	3	0	2	4
8	ECC008	Electromagnetic Waves	3	0	2	4
9	ECC009	Digital Signal Processing	3	0	2	4

Sl No.	Subject Code	Topic	L	T	P	Credit Points
10	ECC010	Electronics Measurement Lab	0	0	2	1

LIST OF DISCIPLINE SPECIFIC ELECTIVES (ECE)

Sl No.	Subject Code	Topic	L	T	P	Credit Points
1	ECD001	Wireless Communication and Network	3	0	0	3
2	ECD002	Information Theory and Coding	3	0	0	3
3	ECD003	Biomedical Electronics	3	0	0	3
4	ECD004	Mobile Communication and Network	3	0	0	3
5	ECD005	Wavelets	3	0	0	3
6	ECD006	Antennas and Propagation	3	0	2	4
7	ECD007	FPGA & Reconfigurable Computing	3	0	0	3
8	ECD008	Electronics Instrumentation	3	0	0	3
9	ECD009	Nano Electronics	3	0	0	3
10	ECD010	Fiber Optic Communication	3	0	0	3
11	ECD011	Radar Engineering	3	0	0	3
12	ECD012	Internet of Things using Raspberry pi	1	0	4	3
13	ECD013	Embedded System	3	0	0	3
14	ECD014	Microwave Theory and Techniques	3	0	0	3
15	ECD015	Power Electronics	3	0	0	3
16	ECD016	CMOS Design	3	0	0	3
17	ECD017	Satellite Communication	3	0	0	3
18	ECD018	Introduction to MEMS	3	0	0	3
19	ECD019	Speech & Audio Processing	3	0	0	3
20	ECD020	Wireless Sensor Networks	3	0	0	3
21	ECD021	Adaptive Signal Processing	3	0	0	3
22	ECD022	Digital Electronics	3	0	2	4
23	ECD023	Microprocessors in Automation	3	0	0	3
24	ECD024	Nanotechnology and Surface Engineering	3	0	0	3

Sl No.	Subject Code	Topic	L	T	P	Credit Points
25	ECD025	Electronics Design Laboratory	1	0	4	3

LIST OF CORE COURSES (ME)

Sl No.	Subject Code	Topic	L	T	P	Credit Points
1	MEC001	Engineering Graphics & Design	1	0	4	3
2	MEC002	Workshop/Manufacturing Practices	1	0	4	3
3	MEC003	Engineering Mechanics	3	1	0	4
4	MEC004	Thermodynamics	3	1	0	4
5	MEC005	Strength of Materials	3	1	0	4
6	MEC006	Applied Thermodynamics	3	1	0	4
7	MEC007	Fluid Mechanics & Fluid Machines	3	1	0	4
8	MEC008	Kinematics &Theory of Machines	3	1	0	4
9	MEC009	Materials Engineering	3	0	0	3
10	MEC010	Instrumentation & Control	3	1	0	4
11	MEC011	Heat Transfer	3	1	0	4
12	MEC012	Solid Mechanics	3	1	0	4
13	MEC013	Manufacturing Processes	3	0	0	3
14	MEC014	Dynamics of Machine	3	1	0	4
15	MEC015	Mechanical Engineering Laboratory (Thermal) I	0	0	3	1.5
16	MEC016	Manufacturing Technology	4	0	0	4
17	MEC017	Design of Machine Elements	3	1	0	4
18	MEC018	Mechanical Engineering Laboratory (Design) II	0	0	3	1.5
19	MEC019	Automation in Manufacturing	3	0	0	3
20	MEC020	Mechanical Engineering Laboratory III (Manufacturing)	0	0	3	1.5

LIST OF DISCIPLINE SPECIFIC ELECTIVES (ME)

Sl No.	Subject Code	Topic	L	T	P	Credit Points
1	MED001	Internal Combustion Engines	3	0	0	3
2	MED002	Mechatronic Systems	3	0	0	3
3	MED003	Composite Materials	3	0	0	3
4	MED004	Refrigeration and Air Conditioning	3	0	0	3
5	MED005	Turbo Machinery	3	0	0	3
6	MED006	Power Plant Engineering	3	0	0	3
7	MED007	Finite Element Analysis	3	0	0	3
8	MED008	Gas Dynamics and Jet Propulsion	3	0	0	3
9	MED009	Process Planning and Cost Estimation	3	0	0	3
10	MED010	Computer Aided Design	3	0	0	3
11	MED011	Automobile Engineering	3	0	0	3
12	MED012	Design of Transmission Systems	3	0	0	3
13	MED013	Material Handling	3	0	0	3
14	MED014	Energy Conservation and Management	3	0	0	3
15	MED015	Mechanical Engineering	2	1	0	3
16	MED016	Renewable Energy Technology	3	0	0	3

LIST OF CORE COURSES (EE)

Sl No.	Subject Code	Topic	L	T	P	Credit Points
1	EEC001	Basic Electrical Engineering	3	1	2	5
2	EEC002	Electrical Circuit Analysis	3	1	2	5
3	EEC003	Electromagnetic Fields	3	1	0	4
4	EEC004	Electric Machine-I	3	0	2	4
5	EEC005	Measurement & Instrumentation	2	0	2	3
6	EEC006	Electrical Machine-II	3	0	2	4
7	EEC007	Power System-I	3	0	2	4
8	EEC008	Power Electronics	3	0	2	4

