NEW HORIZON
COLLEGE OF ENGINEERING

Department of Electrical and Electronics Engineering Academic year: 2024-2025

Scheme: (I-VIII)

BATCH: 2020-2024

CREDITS:160

NEW HORIZON COLLEGE OF ENGINEERING

VISION

To emerge as an institute of eminence in the fields of engineering, technology and Management in serving the industry and the nation by empowering students with a high degree of technical, managerial and practical competence.

MISSION

- To strengthen the theoretical, practical and ethical dimensions of the learning process by fostering a culture of research and innovation among faculty members and students.
- To encourage long-term interaction between the academia and industry through their involvement in the design of curriculum and its hands-on implementation.
- To strengthen and mould students in professional, ethical, social and environmental dimensions by encouraging participation in co-curricular and extracurricular activities.

QUALITY POLICY

To provide educational services of the highest quality both curricular and co-curricular to enable students integrate skills and serve the industry and society equally well at global level

VALUES

- Academic freedom
- Integrity
- Inclusiveness
- Innovation
- Professionalism
- Social Responsibility

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

VISION

To evolve into a centre of excellence in Electrical and Electronics Engineering for bringing out contemporary engineers, innovators, researchers and entrepreneurs for serving nation and society.

MISSION

- To provide suitable forums to enhance the teaching-learning, research and development activities.
- Framing and continuously updating the curriculum to bridge the gap between industry and academia in the contemporary world and serve society.
- To inculcate awareness and responsibility towards the environment and ethical values.

.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO1: To provide good learning environment to develop entrepreneurship capabilities in various areas of Electrical and Electronics Engineering with enhanced efficiency, productivity, cost effectiveness and technological empowerment of human resource.

PEO2: To inculcate research capabilities in the areas of Electrical and Electronics Engineering to identify, comprehend and solve problems and adopt themselves to rapidly evolving technology.

PEO 3: To create high standards of moral and ethical values among the graduates to transform them as responsible citizens of the nation.

PEO TO MISSION STATEMENT MAPPING

PEOs	MISSION OF THE DEPARTMENT		
	M1	M2	M3
PEO1	3	3	2
PEO2	3	3	2
PEO3	2	2	3

KNOWLEDGE AND ATTITUDE PROFILE (WK)

S. No	Knowledge and Attitude Profile (WK)
1	WK1: A systematic, theory-based understanding of the natural sciences applicable to the discipline and awareness of relevant social sciences.
2	WK2: Conceptually-based mathematics, numerical analysis, data analysis, statistics and formal aspects of computer and information science to support detailed analysis and modelling applicable to the discipline.
3	WK3: A systematic, theory-based formulation of engineering fundamentals required in the engineering discipline
4	WK4: Engineering specialist knowledge that provides theoretical frameworks and bodies of knowledge for the accepted practice areas in the engineering discipline; much is at the forefront of the discipline.
5	WK5: Knowledge, including efficient resource use, environmental impacts, whole-life cost, re use of resources, net zero carbon, and similar concepts, that supports engineering design and operations in a practice area.
6	WK6: Knowledge of engineering practice (technology) in the practice areas in the engineering discipline.
7	WK7: Knowledge of the role of engineering in society and identified issues in engineering practice in the discipline, such as the professional responsibility of an engineer to public safety and sustainable development.
8	WK8: Engagement with selected knowledge in the current research literature of the discipline, awareness of the power of critical thinking and creative approaches to evaluate emerging issues.
9	WK9: Ethics, inclusive behaviour and conduct. Knowledge of professional ethics, responsibilities, and norms of engineering practice. Awareness of the need for diversity by reason of ethnicity, gender, age, physical ability etc. with mutual understanding and respect, and of inclusive attitudes.

PROGRAM OUTCOMES (POs)

S.No	Graduate Attributes	Program Outcomes (POs)
1	Engineering Knowledge	PO1: Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop to the solution of complex engineering problems.
2	Problem Analysis	PO2: Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4)
3	Design/Development of Solutions	PO3: 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	PO4: Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8).
5	Engineering Tool Usage	PO5: 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	PO6: 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).

