



SSN School of Engineering

**DEPARTMENT OF ELECTRONICS AND COMMUNICATION
ENGINEERING**

**Bachelor of Technology
Electronics and Communication Engineering**

CURRICULUM

REGULATIONS 2026

VISION AND MISSION OF THE DEPARTMENT

VISION

To be a nationally and globally recognized department in Electronics and Communication Engineering, offering high-quality educational programs at undergraduate, postgraduate, and doctoral levels through research and academic excellence.

MISSION

We will strive towards our Vision by:

- Continued focus on academic and research excellence.
- Empowering students to become reflective professionals through curricular and co-curricular activities that instill a spirit of critical thinking, creativity, innovation, and entrepreneurial skills.
- Building partnerships with leading academic institutions and industries
- Fostering an innovative, and supportive environment that encourages learning, research, and professional growth for students, faculty, and staff.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO1	Core Knowledge Development: Be competent in applying electronics and communication engineering principles to develop socially and environmentally acceptable engineering solutions.
PEO2	Professional Development: Find fulfilling career in electronic and communication engineering or associated industries or higher education and research, or as entrepreneurs.
PEO3	Attitude towards Lifelong-Learning: Develop the ability and attitude to adapt to evolving technological and social challenges.

PROGRAM OUTCOMES (POs)

Program outcomes are the skills and knowledge which the students should have acquired at the time of graduation. A program outcome indicates what a student can do from course-wise knowledge acquired during the program. Students who graduate from this program shall exhibit the following:

PO	Graduate Attribute	Programme Outcome
1	Engineering Knowledge	Apply the knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization to develop to the solution of complex Engineering problems (WK 1 to 4).
2	Problem Analysis	Identify, formulate, review research literature, and analyze complex Engineering problems reaching substantiated conclusions with consideration for sustained development (WK 1 to 4).
3	Design/Development of solutions	Design creative solutions for complex Engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required (WK5).
4	Conduct Investigations of Complex Problems	Conduct investigations of complex Engineering problems using research-based knowledge including design of experiments, modelling, analysis and interpretation of data to provide valid conclusions (WK8).
5	Engineering Tool Usage:	Create, select, and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling, recognizing their limitations to solve complex Engineering problems (WK2 and WK6).
6	The Engineer and The World	Analyze and evaluate societal and environmental aspects while solving complex Engineering problems for their impact on sustainability with reference to economy, health, safety, legal framework, culture and environment (WK1, WK5 and WK7).
7	Ethics	Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws (WK9).

8	Individual and Collaborative Teamwork.	Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.
9	Communication	Communicate effectively and inclusively within the engineering community and the society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences.
10	Project Management and Finance	Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multi-disciplinary environments.
11	Life-long learning	Recognize the need for and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change (WK8).

PROGRAM SPECIFIC OBJECTIVES (PSOs)

PSO1	Design, develop and analyze electronic systems through application of relevant mathematics and engineering principles
PSO2	Design, develop and analyze communication systems through application of fundamentals from wireless communication network, signal processing, and RF & electromagnetics
PSO3	Adapt to emerging electronics and communication technologies and develop innovative solutions for existing and newer problems

PEO - PO/PSO Mapping

PEO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
PEO1	3	3	3	3	3	1	1	1	1	2	1	3	3	1
PEO2	1	1	1	2	1	2	2	3	3	3	3	1	1	2
PEO3	1	2	2	2	1	2	2	3	3	3	3	1	1	3

Mapping Programme Outcomes with Graduate Attributes

Programme Outcomes	NBA's GAs
PO1: Engineering Knowledge: Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop the solution of complex engineering problems.	GA1
PO2: Problem Analysis: Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4).	GA2
PO3: Design/Development of Solutions: Design creative solutions for complex engineering problems and design/develop systems/components/ processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society, and environment as required. (WK5).	GA3
PO4: Conduct Investigations of Complex Problems: Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8).	GA4
PO5: Engineering Tool Usage: Create, select, and apply appropriate techniques, resources, and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6).	GA5
PO6: The Engineer and The World: Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture, and environment. (WK1, WK5, and WK7).	GA10
PO7: Ethics: Apply ethical principles and commit to professional ethics, human values, diversity, and inclusion; adhere to national & international laws. (WK9).	GA10
PO8: Individual and Collaborative Teamwork: Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams	GA6

