



CHOICE BASED CREDIT SYSTEM

(Applicable to all students registering from the academic year 2024 onwards)

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

B.E ELECTRICAL AND COMPUTER ENGINEERING

CURRICULUM

ACADEMY OF MARITIME EDUCATION AND TRAINING

DEEMED TO BE UNIVERSITY

135, EAST COAST ROAD

KANATHUR, CHENNAI – 603112



About the Institution

India's first Maritime Deemed to be University for maritime-related education, training and research. Overlooking the deep blue sea cradled by the Bay of Bengal and tucked in the scenic drive way of east coast road is AMET. The one and only University from India to be a member of the International Association of Maritime Universities. With quality, commitment, knowledge and excellence as its corner stones, AMET had a humble beginning in the year 1993 with just 14 cadets moulded for a career in merchant navy through a Higher National Diploma programme in marine engineering. AMET's uncompromising strides of excellence in the field of maritime education and training laced with its capacity to feed the global shipping industry with an unrivalled maritime human resource secured it the status of becoming the first Deemed to be University in India for maritime education, training, research and development activities on the 21st August 2007.

AMET serves as an ocean of knowledge for over 3500 students pursuing Programmes ranging from Diploma to Doctoral programs through Faculty of Maritime Studies, Faculty of Engineering and Technology, Faculty of Advanced Computing Science, Faculty of Management Studies, Faculty of Commerce, Faculty of Life Sciences, Faculty of Liberal Arts, Faculty of Science and Humanities, related to marine and general sector programmes. Equipped with an excellent infrastructure for research and development, co-curricular and extracurricular activities AMET secured its compliance certificate for ISO 9001:2015 QMS standards from the prestigious and globally renowned DET NORSKE VERITAS, Norway.

About the Department

Department of Electrical and Electronics Engineering is established in the year 2008 with the objective of imparting quality education of international standards and to produce highly innovative Marine Electrical and Electronics Engineers capable of solving global maritime challenges. Since its inception in the year 2008, the Department has grown steadily and acquired the present shape with excellent infrastructure, modern equipment for the laboratories and qualified and dedicated faculty to impart sound technical knowledge to the enthusiastic student community. As on date, the Department has successfully produced Thirteen batches of talented graduates who are serving in prestigious shipping industries and organizations.



The Department of Electrical and Electronics Engineering is constituted and administered to provide a professional atmosphere for scholars, students, educators and engineers to enrich the discipline of Electrical, Electronics and Marine Engineering. The Department offers a well-balanced undergraduate Electrical and Computer Engineering program and postgraduate M-E (Power Systems) program and PhD- Electrical and Electronics Engineering program of technological and scientific study designed to serve the professional needs of the baccalaureate.

The Department gives opportunity to learn marine related courses for the students and pursue studies related to the scientific concepts, technological advancements and design principles of Electrical and Electronics Engineering pertaining to Onshore and Offshore applications as well. This Programme is designed to enable the Engineers coming out of the stream to work on board the ship as Electrical Engineers. Jobs with shipyards, dry docks, ship machinery manufacturers are some of the other fields they can look into.

About the Program

Electrical and Computer Engineering includes program educational objectives for both the Electrical Engineering program and Computer Engineering program. Since the Industries are moving towards the trending computer technology, it is the time to shift from conventional Programme to booming Electrical and Computer Engineering. This program provides a solid foundation in high technology problem-solving and enables engineers to expand their careers into other fields. Electrical and computer engineers work at the frontier of high technology and are involved in research, the creation of new ideas, the design and development of new products and technologies, manufacturing and marketing activities. All the industries are equipped with modernized and automated equipment for quicker and smoother operation, they are in need of Electrical and Computer Engineers.

The Salient features of proposed curriculum:

- Open Elective courses
- Professional Elective courses – offered by L&T EduTech
- Mandatory Courses – Regional Language
- Internship training program attached with Core Industries
- Value added training programs and Skill Development programs



- Design projects along with Main Projects



Vision and Mission of the Institute

Vision

To sustain identity as a World Class Leader in Maritime Education and empower learners with wholesome knowledge through progressive innovation in training, research and development which will render students a unique learning experience and a transformation impact on the Global Society.

Mission

AMET will strive continuously to

- Impart value-based higher education and technical knowledge with uncompromising strides of an outstanding quality.
- Emerge as a Centre of Excellence inculcating skill development in recent technologies in accordance with industrial trends.
- Create World class research capabilities on par with the finest in the world and broaden student's horizons beyond classroom education.
- Nurture talent and entrepreneurship to enable all round personality development among students.
- Empower students across socio economic strata.
- Make a positive difference to society through technical education.