7	Ethics	PO7: Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)
8	Individual and Collaborative Team work	PO8: Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.
9	Communication	PO9: 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
10	Project Management and Finance	PO10: 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.
11	Life-Long Learning	PO11: 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 OUTCOMES (PSOs)

PSO1: Apply knowledge of electrical machines, circuit analysis, electronics, power systems, control, instrumentation, power electronics, signal processing, and embedded systems to analyse, design, and implement solutions for real-world applications using modern hardware and software tools.

PSO2: Design and develop innovative solutions in renewable energy, electric vehicles, smart grids, and automation with focus on environmental sustainability and societal needs.

NEW HORIZON COLLEGE OF ENGINEERING

Scheme of Teaching and Examinations for 2024- 2028 BATCH (2024 Scheme)

CSE/EEE- **CREDIT SCHEME FOR I SEMESTER BE**														
					Physics Cycle									
S. No.	**Course and Course Code**		**Course Title**	**BO S**	**Credit Distribution**				**Overall Credits**	**Contact Hours**	**Marks**			
					L	**T**	**P**	**S**			**CI E**	**SEE**	**Tot al**	
1	ASC	24MAT11	Applied Mathematics for Engineers – I	AS	2	1	1	0	4	2+2+2	50	50	100	
2	ASC	24PHY12	Applied Physics for Engineers	AS	3	0	1	0	4	4+2	50	50	100	
3	ESC-I	24ESC131	Basic Electronics	ECE	3	0	0	0	3	4	50	50	100	
4	PLC-I	24PLC141	Problem solving using python	CS	2	0	1	0	3	3+2	50	50	100	
5	ETC-I	24ETC151	Robotics and Automation	ME	3	0	0	0	3	4	50	50	100	
6	AEC	24ENG16	Communicative English	HSS	0	0	1	0	1	2	50	50	100	
7	HSS	24KSK17 / 24KBK17	Samskrutika Kannada/ Balake Kannada	HSS	1	0	0	0	1	2	50	50	100	
8	AEC	24EIH18	Engineering Innovations in Health Care	AS	1	0	0	0	1	2	50	50	100	
Total									20	31	400	400	800	

(ESC-I) Engineering Science Courses-I		**(ETC-I) Emerging Technology Courses-I**	
24ESC131	Basic Electronics	24ETC151	Robotics and Automation
24ESC132	Basic Electrical Engineering	24ETC152	Basics of Electric Vehicles
24ESC133	Basic Mechanical Engineering	24ETC153	Fundamentals of Internet of Things
24ESC134	Basic Civil Engineering	24ETC154	Drone Technology
		24ETC155	Fundamentals of Cyber Security
(PLC-I) Programming Language Courses-I		24ETC156	Nano Technology
24PLC141	Problem Solving using Python	24ETC157	Renewable Energy Sources
24PLC142	Problem Solving using C		
24PLC143	Basic Web Programming		

NEW HORIZON COLLEGE OF ENGINEERING

Scheme of Teaching and Examinations for 2024- 2028 BATCH (2024 Scheme)

CSE/EEE: CREDIT SCHEME FOR III SEMESTER BE

Chemistry Cycle

S. No	Course and Course Code		Course Title	BOS	Credit Distribution				Overall Credits	Contact Hours	Marks		
					L	T	P	S			CIE	SEE	Total
1	ASC	24MAT21	Applied Mathematics for Engineers – II	AS	2	1	1	0	4	2+2+2	50	50	100
2	ASC	24CHE22	Applied Chemistry for Engineers	AS	3	0	1	0	4	4+2	50	50	100
3	ESC-II	24ESC232	Basic Electrical Engineering	EEE	3	0	0	0	3	4	50	50	100
4	ESC	24CSE24	Data Structures using C	CS	2	0	0	0	2	3	50	50	100
5	ESC	24CSL24	Data Structures using C Lab	CS	0	0	1	0	1	2	50	50	100
6	ESC	24CAD25	Computer Aided Engineering Drawing	ME	2	0	1	0	3	5	50	50	100
7	AEC	24ENG26	Professional writing skills in English	HSS	1	0	0	0	1	2	50	50	100
8	HSS	24CIP27	Constitution of India and Professional Ethics	HSS	1	0	0	0	1	2	50	50	100
9	AEC	24EDM28	Environment and Disaster Management	AS	1	0	0	0	1	2	50	50	100
Total									20	32	450	450	900