PO9: Communication: Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences.	GA8
PO10: Project Management and Finance: Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.	GA7
PO11: Life-Long Learning: Recognize the need for and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8).	GA9, G11

Washington Accord Knowledge Levels (WK)	Attributes
WK1	Natural sciences and social sciences
WK2	Conceptually based mathematics
WK3	Engineering fundamentals
WK4	Engineering specialist knowledge
WK5	Engineering design and operations
WK6	Engineering Practice (Technology)
WK7	Engineering knowledge in society, public safety and sustainable development
WK8	Research based knowledge
WK9	Professional ethics, inclusive behaviour and conduct

Complex Engineering Problems (WP)	Attributes
WP1	Depth of knowledge required
WP2	Range of conflicting requirements
WP3	Depth of analysis required
WP4	Familiarity of issues
WP5	Extent of applicable codes
WP6	Extent of stakeholder involvement and conflicting requirements
WP7	Interdependence

Complex Engineering Activities (EA)	Attributes
EA1	Range of resources
EA2	Level of interactions
EA3	Innovation
EA4	Consequences to the society and environment
EA5	Familiarity

Sustainable Development Goals (SDG)	Details	Sustainable Development Goals (SDG)	Details
SDG 1	No poverty	SDG 10	Reducing inequality
SDG 2	Zero hunger	SDG 11	Sustainable cities and communities
SDG 3	Good health and well-being	SDG 12	Responsible consumption and production
SDG 4	Quality education	SDG 13	Climate action
SDG 5	Gender equality	SDG 14	Life below water
SDG 6	Clean water and sanitation	SDG 15	Life on land

SDG 7	Affordable and clean energy	SDG 16	Peace, justice and strong institutions
SDG 8	Decent work and economic growth	SDG 17	Partnerships for the goals
SDG 9	Industry, innovation and infrastructure		

SHIV NADAR

COURSE SUMMARY

UNIVERSITY

CHENNAI

The listed courses in the curriculum are broadly classified as per the recommendations from the UGC.

Sl. No	Broad Category of Course	Minimum Credit Requirement
1	Major Core (MC)	80
2	Minor Stream (MS)	32
3	Multidisciplinary (MD)	09
4	Ability Enhancement Course (AEC)	08
5	Skill Enhancement Course (SEC)	09
6	Value Added Courses (VAC)	08
7	Summer Internship (SI)	02
8	Project Dissertation (PD)	12
	Total	160

The semester wise credit breakup of the Curriculum based on the above credit breakup proposed by the UGC is as follows:

Semester\Category	MC	MS	MD	AEC	SEC	VAC	SI	PD	TOTAL
1	6		9	3	2	2			22
2	11			3	2	4			20
3	12	6			4				22
4	17	2			1	1			21
5	14	5				1			20
6	13	6						4	23
7	7	8		2			2	6	25
8		5						2	7
Total	80	32	9	8	9	8	2	12	160

SHIV NADAR
— UNIVERSITY —
CHENNAI

Credit Breakup of Proposed Curriculum across Course Categories - Detailed

Semester	MC			MS			MD	AEC	SEC	VAC	SI	PD	TOTAL
	SSNSoE	Dept Major	Program Major	SSNSoE	Dept Minor	Program Minor	SSNSoE	SSNSoE	Dept / Program	Dept / Program	Dept / Program	Dept / Program	
1		6					9	3	2	2			22
2	3	8						3	2	4			20
3		12		3	3				4				22
4		14	3		2				1	1			21
5			14		5					1			20
6			13			6						4	23
7			7			8		2			2	6	25
8						5						2	7
Total	3	40	37	3	10	19	9	8	9	8	2	12	160