Vision and Mission of the Department

Vision

To emerge as a Centre for higher learning and research through development of highly competent, innovative and world class Electrical and Computer Science Engineers while remaining sensitive to ethical, societal and environmental issues.

Mission

- To impart quality education in order to produce highly innovative, socio-economically conscious Electrical and Computer Science Engineers.
- To provide knowledge and skills, that is essential to meet the local and global demands in Electrical and Computer Science Engineering.
- To upgrade student's technical knowledge through industry interaction activities.
- To foster strong ethics, positive attitude and transform the Department into Centre of Excellence by promoting world class research and development to meet the challenging needs of society.
- To motivate and guide students for developing entrepreneurship or pursue higher education and train them for overall personality development.

Program Educational Objectives (PEO's)

The Electrical and Computer Engineering Program graduates will

<u>PEO 1</u>	Have a successful career in Marine or other related Electrical and Computer Engineering fields or pursue higher education and research in multidisciplinary area.
<u>PEO 2</u>	Apply Engineering fundamentals, technical knowledge, skills and modern tools to solve real world Electrical and Computer Engineering problems in Maritime industries.
<u>PEO 3</u>	Adapt to any environment and practice the ethics of their profession, consistent with a sense of social responsibility.
<u>PEO 4</u>	Exhibit the skills by updating the breadth of knowledge in the life-long learning process to meet the global challenges.



Program Outcomes (PO's) & Program Specific Outcomes (PSO's)

Program Outcomes (PO's)	
PO 1	Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	Problem Analysis: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	Design/development of Solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	Conduct Investigations of Complex Problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	Modern Tool Usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO 6	The Engineer and Society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO 7	Environment and Sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	Individual and Team Work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.



PO 10	Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions
PO 11	Project Management and Finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments
PO 12	Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes (PSO's)

<u>PSO 1</u>	Apply the knowledge of Electrical and Computer Engineering, investigate and solve the complex Marine Electrical Engineering problems to meet the specified needs with appropriate considerations for the society.
<u>PSO 2</u>	Develop solutions for complex Engineering problems in the broad field of power electronics and drives, power systems, Embedded systems, high voltage Engineering and Marine Engineering and control using Artificial Intelligence, Machine Learning and IoT.
<u>PSO 3</u>	Analyze, design and integrate Electrical and Computer systems in on board ships and apply modern tools and techniques in core industries and create passion for life-long learning and research in advanced fields.



GENERAL COURSE STRUCTURE

A. 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	0.5 Credit
2 Hours Practical (P) per week	1 Credit

B. Range of Credits: In the light of the fact that a typical Model Four-year Under Graduate degree program in Engineering has about 160 credits, the total number of credits proposed for the four-year B. Tech/B.E. in Electrical and Computer Engineering (Engineering & Technology) is kept as 161

C. Credit distribution for courses under different curricular components

Category of Courses	Sem 1	Sem 2	Sem3	Sem4	Sem5	Sem 6	Sem 7	Sem 8	Total
Basic Science Course	8	8	4	2	-	-	-	-	22
Humanities and Social Science including Management Courses	3	3	3	-	-	-	3	-	12
Engineering Science Course	7	5	4	-	4	-	-	-	20
Professional Core Course	4	4	7	12	11	14	7	3	62
Professional Elective Course	-	-	3	3	3	3	3	3	18
Open Elective Course	-	-	-	3	3	3	3	-	12
Mandatory Course / Internship / Project	-	-	1	2	-	1	3	8	15
TOTAL	22	20	22	22	21	21	19	14	161



Credit distribution for courses under different curricular components

CBCS CURRICULUM 2024 Onwards

Basic Science Courses: (Credits to be earned: 22)

S. No	Course Code	Course Title	L	T	P	C	Prerequisite
1	246PH1A01TD / 246PH1A01PD	Engineering Physics *	3	0	2	4	
2	246MA1A11TA	Calculus and Linear Algebra *	3	1	0	4	
3	246CH1A01TA / 246CH1A01PA	Engineering Chemistry *	3	0	2	4	
4	246MA1A21TB	Transforms and Differential Equations *	3	1	0	4	
5	246MA1A31TC	Probability and Statistics *	3	1	0	4	
6	246MA1A41TD	Mathematical foundation for AI and Data science *	2	0	0	2	
7	246MA1A41TE	Operation Research **	3	1	0	4	
8	246MA1A41TF	Discrete Mathematics **	3	1	0	4	
9	246PH1A21TB / 246PH1A21PB	Physics for Quantum Computing **	3	0	2	4	
10	246PH1A01TC	Biology for Engineers **	3	0	0	3	