(ESC-I) Engineering Science Courses-I	
24ESC231	Basic Electronics
24ESC232	Basic Electrical Engineering
24ESC233	Basic Mechanical Engineering
24ESC234	Basic Civil Engineering
(PLC-I) Programming Language Courses-I	
24PLC241	Problem Solving using Python
24PLC242	Problem Solving using C
24PLC243	Basic Web Programming

(ETC-I) Emerging Technology Courses-I	
24ETC251	Robotics and Automation
24ETC252	Basics of Electric Vehicles
24ETC253	Fundamentals of Internet of Things
24ETC254	Drone Technology
24ETC255	Fundamentals of Cyber Security
24ETC256	Nano Technology
24ETC257	Renewable Energy Sources

NEW HORIZON COLLEGE OF ENGINEERING

B. E. in Electrical and Electronics Engineering

Scheme of Teaching and Examinations for 2024- 2028 BATCH (2024 Scheme)

III Semester														
S. No.	**Course and Course Code**		**Course Title**	**BoS**	**Credit Distribution**				**Overall Credits**	**Contact Hours**	**Marks**		
					L	**T**	**P**	**S**			**CIE**	**SEE**	**Total**
1	BSC	24MAE31	Numerical Methods and Transforms	BS	2	1	0	0	3	4	50	50	**100**
2	PCC	24EEE32	DC Machines and Transformers	EE	3	0	0	0	3	3	50	50	**100**
3	PCCL	24EEL32	DC Machines and Transformers Laboratory	EE	0	0	1	0	1	2	50	50	**100**
4	PCC	24EEE33	Electric Circuit Theory	EE	3	0	0	0	3	3	50	50	**100**
5	PCCL	24EEL33	Electric Circuit Theory Laboratory	EE	0	0	1	0	1	2	50	50	**100**
6	PCC	24EEE34	Measurements and Instrumentation	EE	3	0	0	0	3	3	50	50	**100**
7	PCC	24EEE35	Microcontroller and Embedded Systems	EE	3	0	0	0	3	3	50	50	**100**
8	AEC	24EEE36X	Ability Enhancement Course – III	EE	If the course is a Theory						50	50	**100**
					1	0	0	0	1	1			
					If the course is a Laboratory								
					0	0	1	0	1	2			
9	UHV	24DTK37	Design Thinking and Fabrication	Any Dept	1	0	0	0	1	1	50	50	**100**
10	NCMC	24NSS30	National Service Scheme	-	0	0	0	0	0	2	50	--	**50**
		24PED30	Physical Education and Sports	-									
		24YOG30	Yoga	-									
								Total	**19**	**24/25**	**500**	**450**	**950**

11	NCMC*	24DMAT31	Basic Applied Mathematics -I	BS	0	0	0	0	0	2	50	--	**50**

BSC: Basic Science Course, **PCC**: Professional Core Course, **PCCL**: Professional Core Course laboratory, **UHV**: Universal Human Value Course, **NCMC:** Non-Credit Mandatory Course, **AEC**: Ability Enhancement Course, **L:** Lecture, **T**: Tutorial, **P**: Practical **S: SDA**: Self Study for Skill Development, **K:** This letter in the course code indicates common to all the stream of engineering. **ESC:** Engineering Science Course, **ETC**: Emerging Technology Course, **PLC**: Programming Language Course, **CIE**: Continuous Internal Evaluation, **SEE**: Semester End Evaluation

Ability Enhancement Course – III (0-0-1-0)			
24EEE361	Microcontroller Interfacing and Control	24EEE364	555 IC Laboratory
24EEE362	MATLAB Programming for Problem Solving	24EEE365	Bio Inspired Design and Innovation (1-0-0-0)
24EEE363	Virtual Instrumentation Using LabVIEW		

NCMC*:24DMAT31: This non-credit mandatory course to be offered to Lateral entry students.