SEMESTER I

S. No.	COURSE CODE	COURSE TITLE	COURSE CATEGORY	CONTACT PERIODS	Teaching and Learning Scheme (per semester)					
					L	T	P	TW&SL	TH	C
1		Algebra and Calculus	MD	4	45	15	0	60	120	4
2		Engineering Physics	MD	3	45	0	0	45	90	3
3		Engineering Physics Laboratory	MD	4	0	0	60	60	120	2
4		Communicative English	AEC	4	30	0	30	60	120	3
5		Electron Devices	MC	3	45	0	0	45	90	3
6		Circuit Analysis	MC	3	45	0	0	45	90	3
7		Professional Ethics and Human Values	VAC	2	30	0	0	30	60	2
PRACTICALS										
8		Electronics Engineering Practice	SEC	4	0	0	60	60	120	2
TOTAL				27	240	15	150	405	810	22

SEMESTER II

S. No.	COURSE CODE	COURSE TITLE	COURSE CATEGORY	CONTACT PERIODS	Teaching and Learning Scheme (per semester)					
					L	T	P	TW&SL	TH	C
1		Complex Functions and Laplace Transforms	MC	3	45	0	0	45	90	3
2		English for Engineers	AEC	4	30	0	30	60	120	3
3		Programming in Python for Data Science	VAC	3	15	0	30	45	90	2
4		Environmental Engineering	VAC	2	30	0	0	30	60	2
5		Digital Electronics	MC	5	45	0	30	75	150	4
6		Analog Electronics	MC	5	45	0	30	75	150	4
PRACTICALS										
7		PCB Design	SEC	4	0	0	60	60	120	2
TOTAL				26	210	0	180	390	780	20

SEMESTER III

S. No.	COURSE CODE	COURSE TITLE	COURSE CATEGORY	CONTACT PERIODS	Teaching and Learning Scheme (per semester)					
					L	T	P	TW&SL	TH	C
1		Random Signal Analysis	MS	3	30	0	15	45	90	3
2		Linear Integrated Circuits	MC	2	30	0	0	30	60	2
3		Microprocessors and Microcontrollers	MS	4	30	0	30	60	120	3
4		Signals and Systems	MC	3	45	0	0	45	90	3
5		Design Thinking, Innovation, and Entrepreneurship	SEC	4	30	0	30	60	120	3
6		Electromagnetics	MC	3	45	0	0	45	90	3
PRACTICALS										
7		Linear Integrated Circuits Laboratory	MC	4	0	0	60	60	120	2
8		Signals and Systems Laboratory	MC	4	0	0	60	60	120	2
9		PCB Fabrication and Assembly	SEC	2	0	0	30	30	60	1
TOTAL				29	225	0	210	435	870	22

SEMESTER IV

S. No.	COURSE CODE	COURSE TITLE	COURSE CATEGORY	CONTACT PERIODS	Teaching and Learning Scheme (per semester)					
					L	T	P	TW&SL	TH	C
1		Digital Signal Processing	MC	6	45	0	45	90	180	4.5
2		Transmission Lines and Waveguides	MC	2	30	0	0	30	60	2
3		Principles of Communication Systems	MC	3	45	0	0	45	90	3
4		Digital System Design using HDL	MC	4	30	0	30	60	120	3

5		Control Systems	MS	2	30	0	0	30	60	2
6		Principles of VLSI Design	MC	3	45	0	0	45	90	3
PRACTICALS										
7		Communication Engineering Laboratory	MC	3	0	0	45	45	90	1.5
8		EDA Tools for VLSI Circuit Design	SEC	2	0	0	30	30	60	1
9		Independent Research / Extra Academic Activity	VAC	2	0	0	30	30	60	1
TOTAL				27	225	0	180	405	810	21

SEMESTER V

S. No.	COURSE CODE	COURSE TITLE	COURSE CATEGORY	CONTACT PERIODS	Teaching and Learning Scheme (per semester)					
					L	T	P	TW&SL	TH	C
1		Audio Signal Processing	MC	3	45	0	0	45	90	3
2		Digital Communication	MC	5	45	0	30	75	150	4
3		Data Communication and Networking	MC	5	45	0	30	75	150	4
4		Antenna and Wave Propagation	MC	3	45	0	0	45	90	3
5		OOPS and Data Structures	MS	5	45	0	30	75	150	4
6		Principles of Semiconductor Technology	MS	1	15	0	0	15	30	1
PRACTICALS										
7		Independent Research / Extra Academic Activity	VAC	2	0	0	30	30	60	1
TOTAL				24	240	0	120	360	720	20

Note: Students Pursuing GPP should register for an additional course on Project Management and Planning (3 credits) under MS category during V semester and this additional credit earned will be adjusted during VIII semester by exempting a minor course of 3 credits.