Sl No.	Subject Code	Topic	L	T	P	Credit Points
9	EEC009	Control System	3	0	2	4
10	EEC010	Power System-II	3	0	2	4
11	EEC011	Electric Drive	3	0	2	4
12	EEC012	Electrical System Design Lab-I	0	0	3	1.5
13	EEC013	Electrical System Design Lab-II	0	0	3	1.5

LIST OF DISCIPLINE SPECIFIC ELECTIVES (EE)

Sl No.	Subject Code	Topic	L	T	P	Credit Points
1	EED001	High Voltage Engineering	3	0	0	3
2	EED002	Power Generation & Economics	3	0	0	3
3	EED003	Power System III	3	0	0	3
4	EED004	Digital Control Systems	3	0	0	3
5	EED005	Electric Machine III	3	0	0	3
6	EED006	Wind and Solar Energy Systems	3	0	0	3
7	EED007	Renewable & Non-Conventional Energy	3	0	0	3
8	EED008	HVDC Transmission Systems	3	0	0	3
9	EED009	Illumination Engineering	3	0	0	3
10	EED010	Energy Management & Audit	3	0	0	3
11	EED011	Digital Speech Signal Processing	3	0	0	3
12	EED012	Power Plant Instrumentation & Control	3	0	0	3
13	EED013	Sensors & Transducers	3	0	0	3
14	EED014	Biomedical Instrumentation	3	0	0	3
15	EED015	Process Control	3	0	0	3
16	EED016	Network Theory	3	0	0	3
17	EED017	Renewable & Non-conventional	3	0	0	3
18	EED018	Advance Control System	3	0	0	3
19	EED019	Control System(ECE)	3	0	0	3
20	EED020	Electrical Machine	3	0	0	3

Sl No.	Subject Code	Topic	L	T	P	Credit Points
21	EED021	Line Commutated and Active Rectifiers	3	0	0	3
22	EED022	Electrical Energy Conservation and Auditing	3	0	0	3
23	EED023	Industrial Electrical Systems	3	0	0	3
24	EED024	Power System Protection	3	0	0	3
25	EED025	Electrical and Hybrid Vehicles	3	0	0	3
26	EED026	Digital Signal Processing	3	0	0	3
27	EED027	Signals & Systems	2	1	0	3

LIST OF CORE COURSES (CE)

Sl No.	Subject Code	Topic	L	T	P	Credit Points
1	CEC001	Surveying	2	0	4	4
2	CEC002	Computer- aided Civil Engineering Drawing	1	0	2	2
3	CEC003	Engineering Mechanics	3	1	0	4
4	CEC004	Energy Science and Engineering	1	1	0	2
5	CEC005	Engineering Geology	1	0	2	2
6	CEC0006	Disaster Preparedness & Planning	1	1	0	2
7	CEC007	Introduction to Fluid Mechanics	2	0	2	3
8	CEC008	Introduction to Solid Mechanics	2	0	0	2
9	CEC009	Surveying & Geomatics	1	1	2	3
10	CEC010	Concrete Technology	2	0	2	3
11	CEC011	Civil Engineering- Societal & Global Impact	2	0	0	2
12	CEC012	Mechanics of Material	3	0	0	3
13	CEC013	Hydraulic Engineering	2	0	2	3
14	CEC014	Structural Engineering	2	1	0	3
15	CEC015	Geotechnical Engineering	2	0	2	3
16	CEC016	Hydrology & Water Resource Engineering	2	0	0	2
17	CEC017	Environmental Engineering	2	1	0	3
18	CEC018	Transportation Engineering	2	0	2	3

Sl No.	Subject Code	Topic	L	T	P	Credit Points
19	CEC019	Material Testing & Evaluation	1	1	2	3
20	CEC020	Construction Engineering & Management	2	1	0	3
21	CEC021	Engineering Economics, Estimating & Costing	2	1	4	5
22	CEC022	Design Of RC and Steel Structures Lab	0	0	2	2
23	CEC023	Design of Steel Structure	3	0	0	3
24	CEC024	Design Of RC and Steel Structures Lab	0	0	2	1

LIST OF DISCIPLINE SPECIFIC ELECTIVES (CE)

Sl No.	Subject Code	Topic	L	T	P	Credit Points
1	CED001	Foundation Engineering	3	0	0	3
2	CED002	Design Of R C Structures	3	0	0	3
3	CED003	Municipal Solid waste management	3	0	0	3
4	CED004	Advanced Highway and Transportation Engineering	3	0	0	3
5	CED005	Pre-Stressed Concrete	3	0	0	3
6	CED006	Bridge Engineering	3	0	0	3
7	CED007	Structural Dynamics & Earthquake Design	3	0	0	3
8	CED008	Environmental Pollution and Control	3	0	0	3
9	CED009	Design of Multistoreyed Buildings	3	0	0	3
10	CED010	Dynamics of soil and Foundation	3	0	0	3
11	CED011	Finite Element Method	3	0	0	3
12	CED012	Water Pollution and its Management	2	0	0	2
13	CED013	Pavement Design	2	0	0	2
14	CED014	Instrumentation & Sensor Technologies for Civil Engineering applications	1	1	2	3