National Service Scheme /Physical Education/Yoga: All students have to register for any one of the courses namely National Service Scheme (NSS), Physical Education(PE) (Sports and Athletics), and Yoga (YOG) with the concerned coordinator of the course during the first week of III semesters. Activities shall be carried out between III semester to the VI semester (for 4 semesters). Successful completion of the registered course and requisite CIE score is mandatory for the award of the degree. The events shall be appropriately scheduled by the colleges and the same shall be reflected in the calendar prepared for the NSS, PE, and Yoga activities. These courses shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the course is mandatory for the award of degree.

Credit Definition: 1-hour Lecture (L) per week=1Credit 2-hoursTutorial(T) per week=1Credit 2-hours Practical / Drawing (P) per week=1Credit 2-hous Self Study for Skill Development (SDA) per week = 1 Credit	03-Credits courses are to be designed for 40 hours in Teaching-Learning Session 02- Credits courses are to be designed for 25 hours of Teaching-Learning Session 01-Credit courses are to be designed for 15 hours of Teaching-Learning Sessions

NEW HORIZON COLLEGE OF ENGINEERING
B. E. in Electrical and Electronics Engineering
Scheme of Teaching and Examinations for 2024- 2028 BATCH (2024 Scheme)

IV Semester													
S. No.	**Course and Course Code**		**Course Title**	**BoS**	**Credit Distribution**				**Overall Credits**	**Contact Hours**	**Marks**		
					L	**T**	**P**	**S**			**CIE**	**SEE**	**Total**
1	BSC	24MAE41	Complex Analysis and Probability	BS	2	1	0	0	3	4	50	50	**100**
2	PCC	24EEE42	Analog Electronics and Integrated Circuits	EE	3	0	0	0	3	3	50	50	**100**
3	PCCL	24EEL42	Analog Electronics and Integrated Circuits Laboratory	EE	0	0	1	0	1	2	50	50	**100**
4	PCC	24EEE43	Digital Logic Design	EE	3	0	0	0	3	3	50	50	**100**
5	PCCL	24EEL43	Digital Logic Design Laboratory	EE	0	0	1	0	1	2	50	50	**100**
6	PCC	24EEE44	Synchronous and Induction Machines	EE	3	0	0	0	3	3	50	50	**100**
7	PCCL	24EEL44	Synchronous and Induction Machines Laboratory	EE	0	0	1	0	1	2	50	50	**100**
8	PEC	24EEE45X	Professional Elective Course-I	EE	3	0	0	0	3	3	50	50	**100**
9	AEC	24EEE46X	Ability Enhancement Course – IV	EE	0	0	1	0	1	2	50	50	**100**
10	UHV	24UHK47	Universal Human Values and Life Skills	Any Dept	1	0	0	0	1	2	50	50	**100**
11	PROJ	24EEE48	Mini Project	EE	0	0	1	0	1	0	50	50	**100**
12	NCMC	24NSS40	National Service Scheme	-	0	0	0	0	0	2	50	--	**50**
		24PED40	Physical Education and Sports	-									
		24YOG40	Yoga	-									
Total									**21**	**28**	**600**	**550**	**1150**

13	NCMC*	24DMAT41	Basic Applied Mathematics-II	BS	0	0	0	0	0	2	50	--	**50**

BSC: Basic Science Course, **PCC**: Professional Core Course, **PCCL**: Professional Core Course laboratory, **UHV**: Universal Human Value Course, **NCMC:** Non-Credit Mandatory Course, **AEC**: Ability Enhancement Course, **PROJ**: Mini Project work, **L:** Lecture, **T**: Tutorial, **P**: Practical **S: SDA**: Self Study for Skill Development, **K:** This letter in the course code indicates common to all the stream of engineering. **ESC:** Engineering Science Course, **ETC**: Emerging Technology Course, **PLC**: Programming Language Course, **CIE**: Continuous Internal Evaluation, **SEE**:Semester End Evaluation.

NCMC*:24DMAT41: This non-credit mandatory course to be offered to Lateral entry students.