SEMESTER VI

S. No.	COURSE CODE	COURSE TITLE	COURSE CATEGORY	CONTACT PERIODS	Teaching and Learning Scheme (per semester)					
					L	T	P	TW&SL	TH	C
1		Digital Image and Video Processing	MC	3	45	0	0	45	90	3
2		Microwave Engineering	MC	6	30	0	60	90	180	4
3		System Design for IoT	MC	6	30	0	60	90	180	4
4		Wireless Communication	MC	2	30	0	0	30	60	2
5		Program Minor 1	MS	3	45	0	0	45	90	3
6		Program Minor 2	MS	3	45	0	0	45	90	3
PRACTICALS										
7		Capstone Project Phase 1	PD	8	0	0	120	120	240	4
TOTAL				31	225	0	240	465	930	23

SEMESTER VII

S. No.	COURSE CODE	COURSE TITLE	COURSE CATEGORY	CONTACT PERIODS	Teaching and Learning Scheme (per semester)					
					L	T	P	TW&SL	TH	C
1		Deep Learning	MC	6	30	0	60	90	180	4
2		Communication Network Security	MC	3	45	0	0	45	90	3
3		Program Minor 3	MS	3	45	0	0	45	90	3
4		Program Minor 4	MS	3	45	0	0	45	90	3
5		Program Minor 5	MS	2	30	0	0	30	60	2
6		Ability Enhancement Course	AEC	2	30	0	0	30	60	2
PRACTICALS										
7		Capstone Project Phase 2	PD	12	0	0	180	180	360	6
8		Internship	SI	4	0	0	60	60	120	2
TOTAL				35	225	0	300	525	1050	25

SEMESTER VIII

S. No.	COURSE CODE	COURSE TITLE	COURSE CATEGORY	CONTACT PERIODS	Teaching and Learning Scheme (per semester)					
					L	T	P	TW&SL	TH	C
1		Program Minor 6	MS	2	30	0	0	30	60	2
2		Program Minor 7	MS	3	45	0	0	45	90	3
PRACTICALS										
3		Capstone Project Phase 3	PD	4	0	0	60	60	120	2
TOTAL				9	45	0	60	135	270	7

Major Core Courses

Department Major Core Courses

S. No.	COURSE CODE	COURSE TITLE	SEMESTER	CONTACT PERIODS	Teaching and Learning Scheme (per semester)					
					L	T	P	TW&SL	TH	C
1		Electron Devices	1	3	45	0	0	45	90	3
2		Circuit Analysis	1	3	45	0	0	45	90	3
3		Digital Electronics	2	5	45	0	30	75	150	4
4		Analog Electronics	2	5	45	0	30	75	150	4
5		Linear Integrated Circuits	3	2	30	0	0	30	60	2
6		Signals and Systems	3	3	45	0	0	45	90	3
7		Electromagnetics	3	3	45	0	0	45	90	3
8		Linear Integrated Circuits Laboratory	3	4	0	0	60	60	120	2
9		Signals and Systems Laboratory	3	4	0	0	60	60	120	2
10		Digital Signal Processing	4	6	45	0	45	90	180	4.5
11		Transmission Lines and Waveguides	4	2	30	0	0	30	60	2
12		Principles of Communication Systems	4	3	45	0	0	45	90	3
13		Digital System Design using HDL	4	4	30	0	30	60	120	3
14		Communication Engineering Laboratory	4	3	0	0	45	45	90	1.5

Programme Major Core Courses

S. No.	COURSE CODE	COURSE TITLE	SEMESTER	CONTACT PERIODS	Teaching and Learning Scheme (per semester)					
					L	T	P	TW&SL	TH	C
1		Principles of VLSI Design	4	3	45	0	0	45	90	3
2		Audio Signal Processing	5	3	45	0	0	45	90	3
3		Digital Communication	5	5	45	0	30	75	150	4
4		Data Communication and Networking	5	5	45	0	30	75	150	4
5		Antenna and Wave Propagation	5	3	45	0	0	45	90	3
6		Digital Image and Video Processing	6	3	45	0	0	45	90	3
7		Microwave Engineering	6	6	30	0	60	90	180	4
8		System Design for IoT	6	6	30	0	60	90	180	4
9		Wireless Communication	6	2	30	0	0	30	60	2
10		Deep Learning	7	6	30	0	60	90	180	4
11		Communication Network Security	7	3	45	0	0	45	90	3