Humanities and Social Science including Management Courses: (Credits to be earned: 12)

S. No	Course Code	Course Title	L	T	P	C	Prerequisite
1	246EN1A12TE	Technical English *	2	0	0	2	
2	246EN1A12PF	Communication Skills Lab - I *	0	0	2	1	
3	246EN1A22PG	Communication Skills Lab – II *	0	0	2	1	
4	246MG1A22TA	Professional Ethics and Human Values *	3	0	0	3	
5	246MG1A32TB	Total Quality Management *	3	0	0	3	
6	246MG1A32TC	Intellectual Property Rights **	3	0	0	3	
7	246MG1A32TD	Principles of Management **	3	0	0	3	
8	246MG1A32TE	Foundation of Management and Organizational Behavior **	3	0	0	3	



9	246MG1A32TF	Entrepreneurship and Startups**	2	0	2	3	
10	246EN1A32PH	Interpersonal Communication **	0	0	2	1	
11	246EN1A42PI	Professional Communication **	0	0	2	1	
12	246MG1A32TG	Universal Human Values- 2 ** (Understanding Harmony and Ethical Human Contact)	3	0	0	3	
13	246MG1A32TH	Design Thinking**	0	0	2	1	
14	246MG1A32TI	Project Management**	3	0	0	3	
15	246MG1A32TJ	Engineering Economics**	3	0	0	3	
16	246MG1A32TK	Psychology**	3	0	0	3	

Engineering Science Courses: (Credits to be earned: 22)

S. No	Course Code	Course Title	L	T	P	C	Prerequisite
1	242CS1A13TA / 242CS1A13PA	Python for problem solving *	3	0	2	4	
2	242CS1A23TB / 242CS1A23PB	Object oriented Programming using C++ *	3	0	2	4	
3	242MC1A13PA	Engineering Drawing and Computer Graphics *	1	0	4	3	
4	242MC1A23PB	Workshop Practices *	0	0	4	1	
5	242MC1A33TA	Engineering Mechanics**	3	0	0	3	
6	242MC1A33TB	Thermodynamics**	3	0	0	3	
7	242MC1A33TC	Fluid Mechanics and Machines **	3	0	0	3	
8	242MC1A33TD	Mechanics of materials **	3	0	0	3	
9	242MC1A33TE	Material Science and Engineering**	3	0	0	3	
10	242EE1A53TD / 242EE1A53PD	Artificial Intelligence and Neural Networks*	3	0	2	4	
11	242EE1A03TA / 242EE1A03PA	Basic Electrical and Electronics Engineering*	3	0	2	4	
12	242EE1A03TB	Digital System Design	3	0	0	3	
13	242EE1A33TC	Data Structures & Algorithms	3	0	0	3	
14	242EE1A33TD	Basic Electrical Engineering*	3	0	2	4	



Professional Core Courses: (Credits to be earned: 55)

S. No	CourseCode	Course Title	L	T	P	C	Prerequisite
1	242EE1A14TA / 242EE1A14PA	Electronic Devices and Circuits	3	0	2	4	
2	242EE1A24TB / 242EE1A24PB	Circuits and Network Analysis	3	0	2	4	
3	242EE1A34TC / 242EE1A34PC	Electrical Machines-I	3	0	2	4	
4	242EE1A34TD	Electromagnetic Theory	3	0	0	3	
5	242EE1A44TE / 242EE1A44PE	Processor and Controllers	3	0	2	4	
6	242EE1A44TF / 242EE1A44PF	Electrical Machines -II	3	0	2	4	
7	242EE1A44TG / 242EE1A44PG	Marine Electrical Technology	3	0	2	4	
8	242EE1A54TH / 242EE1A54PH	Power Electronics	3	0	2	4	
9	242EE1A54TI / 242EE1A54PI	Linear and Digital Integrated Circuits	3	0	2	4	
10	242EE1A64TJ / 242EE1A64PJ	Control systems	3	0	2	4	
11	242EE1A64TK / 242EE1A64PK	Digital Signal Processing	3	0	2	4	
12	242EE1A64TL	Data Science	3	0	0	3	
13	242EE1A74TM / 242EE1A74PM	Machine Learning	3	0	2	4	
14	242EE1A74TN	Power system protection and switchgear	3	0	0	3	



Professional Elective Courses: (Credits to be earned: 15)