Professional Elective Course-I			
24EEE451	Electromagnetic Field Theory	24EEE454	Object Oriented Programming using JAVA
24EEE452	Principles of Communication Systems	24EEE455	Machine Learning Fundamentals
24EEE453	Utilization of Electrical energy		

Ability Enhancement Course – IV			
24EEE461	AutoCAD for Electrical Engineering	24EEE464	PCB Design Laboratory
24EEE462	Advanced Arduino Programming	24EEE465	Scilab for DC Machines and Transformers
24EEE463	Programming Using RoboDK		

Mini-project work: Mini Project is a laboratory-oriented/hands on course that will provide a platform to students to enhance their practical knowledge and skills by the development of small systems/applications etc. Based on the ability/abilities of the student/s and recommendations of the mentor. A student can do mini project as

(i) A group of 2 if mini project work is single discipline (applicable to all IT allied branches)

(ii) A group of 2- 4 if mini project work is single discipline (applicable to all Core Branches)

(iii) A group of 2 - 4 students if the Mini Project work is a multidisciplinary (Applicable to all Branches)

NEW HORIZON COLLEGE OF ENGINEERING
B. E. in Electrical and Electronics Engineering
Scheme of Teaching and Examinations for 2024- 2028BATCH (2024 Scheme)

V Semester													
S. No.	**Course and Course Code**		**Course Title**	**BoS**	**Credit Distribution**				**Overall Credits**	**Contact Hours**	**Marks**		
					L	**T**	**P**	**S**			**CIE**	**SEE**	**Total**
1	HSMS	24EEE51	Engineering Management and Entrepreneurship	EE	3	0	0	0	3	3	50	50	**100**
2	PCC	24EEE52	CMOS VLSI Design	EE	3	0	0	0	3	3	50	50	**100**
3	PCCL	24EEL52	CMOS VLSI Design Laboratory	EE	0	0	1	0	1	2	50	50	**100**
4	PCC	24EEE53	Control Systems	EE	3	0	0	0	3	3	50	50	**100**
5	PCCL	24EEL53	Control Systems Laboratory	EE	0	0	1	0	1	2	50	50	**100**
6	AEC*	24EEE54	Industrial Automation	EE	3	0	0	0	3	3	50	50	**100**
7	AEC	24RMK55	Research Methodology and IPR	EE	1	0	0	0	1	1	50	50	**100**
8	AEC	24SDK56	Problem Solving Methodologies	-	0	0	1	0	1	2	50	-	**50**
9	PROJ**	24EEE57	Societal Based Mini Project	EE	0	0	1	0	1	2	50	50	**100**
10	OEC*	26NHOP5XX	Industrial Open Elective Course-I	EE	3	0	0	0	3	3	50	50	**100**
11	NCMC	24NSS50	National Service Scheme	-	0	0	0	0	0	2	50	--	**50**
		24PED50	Physical Education and Sports	-									
		24YOG50	Yoga	-									
								Total	**20**	**26**	**550**	**450**	**1000**

PCC: Professional Core Course, **PCCL**: Professional Core Course laboratory, **UHV**: Universal Human Value Course, **NCMC:** Non-Credit Mandatory Course, **AEC**: Ability Enhancement Course, **PEC**: Professional Elective Course, **PROJ**: Mini Project work **L:** Lecture, **T**: Tutorial, **P**: Practical **S: SDA**: Self Study for Skill Development, **CIE**: Continuous Internal Evaluation, **SEE**:Semester End Evaluation

AEC* (Skill Based Core Course):

Credit for AEC* with 03 (L: T: P: S) credits can be considered as (3: 0: 0: 0). The teaching and learning of these Courses will be based on hands-on. The Course content will be from Industry Certification Course Content. The Course Assessment will be based on CIE and SEE in practical mode.

24EEE51(HSMS)- This course must be pertaining to economics and management of the concerned degree program. The course syllabus should have both economics and management topics and the course title should bear the word Management.

For IT allied Branches: Software Product/ Project Management

For Core Branches: Engineering Economics and Management / Industrial Management and Entrepreneurship.

Societal Based Mini Project **:

The Mini project can be done in any lab across college. A common slot in time table can be allotted across all departments.