Department Minor Stream Courses

S. No.	COURSE CODE	COURSE TITLE	SEMESTER	CONTACT PERIODS	Teaching and Learning Scheme (per semester)					
					L	T	P	TW&SL	TH	C
1		Random Signal Analysis	3	3	30	0	15	45	90	3
2		Microprocessors and Microcontrollers	3	4	30	0	30	60	120	3
3		Control Systems	4	2	30	0	0	30	60	2
4		OOPS and Data Structures	5	5	45	0	30	75	150	4
5		Principles of Semiconductor Technology	5	1	15	0	0	15	30	1

MINOR STREAMS

The Department of Electronics and Communication Engineering offers the following list of Minor Streams.

1. Signal Processing
2. High Frequency Communication
3. Embedded Systems and IoT

Each Minor Stream has seven courses worth 19 credits. The student must enroll in any one of the above three Minor Streams.

MINOR STREAM 1 – Signal Processing

S. No.	COURSE CODE	COURSE TITLE	SEMESTER	CONTACT PERIODS	Teaching and Learning Scheme (per semester)					
					L	T	P	TW&SL	TH	C
1		Statistical Signal Processing	6	3	45	0	0	45	90	3
2		Multirate Signal Processing	6	3	45	0	0	45	90	3
3		Computer Vision	7	3	45	0	0	45	90	3
4		MINOR STREAM BASKET 1	7	3	45	0	0	45	90	3
5		MINOR STREAM BASKET 2	7	2	30	0	0	30	60	2
6		MINOR STREAM BASKET 3	8	2	30	0	0	30	60	2
7		MINOR STREAM BASKET 4	8	3	45	0	0	45	90	3

The following is the tentative list of courses that may be offered under the *Minor Stream Baskets*:

<i>Minor Stream Basket 1 (3 Credit courses)</i>	<i>Minor Stream Basket 2 (2 Credit courses)</i>	<i>Minor Stream Basket 3 (2 Credit courses)</i>	<i>Minor Stream Basket 4 (3 Credit courses)</i>
Speech Recognition and Synthesis	Speech Enhancement	Bio Medical Signal and Image Processing	Detection and Estimation Techniques
Multimedia Compression Techniques	Adaptive Signal Processing	Sparse Signal Processing	Machine Learning for Signal Processing
Text and Language Processing	Wavelet Signal Processing	Real-time Signal Processing	Array Signal Processing

MINOR STREAM 2 – High Frequency Communication

S. No.	COURSE CODE	COURSE TITLE	SEMESTER	CONTACT PERIODS	Teaching and Learning Scheme (per semester)					
					L	T	P	TW&SL	TH	C
1		RF and Microwave Circuit Design	6	3	45	0	0	45	90	3
2		Optical Communication Networks	6	3	45	0	0	45	90	3
3		5G Mobile Networks	7	3	45	0	0	45	90	3
4		MINOR STREAM BASKET 1	7	3	45	0	0	45	90	3
5		MINOR STREAM BASKET 2	7	2	30	0	0	30	60	2
6		MINOR STREAM BASKET 3	8	2	30	0	0	30	60	2
7		MINOR STREAM BASKET 4	8	3	45	0	0	45	90	3

The following is the tentative list of courses that may be offered under the *Minor Stream Baskets*:

<i>Minor Stream Basket 1 (3 Credit courses)</i>	<i>Minor Stream Basket 2 (2 Credit courses)</i>	<i>Minor Stream Basket 3 (2 Credit courses)</i>	<i>Minor Stream Basket 4 (3 Credit courses)</i>
Information Theory and Coding	Digital Signal Integrity	Integrated Photonics	Error Control Coding
Electromagnetic Interference and Compatibility	Underwater Communication	Optimization for Wireless Communication	Radar Engineering
Satellite Communication Systems	Bio Electromagnetics	Millimeter Wave Communication	Wearable Technology