S. No	Course Code	Course Title	L	T	P	C	Prerequisite
MARINE COURSES							
1.	242EE1AX5TA	Power Plant Engineering	3	0	0	3	
2.	242EE1AX5TB	Marine Electrical Technology	3	0	0	3	
3.	242EE1AX5TC	Process Control and Marine Automation	3	0	0	3	
4.	242EE1AX5TD	Maintenance of marine electrical Equipments.	3	0	0	3	
5.	242EE1AX5TE	Marine Electrical Propulsion and Control	3	0	0	3	
6.	242EE1AX5TF	Marine Control Engineering and Automation	3	0	0	3	
7.	242EE1AX5TG	Marine Electrical System Design and Layout	3	0	0	3	

COMPUTER COURSES							
1.	242EE1AX5TH	Embedded System Design	3	0	0	3	
2.	242EE1AX5TI	Processors and Controllers	3	0	0	3	
3.	242EE1AX5TJ	Big Data Mining and Analytics**	3	0	0	3	
4.	242EE1AX5TK	Deep Learning	3	0	0	3	
5.	242EE1AX5TL	Computer Networks and Industrial Communication	3	0	0	3	
6.	242EE1AX5TM	Industrial IOT	3	0	0	3	
ELECTRICAL COURSES							
1	242EE1AX5TN	Power System Transmission & Distribution	3	0	0	3	
2	242EE1AX5TO	Power System Analysis	3	0	0	3	
3	242EE1AX5TP	Solid States Drives	3	0	0	3	
4	242EE1AX5TQ	High Voltage Engineering	3	0	0	3	
5	242EE1AX5TR	Flexible AC Transmission Systems	3	0	0	3	



6	242EE1AX5TS	Power Electronics for Renewable Energy Systems	3	0	0	3	
7	242EE1AX5TT	Hybrid Electric Vehicle	3	0	0	3	
8	242EE1AX5TU	PLC and SCADA systems	3	0	0	3	

Open Elective Courses: (Credits to be earned: 15)

S. No	Course Code	Course Title	L	T	P	C	Prerequisite
1	242EE1A46TA	Online Certification Course 1	3	0	0	3	
2	242EE1A56TB	Online Certification Course 2	3	0	0	3	
3	242EE1A66TC	Online Certification Course 3	3	0	0	3	
4	242EE1A86TD	Online Certification Course 4	3	0	0	3	
5	242EE1A86TE	Online Certification Course 5	3	0	0	3	

Mandatory Courses: (Credits to be earned: 0)

S. No	Course Code	Course Title	L	T	P	C	Prerequisite
1	249MD1A08TA	Universal Human values – Induction Program	3 weeks				
2	249MD1A08TB	Environmental Science	2	0	0	0	
	249MD1A08TC	Universal Human Values: Understanding Harmony	2	0	0	0	
3	249MD1A08TD	Indian Constitution	2	0	0	0	
4	249MD1A08TE	Essence of Indian Traditional Knowledge	2	0	0	0	
5	249MD1A08TF	Gender Sensitivity	2	0	0	0	
6	249MD1A08PG	In-plant Training	0	0	0	0	
7	249MD1A08PH	Paper Publication	0	0	0	0	

Value Added Courses: (Credits to be earned: 0)

S. No	Course Code	Course Title	L	T	P	C	Prerequisite
1	242EE1A19PA	Value Added Course - I	2	0	0	0	
2	242EE1A29PB	Value Added Course - II	2	0	0	0	
3	242EE1A39PC	Value Added Course - III	2	0	0	0	
4	242EE1A49PD	Value Added Course - IV	2	0	0	0	
5	242EE1A59PE	Value Added Course - V	2	0	0	0	
6	242EE1A69PF	Value Added Course - VI	2	0	0	0	

Internship: (Credits to be earned: 5)



S. No	Course Code	Course Title	L	T	P	C	Remarks
1	242EE1A27PA	Internship - I	0	0	0	1	During II Year Summer Vacation
2	242EE1A27PB	Internship - II	0	0	0	1	During III Year Summer Vacation
3	242EE1A27PC	Internship - III	0	0	0	3	During VII Sem

Project: (Credits to be earned: 14)