Mini Project is a laboratory-oriented/hands on course that will provide a platform to students to enhance their practical knowledge and skills by the development of small systems/applications etc. Based on the ability/abilities of the student/s and recommendations of the mentor. A student can do mini project as

(i) A group of 2 if mini project work is single discipline (applicable to all IT allied branches)

(ii) A group of 3- 4 if mini project work is single discipline (applicable to all Core Branches)

(iii) A group of 3 - 4 students if the Mini Project work is a multidisciplinary (Applicable to all Branches)

CIE procedure for Mini-project:

(i) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two faculty members of the Department, one of them being the Guide. The CIE marks awarded for the Mini-project work shall be based on the evaluation of the project report, project presentation skill, and question and answer session in the ratio of 50:25:25. The marks awarded for the project report shall be the same for all the batches mates.

(ii) Interdisciplinary: Continuous Internal Evaluation shall be group-wise at the college level with the participation of all the guides of the project.

The CIE marks awarded for the Mini-project, shall be based on the evaluation of the project report, project presentation skill, and question and answer session in the percentage ratio of 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

Industrial Open Elective Courses-I:
Credit for OEC is 03 (L: T: P: S) can be considered as (3: 0: 0 : 0). The teaching and learning of these Courses will be based on hands-on. The Course Assessment will be based on CIE and SEE in practical mode. This Courses will be offered by Centre of Excellence to students of all the branches. Registration to Industrial open electives shall be documented and monitored on college level.

National Service Scheme /Physical Education/Yoga: All students have to register for any one of the courses namely National Service Scheme (NSS), Physical Education(PE) (Sports and Athletics), and Yoga (YOG) with the concerned coordinator of the course during the first week of III semesters. Activities shall be carried out between III semester to the VI semester (for 4 semesters). Successful completion of the registered course and requisite CIE score is mandatory for the award of the degree. The events shall be appropriately scheduled by the colleges and the same shall be reflected in the calendar prepared for the NSS, PE, and Yoga activities. These courses shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the course is mandatory for the award of degree.

Credit Definition: 1- hour Lecture (L) per week=1Credit 2-hoursTutorial(T) per week=1Credit 2- hours Practical / Drawing (P) per week=1Credit 2-hous Self Study for Skill Development (SDA) per week = 1 Credit	03-Credits courses are to be designed for 40 hours in Teaching-Learning Session 02- Credits courses are to be designed for 25 hours of Teaching-Learning Session 01-Credit courses are to be designed for 15 hours of Teaching-Learning Sessions

NEW HORIZON COLLEGE OF ENGINEERING

B. E. in Electrical and Electronics Engineering

Scheme of Teaching and Examinations for 2024- 2028 BATCH (2024 Scheme)

VI Semester														
S. No.	**Course and Course Code**		**Course Title**	**BoS**	**Credit Distribution**				**Overall Credits**	**Contact Hours**	**Marks**		
					L	**T**	**P**	**S**			**CIE**	**SEE**	**Total**
1	PCC	24EEE61	Power Electronics	EE	3	0	0	0	3	3	50	50	**100**
2	PCCL	24EEL61	Power Electronics Laboratory	EE	0	0	1	0	1	2	50	50	**100**
3	PCC	24EEE62	Generation, Transmission and Protection	EE	3	0	0	0	3	3	50	50	**100**
4	PCCL	24EEL62	Power System Protection Laboratory	EE	0	0	1	0	1	2	50	50	**100**
5	AEC*	24EEE63	Advanced Industrial and Building Automation	EE	3	0	0	0	3	3	50	50	**100**
6	PEC	24EEE64X	Professional Elective Course-II	EE	3	0	0	0	3	3	50	50	**100**
7	AEC	24EEE65X	Ability Enhancement Course – V	EE	If the course is a laboratory						50	50	**100**
					0	0	1	0	1	2			
8	NCMC	24SDK66	Advanced Problem-Solving Methodologies	-	0	0	0	0	0	2	50	--	**50**
9	PROJ	24EEE67	Cap Stone Project	EE	0	0	2	0	2	4	50	50	**100**
10	PCC	26NHOP6XX	Industrial Open Elective Course-II	Offering Dept.	3	0	0	0	3	3	50	50	**100**
11	NCMC	24NSS60	National Service Scheme	-	0	0	0	0	0	2	50	--	**50**
		24PED60	Physical Education	-									
		24YOG60	Yoga	-									
Total									**20**	**29**	**550**	**450**	**1000**