MINOR STREAM 3 – Embedded Systems and IoT

S. No.	COURSE CODE	COURSE TITLE	SEMESTER	CONTACT PERIODS	Teaching and Learning Scheme (per semester)					
					L	T	P	TW&SL	TH	C
1		IoT Architectures	6	3	45	0	0	45	90	3
2		Embedded Systems and Programming	6	3	45	0	0	45	90	3
3		Sensors, Actuators, and Interfaces	7	3	45	0	0	45	90	3
4		MINOR STREAM BASKET 1	7	3	45	0	0	45	90	3
5		MINOR STREAM BASKET 2	7	2	30	0	0	30	60	2
6		MINOR STREAM BASKET 3	8	2	30	0	0	30	60	2
7		MINOR STREAM BASKET 4	8	3	45	0	0	45	90	3

The following is the tentative list of courses that may be offered under the *Minor Stream Baskets*:

<i>Minor Stream Basket 1 (3 Credit courses)</i>	<i>Minor Stream Basket 2 (2 Credit courses)</i>	<i>Minor Stream Basket 3 (2 Credit courses)</i>	<i>Minor Stream Basket 4 (3 Credit courses)</i>
Wireless Sensor Networks	Advanced Embedded System Design	Automotive electronics	Real Time Operating Systems
Security and Privacy in IoT	IoT Communication Technologies	Smart IoT Systems	Design of Real Time systems
Big data Analytics for IoT	Advanced Embedded Processors	SoC for IoT Applications	Industrial IoT 4.0

Multi-Disciplinary Courses

S. No.	COURSE CODE	COURSE TITLE	SEMESTER	CONTACT PERIODS	Teaching and Learning Scheme (per semester)					
					L	T	P	TW&SL	TH	C
1		Algebra and Calculus	1	4	45	15	0	60	120	4
2		Engineering Physics	1	3	45	0	0	45	90	3
3		Engineering Physics Lab	1	4	0	0	60	60	120	2

Skill Enhancement Courses

S. No.	COURSE CODE	COURSE TITLE	SEMESTER	Teaching and Learning Scheme (per semester)						
				CONTACT PERIODS	L	T	P	TW&SL	TH	C
1		Electronics Engineering Practice	1	4	0	0	60	60	120	2
2		PCB Design	2	4	0	0	60	60	120	2
3		Design Thinking, Innovation, and Entrepreneurship	3	4	30	0	30	60	120	3
4		PCB Fabrication and Assembly	3	2	0	0	30	30	60	1
5		EDA Tools for VLSI Circuit Design	4	2	0	0	30	30	60	1

Ability Enhancement Courses

S. No.	COURSE CODE	COURSE TITLE	SEMESTER	CONTACT PERIODS	Teaching and Learning Scheme (per semester)					
					L	T	P	TW&SL	TH	C
1		Communicative English	1	4	30	0	30	60	120	3
2		English for Engineers	2	4	30	0	30	60	120	3
3		Ability Enhancement Course	7	2	30	0	0	30	60	2

Value Added Courses

S. No.	COURSE CODE	COURSE TITLE	SEMESTER	CONTACT PERIODS	Teaching and Learning Scheme (per semester)					
					L	T	P	TW&SL	TH	C
1		Professional Ethics and Human Values	1	2	30	0	0	30	60	2
2		Programming in Python for Data Science	2	3	15	0	30	45	90	2
3		Environmental Engineering	2	2	30	0	0	30	60	2
4		Independent Research / Extra Academic Activity	4	2	0	0	30	30	60	1
5		Independent Research / Extra Academic Activity	5	2	0	0	30	30	60	1

GRAND PROJECT PATHWAY

Semester	Course	Credit
III	Design Thinking, Innovation and Entrepreneurship	3
IV	Independent Research /Extra Academic Activity	1
V	Independent Research /Extra Academic Activity	1
V	Project Management and Planning	3
VI	Capstone Project Phase 1	4
VII	Capstone Project Phase 2	6
VIII	Capstone Project Phase 3	2
Total Credit for GPP		20

L - Lecture, T - Tutorial, P - Practical, TW & SL – Term Work & Self Learning, TH – Total Hours and C – Credits