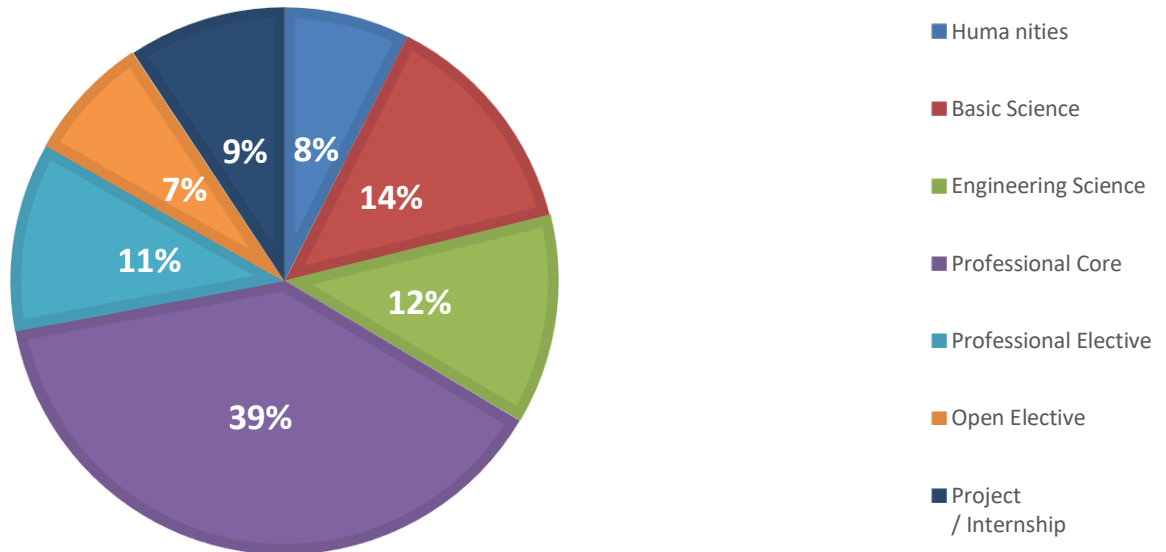
S. No	Course Code	Course Title	L	T	P	C	Remarks
1	242EE1A47PA	Design / Mini Project - I	0	0	0	2	During IV Sem
2	242EE1A67PB	Design/ Mini Project - II	0	0	0	2	During VI Sem
3	242EE1A77PC	Project Phase - I	0	0	0	2	During VII Sem
4	242EE1A77PD	Project Phase - II	0	0	0	8	During VIII Sem

Distribution of Credits

As Per	Huma nities	Basic Science	Enginee ring Science	Professional Core	Professional Elective	Open Elective	Project / Internship	Total
AICTE 2018	12	26	20	53	18	18	11	158
AMET (Proposed)	12 - 15	20 - 25	20 - 23	50 - 62	15 - 18	12 - 15	12 - 20	160
B.E ECE	12	22	20	62	15	12	15	161



DISTRIBUTION OF CREDITS





FACULTY OF ENGINEERING AND TECHNOLOGY
CURRICULUM FOR B.E. Electrical and Computer Engineering
ACADEMIC YEAR – 2024-25

SEMESTER I

S. No	Course Code	Category	Course Title	Contact Hours	L	T	P	C
THEORY								
1	246PH1A01TD	Basic Science Course	Engineering Physics	3	3	0	0	3
2	246MA1A11TE	Basic Science Course	Calculus and LinearAlgebra	4	3	1	0	4
3	244CS1A13TB	Engineering Science Course	Object oriented Programming using C++	3	3	0	0	3
4	242EE1A14TA	Professional Core	Electronic Devices and Circuits	3	3	1	0	3
5	249MD1A08TA	Mandatory Course	Environmental Science	2	2	0	0	0
6	242EE1A19PA	In – House Program	Value Added Course I	30 Hrs.				
PRACTICAL								
7	246PH1A01PD	Basic Science Course	Engineering Physics Lab	2	0	0	2	1
8	244CS1A13PB	Engineering Science Course	Object oriented Programming using C++ Lab	2	0	0	2	1
9	242EE1A14PA	Professional Core	Electronic Devices and Circuits Laboratory	2	0	0	2	1
10	249MD1A08TA	Mandatory Course 1	Universal Human values – Induction Program	3 Weeks				
11	242MC1A13PA	Engineering Science Course	Engineering Drawing and Computer Graphics	5	1	0	4	3
12	246EN1A12PF	Humanities and Social Science	Communication Skills Lab - I	2	0	0	2	1
TOTAL				28	15	2	13	20

***L- Lecture; T-Tutorial; P-Practical; C-Credit**

Total Hours Available = 5x7 = 35 Hrs

Total Hours for regular courses = 30 Hrs (15 Hrs Lec + 2 Hrs Tut + 13 Hrs Pra)