PCC: Professional Core Course, **PCCL**: Professional Core Course laboratory, **NCMC:** Non-Credit Mandatory Course, **AEC**: Ability Enhancement Course, **PEC**: Professional Elective Course, **OEC**: Open Elective Course, **PROJ**: Project work**, L:** Lecture, **T**: Tutorial, **P**: Practical **S: SDA**: Self Study for Skill Development, C**IE**: Continuous Internal Evaluation, **SEE**:Semester End Evaluation.

AEC* (Skill Based Core Course):
Credit for AEC* with 03 (L: T: P: S) credits can be considered as (3: 0: 0: 0). The teaching and learning of these Courses will be based on hands-on. The Course content will be from Industry Certification Course Content. The Course Assessment will be based on CIE and SEE in practical mode.

Professional Elective Course-II			
24EEE641	Advanced Control Systems	24EEE644	Web Design Technologies (2:0:1:0)
24EEE642	Signals and DSP	24EEE645	Introduction to Cybersecurity
24EEE643	High Voltage Engineering		

Ability Enhancement Course – V			
24EEE651	Transducers and Sensors Laboratory	24EEE654	AI Assisted Technical Writing Using Latex
24EEE652	Multisim for Electrical design	24EEE655	Electronics Circuit Design Using Proteus
24EEE653	LAB View for Electrical Applications		

Industrial Open Elective Courses-II:
Credit for OEC is 03 (L: T: P: S) can be considered as (3: 0: 0 : 0). The teaching and learning of these Courses will be based on hands-on. The Course Assessment will be based on CIE and SEE in practical mode. This Courses will be offered by Centre of Excellence to students of all the branches. Registration to Industrial open electives shall be documented and monitored on college level.

Professional Elective Courses (PEC): A professional elective (PEC) course is intended to enhance the depth and breadth of educational experience in the Engineering and Technology curriculum. Multidisciplinary courses can be added to supplement the latest trend and advanced technology in the selected stream of engineering.

Cap Stone Project:

Students have to discuss with the mentor /guide and with their help he/she has to define the problem statement for the project.

The objective of the Project is

- To encourage independent learning and the innovative attitude of the students.
- To develop interactive attitude, communication skills, organization, time management, and presentation skills.
- To impart flexibility and adaptability.
- To inspire team working.
- To expand intellectual capacity, credibility, judgment and intuition.
- To adhere to punctuality, setting and meeting deadlines.
- To install responsibilities to oneself and others.
- To train students to present the topic of project work in a seminar without any fear, face the audience confidently, enhance communication skills, involve in group discussion to present and exchange ideas.

CIE procedure for Project Work:

1. **Single discipline:** The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide.
   The CIE marks awarded for the project work, shall be based on the evaluation of the project work Report, project presentation skill, and question and answer session in the percentage ratio of 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.
2. **Interdisciplinary:** Continuous Internal Evaluation shall be group-wise at the college level with the participation of all guides of the college. Participation of external guide/s, if any, is desirable. The CIE marks awarded for the project work, shall be based on the evaluation of project work Report, project presentation skill, and question and answer session in the percentage ratio of 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

   SEE procedure for Project Work: SEE for project work will be conducted by the two examiners appointed by the University. The SEE marks awarded for the project work shall be based on the evaluation of project work Report, project presentation skill, and question and answer session in the percentage ratio of 50:25:25.

National Service Scheme /Physical Education/Yoga: All students have to register for any one of the courses namely National Service Scheme (NSS), Physical Education(PE) (Sports and Athletics), and Yoga (YOG) with the concerned coordinator of the course during the first week of III semesters. Activities shall be carried out between III semester to the VI semester (for 4 semesters). Successful