Hours for Aptitude Training = 2Hrs, Mentor- Mentee / Library = 1Hr

Hours for Communication and Personality Development = 2 Hrs



SEMESTER II

S. No	Course Code	Category	Course Title	Contact Hours	L	T	P	C
THEORY								
1	246EN1A12TE	Humanities and Social Science	Technical English	2	2	0	0	2
2	246CH1A01TA	Basic Science Course	Engineering Chemistry	3	3	0	0	3
3	246MA1A21TF	Basic Science Course	Transforms and Partial Differential Equations	4	3	1	0	4
4	242CS1A23TA	Engineering Science Course	Python for Problem Solving	4	3	1	0	3
5	246MG1A22TA	Humanities and Social Science	Professional Ethics and Human Values	3	3	0	0	3
6	242EE1A24TB	Professional Core	Circuits and Network Analysis	4	3	1	0	3
7	249MD1A08TB	Mandatory Course	Essence of Indian Traditional Knowledge	2	2	0	0	0
8	242EE1A29PB	Industry Connect program	Value Added Course II	30 Hrs.				
PRACTICAL								
9	246CH1A01PA	Basic Science Course	Engineering Chemistry Lab	2	0	0	2	1
10	242CS1A23PB	Engineering ScienceCourse	Python for Problem Solving Lab	2	0	0	2	1
11	242EE1A24PB	Professional Core	Circuits and Network Analysis Laboratory	2	0	0	2	1
12	242MC1A23PA	Engineering ScienceCourse	Workshop Practices	3	0	0	3	1
TOTAL				30	19	3	8	22

***L- Lecture; T-Tutorial; P-Practical; C-Credit**

Total Hours Available = 5x7 = 35 Hrs

Total Hours for regular courses = 30 Hrs (19 Hrs Lec + 3 Hrs Tut + 8 Hrs Pra)

Hours for Aptitude Training = 2 Hrs

Hours for Communication and Personality Development = 2 Hrs

Mentor- Mentee / Library = 1 Hr



SEMESTER III

S. No	Course Code	Category	Course Title	Contact Hours	L	T	P	C
THEORY								
1	246MA1A31TC	Basic Science Course	Probability and Statistics	4	3	1	0	4
2	242EE1A34TC	Professional Core Course 2	Electrical Machines-I	4	3	1	0	3
3	242EE1A34TD	Professional Core Course 3	Electromagnetic Theory	4	3	1	0	3
4	249MD1A08TC	Mandatory Course	Indian Constitution	2	2	0	0	0
5	L & T Course	Professional Core Course	Foundations of EV & Hybrid Vehicles	3	3	0	0	3
6	242EE1A33TC	Engineering Science Course	Data Structures & Algorithms	3	3	0	0	3
7	246MG1A32TB	Humanities and Social Science	Total Quality Management	3	3	0	0	3
8	242EE1A39PC	In – House Program	Value Added Course III	30 Hrs.				
PRACTICAL								
9	242EE1A34PC	Professional Core Course	Electrical Machines-I Laboratory	2	0	0	2	1
10	242EE1A33PC	Engineering Science Course	Data Structures & Algorithms Laboratory	2	0	0	2	1
11	242EE1A27PA	Mandatory Course	Internship - I	0	0	0	0	1
TOTAL				27	20	3	4	22

***L- Lecture; T-Tutorial; P-Practical; C-Credit**

Total Hours Available = 5x7 = 35 Hrs

Total Hours for regular courses = 27 Hrs (20 Hrs Lec + 3 Hrs Tut + 4 Hrs Pra)

Hours for Aptitude Training = 2 Hrs

Hours for Placement Training = 2 Hrs

Hours for Communication and Personality Development = 2 Hrs

Mentor- Mentee / Library = 1Hr

Seminar – 1Hr



SEMESTER IV

S. No	Course Code	Category	Course Title	Contact Hours	L	T	P	C
THEORY								
1	246MA1A41TD	Basic Science Course	Mathematical foundation for AI and Data science	3	3	0	0	2
2	242EE1A44TE	Professional Core Course	Processors and Controllers	3	3	0	0	3
3	242EE1A44TF	Professional Core Course	Electrical Machines - II	4	3	1	0	3
4	L & T Course	Professional Core Course	EV Battery Technology and Power Train Development	3	3	0	0	3
5		Professional Elective Course	Student Choice	3	3	0	0	3
6	242EE1A46TA	Open Elective Course (Inter Disciplinary Course)	Online Certification Course 1	-	-	-	-	3
7	249MD1A08TD	Mandatory Course	Universal Human Values: Understanding Harmony	2	2	0	0	0
8	242EE1A27PB	Mandatory Course	Internship II	0	-	-	-	1
9	242EE1A49PD	Industry Connect Program	Value Added Course IV	30 Hrs.				
PRACTICAL								
10	242EE1A44PE	Professional Core Course	Processor and Controllers Laboratory	2	0	0	2	1
11	242EE1A44PF	Professional Core Course	Electrical Machines –II Laboratory	2	0	0	2	1
12	242EE1A47PA		Design Project - I	3	0	0	3	2
TOTAL				27	17	1	9	22

***L- Lecture; T-Tutorial; P-Practical; C-Credit**

Total Hours Available = 5x7 = 35 Hrs

Total Hours for regular courses = 27 Hrs (17 Hrs Lec + 1 Hrs Tut + 9 Hrs Pra)

Hours for Aptitude Training = 2Hrs

Hours for Placement Training = 2Hrs

Hours for Communication and Personality Development = 2 Hrs

Mentor- Mentee / Library = 1Hr

Seminar – 1Hr



SEMESTER V

S. No	Course Code	Category	Course Title	Contact Hours	L	T	P	C
THEORY								
1	242EE1A53TD	Engineering ScienceCourse	Artificial Intelligence & Neural Networks	4	3	1	0	3
2	242EE1A54TH	Professional Core Course	Power System Transmission & Distribution	4	3	1	0	3
3	242EE1A54TI	Professional Core Course	Linear and Digital Integrated Circuits	4	3	1	0	3
4	L & T Course	Professional Core Course	EV Power Electronics & Embedded Systems	4	3	1	0	3
6		Professional Elective Course	Student Choice	3	3	0	0	3
7	242EE1A56TB	Open Elective Course (Inter Disciplinary Course)	Online Certification Course 2	0	0	0	0	3
8	249MD1A08TE	Mandatory Course	Gender Sensitivity	2	2	0	0	0
9	242EE1A59PE	In – House Program	Value Added Course V	30 Hrs.				
PRACTICAL								
10	242EE1A53PD	Engineering ScienceCourse	Artificial Intelligence & Neural Networks Laboratory	2	0	0	2	1
11	242EE1A54PJ	Professional Core Course	Linear and Digital Integrated Circuits Laboratory	2	0	0	2	1
TOTAL				27	17	4	6	21

***L- Lecture; T-Tutorial; P-Practical; C-Credit**

Total Hours Available = 5x7 = 35 Hrs

Total Hours for regular courses = 27 Hrs (17 Hrs Lec + 4 Hrs Tut + 6 Hrs Pra)

Hours for Aptitude Training = 2 Hrs

Hours for Placement Training = 2Hrs

Hours for Communication and Personality Development = 2 Hrs

Mentor- Mentee / Library = 1Hr

Seminar – 1Hr



SEMESTER VI

S. No	Course Code	Category	Course Title	Contact Hours	L	T	P	C
THEORY								
1	242EE1A64TK	Professional Core Course	Control Systems	4	3	1	0	3
2	242EE1A64TL	Professional Core Course	Digital Signal Processing	4	3	1	0	3
3	242EE1A64TM	Professional Core Course	Data Science	4	3	1	0	3
4	L & T Course	Professional Core Course	EV Charging Infra Structure, Vehicle Testing & Homologation	4	3	1	0	3
5		Professional Elective Course	Student Choice	3	3	0	0	3
6	242EE1A66TC	Open Elective Course(Inter Disciplinary Course)	Online Certification Course 3	-	-	-	-	3
7	249MD1A08PG	Mandatory Course	In-plant Training	-	-	-	-	-
8	242EE1A69PF	Industry Connect program	Value Added Course VI	30 Hrs.				
PRACTICAL								
9	242EE1A64PL	Professional Core Course	Digital Signal Processing Laboratory	2	0	0	2	1
10	242EE1A64PK	Professional Core Course	Control Systems Laboratory	2	0	0	2	1
11	242EE1A67PB		Design Project - II	4	0	0	4	1
TOTAL				27	15	4	8	21

***L- Lecture; T-Tutorial; P-Practical; C-Credit**

Total Hours Available = 5x7 = 35 Hrs

Total Hours for regular courses = 27 Hrs (15 Hrs Lec + 4 Hrs Tut + 8 Hrs Pra)

Hours for Placement Training = 2 Hrs

Hours for Aptitude Training = 2 Hrs

Hours for Communication and Personality Development = 2 Hrs

Mentor- Mentee / Library = 1 Hr

Seminar – 1 Hr



SEMESTER VII

S. No	Course Code	Category	Course Title	Contact Hours	L	T	P	C
THEORY								
1	242EE1A74TO	Professional Core Course	Machine Learning	4	3	1	0	3
2	242EE1A74TP	Professional Core Course	Power System Protection & Switchgear	4	3	1	0	3
3	L & T Course	Professional Core Course	EV Vehicle Design & Analysis	3	3	0	0	3
4		Professional Elective Course	Student Choice	4	3	1	0	3
5	246MG1A32TC	Humanities and Social Science	Intellectual Property Rights	3	3	0	0	3
6	242EE1A86TD	Open Elective Course (Inter Disciplinary Course)	Online Certification Course 4	0	-	-	-	3
PRACTICAL								
7	242EE1A74PO	Professional Core Course	Machine Learning Laboratory	2	0	0	2	1
8	242EE1A27PC	Mandatory Courses	Internship - III	-	-	-	-	1
9	242EE1A77PC	Project	Project Phase - I	3	-	-	-	2
TOTAL				23	15	3	0	22

SEMESTER VIII

S. No	Course Code	Category	Course Title	Contact Hours	L	T	P	C
THEORY								
1	L & T Course	Professional Core Course	EV PCB Design & Data Analytics	3	3	0	0	3
PRACTICAL								
2	242EE1A77PD	Project	Project Phase - II	10	0	0	14	8
3	249MD1A08PH	Mandatory Courses	Paper Publication	0	0	0	0	0
TOTAL				13	3	0	14	11



Appendix – 1

Guidelines for Framing Curriculum

1. Frame the curriculum based on AICTE Model Curriculum and UGC Regulations.
2. The maximum credits for Engineering Programs should not exceed 160.
3. The maximum credits can be 140 and minimum credits can be 125 for arts and science programs.
4. Adhere to CBCS (Choice Based Credit System) while framing curriculum.
5. In case of additional credits needed for a specific program, due approval need to be obtained from Centre for Curriculum Development.

Open Elective Courses

1. Open elective courses should be offered through online platforms like MOOCs, UGC-SWAYAM, NPTEL, Coursera, Udemy, Spoken Tutorial, Spring Board(Infosys) .etc
2. Students can earn the maximum of 15 credits during their Course of Study.
3. The Credit transfer can be availed based on the submission of certificate for the successful completion of online courses.

Projects

1. Three projects are to be offered in semester 4, 6, 7, 8 for a total of 15 credits.
2. Mini Project/Design Project – I should be offered in 4th and 6th semester which carries 1 credit. The student can fabricate a working model, prototype, products or carry out a simulation work based on the courses studied during 4th and 6th semester.
3. Main project should be offered in 7th and 8th semester which carries 10 credits. The project can be executed as either an Industrial project or In-house project.
4. The main project shall be implemented and evaluated by following the guidelines given in the AMET regulation 2024-25



Value Added Courses

The Value added courses (Job oriented Skill based courses) shall be identified based on the global needs beyond the curriculum to facilitate the students for reskilling and Upskilling. These courses shall be offered in two different modes namely In-house and in association with Industries. Based upon the student's performance in assessment, A, B, C grading should be given to them, with A being the highest grade and C being the lowest grade.

In-house

1. Value added courses (Job oriented Skill based courses) should be offered in semesters 1, 3 and 5 by the faculty of in-house departments within the university. Certification for the courses should be given by the offering department of the university.
2. It should be 80% practical based and 20% theory based with a total duration of 35 to 55 hours. Final Assessment needs to be carried out for 50 marks.

In association with Industries

1. Value added courses (Job oriented Skill based courses) should be offered in semesters 2, 4 and 6 by an industry in due MoU of the respective department. The Certificate will be issued jointly by the Industry and AMET University.

Internship

1. Internship – I & II shall be carried out by the end of second year for a minimum duration of 15 days.
2. Internship – III shall be carried out by 7th semester. The minimum duration is one month and maximum duration is three months for Internship-III.
3. After completing the internship, students should submit a certificate from industry, a internship report and make a presentation for the same for assessment.
4. Based upon the student's performance in assessment, A, B, C grading should be given to them, with A being the highest grade and C being the lowest grade.

Mandatory Courses

1. All Mandatory Courses (Non Credit Courses) suggested by regulatory authorities are through online MCQ pattern.

Guidelines for Framing Syllabus

1. For introducing new courses, the new course introduction form has to be submitted to centre for curriculum development. The course content and course focus area has to be specified in the form.
2. For the revision of existing courses, the syllabus revision form has to be submitted to centre for curriculum development. The brief list of changes made from the existing content, percentage of syllabus revision and course focus area has to be specified in the form.



3. The Syllabus of each Course should consist of
 - a) Course Code,
 - b) Course Name,
 - c) Type of Course,
 - d) 5 Course Objectives,
 - e) 6 Course Outcomes (CO),
 - f) Programme Articulation Matrix (CO-PO mapping),
 - g) 5 Units (each unit must be specified with the percentage of theory, numerical problems and lab).
4. References in the syllabus should consists of 2 Latest Edition Text Books (only national / international authors allowed), 10 references (3 additional text books, 3 website references, 2 conference proceedings, 2 white paper reports/article reference).
5. The syllabus for the courses must nurture the entrepreneurial ability of the students and also must increase the employability skill sets of the students.