



APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

(A State Government University)

B. Tech Curriculum-2024

Semester I to VIII

Electrical and Electronics Engineering

Branch Code:EE

(Group B)

Ambady Nagar , Sreekaryam

Thiruvananthapuram- 695016

| FIRST SEMESTER (July-December): Group B | | | | | | | | | | | | | | |
|---|-----------------|-------------|-------------|-----------------|--|------------------|---|---|----------------------|-----|-------------|-----------|-------------------|-----------|
| 10 Days Compulsory Induction Program and UHV | | | | | | | | | | | | | | |
| Sl. No: | Slot | Course Code | Course Type | Course Category | Course Title (Course Name) | Credit Structure | | | | SS | Total Marks | | Credits | Hrs./Week |
| | | | | | | L | T | P | R | | CIA | ESE | | |
| 1 | A | GYMAT101 | BSC | GC | Mathematics for Electrical Science-1 | 3 | 0 | 0 | 0 | 4.5 | 40 | 60 | 3 | 3 |
| 2 | B S1/ S2 | GBPHT121 | BSC | GC | Physics for Electrical Science | 3 | 0 | 2 | 0 | 5.5 | 40 | 60 | 4 | 5 |
| | | GXCYT122 | | | Chemistry for Electrical Science | | | | | | | | | |
| 3 | C | GYEST103 | ESC | GC | Engineering Graphics and Computer Aided Drawing. | 2 | 0 | 2 | 0 | 4 | 40 | 60 | 3 | 4 |
| 4 | D | GXEST104 | ESC | GC | Introduction to Electrical & Electronics Engineering (part 1: Electrical Engineering) | 2 | 0 | 0 | 0 | 3 | 20 | 30 | 2+2=4 | 4 |
| | | | | | (Part 2: Electronics Engineering) | 2 | 0 | 0 | 0 | 3 | 20 | 30 | | |
| 5 | F | UCEST105 | ESC | UC | Algorithmic Thinking with Python | 3 | 0 | 2 | 0 | 5.5 | 40 | 60 | 4 | 5 |
| 6 | L | GXESL106 | ESC | GC | Basic Electrical and Electronics Engineering Workshop | 0 | 0 | 2 | 0 | 1 | 50 | 50 | 1 | 2 |
| 7 | I* S1/ S2 | UCHWT127 | HWP | UC | Health and Wellness | 1 | 0 | 1 | 0 | 0 | 50 | 0 | 1 | 2/3 |
| | | UCHUT128 | HMC | | Life Skills and Professional Communication | 2 | 0 | 1 | 0 | 3.5 | 100 | 0 | | |
| 8 | S1/ S2 | UCSEM129 | SEC | UC | Skill Enhancement Course: Digital 101(NASSCOM) | MOOC | | | | 2 | | | - | |
| Total | | | | | | | | | 30/ 32 | | | 20 | 25/ 26 | |
| Bridge Course (Mathematics or Introduction to Computer Science) *: | | | | | | | | | Total 15 Hrs. | | | | | |

*No Grade Points will be awarded for the MOOC course and I slot course

| SECOND SEMESTER (January-June): Group B | | | | | | | | | | | | | | |
|---|-----------------|-------------|-------------|-----------------|---|------------------|---|---|-----------|-----|-------------|-----------|-------------------|-----------|
| Sl. No: | Slot | Course Code | Course Type | Course Category | Course Title (Course Name) | Credit Structure | | | | SS | Total Marks | | Credits | Hrs./Week |
| | | | | | | L | T | P | R | | CIA | ESE | | |
| 1 | A | GYMAT201 | BSC | GC | Mathematics for Electrical Science-2 | 3 | 0 | 0 | 0 | 4.5 | 40 | 60 | 3 | 3 |
| 2 | B S1/ S2 | GBPHT121 | BSC | GC | Physics for Electrical Science | 3 | 0 | 2 | 0 | 5.5 | 40 | 60 | 4 | 5 |
| | | GXCYT122 | | | Chemistry for Electrical Science | | | | | | | | | |
| 3 | C | GBEST213 | ESC | GC | Engineering Mechanics | 3 | 0 | 0 | 0 | 4.5 | 40 | 60 | 3 | 3 |
| 4 | D | GBEST204 | ESC | GC | Programming in C | 3 | 0 | 2 | 0 | 5.5 | 40 | 60 | 4 | 5 |
| 5 | E | PCEET205 | PC | PC | Measurements and Instrumentation | 3 | 1 | 0 | 0 | 5 | 40 | 60 | 4 | 4 |
| 6 | F | UCEST206 | ESC | UC | Engineering Entrepreneurship & IPR | 3 | 0 | 0 | 0 | 4.5 | 60 | 40 | 3 | 3 |
| 7 | I* S1/ S2 | UCHWT127 | HWP | UC | Health and Wellness | 1 | 0 | 1 | 0 | 0 | 50 | 0 | 1 | 2/3 |
| | | UCHUT128 | HMC | | Life Skills and Professional Communication | 2 | 0 | 1 | 0 | 3.5 | 100 | 0 | | |
| 8 | L | GXESL208 | ESC | GC | IT Workshop | 0 | 0 | 2 | 0 | 1 | 50 | 50 | 1 | 2 |
| | S1/ S2 | UCSEM129 | SEC | UC | Skill Enhancement Course: Digital 101(NASSCOM) | MOOC | | | | | | | 1 | |
| Total | | | | | | | | | 34 | | | 24 | 27/ 28 | |

*No Grade Points will be awarded for the MOOC course and I slot course

- L-T-P-R: Lecture-Tutorial-Practical-Project
- SS (Self Study) Hours= 1.5L+0.5 T+0.5P+R

CIA: Continuous Internal Assessment, ESE: End Semester Examination

Note: Physics, Chemistry, Health and Wellness & Life Skill and Professional Communication can be offered in both Semester 1 (S1) and Semester 2 (S2). Institutions are encouraged to guide approximately 50% of their branches to choose between Physics or Chemistry (Slot B) and Health and Wellness or Life Skill and Professional Communication (Slot I) in Semester 1.



| Digital 101 (NASSCOM) | | |
|-----------------------|---|-----------|
| Sl. No: | Technologies Covered | Hours |
| 1 | Artificial intelligence and Big Data Analytics (AI/BDA) | 11 |
| 2 | Internet of Things (IoT) | 2.5 |
| 3 | Cyber Security | 2.5 |
| 4 | Block Chain | 2.5 |
| 5 | Robotic Process Automation | 1.5 |
| 6 | Augmented Reality and Virtual Reality (AR and VR) | 2.5 |
| 7 | Cloud Computing | 2.5 |
| 8 | 3 D Printing and Modelling | 2 |
| 9 | Web, Mobile Dev and Marketing | 2 |
| 10 | Responsible AI | 1 |
| Total Hours | | 30 |

Skill Enhancement Course: Digital 101 is an introductory Massive Open Online Course (MOOC) offered by NASSCOM. It is designed to provide students with foundational knowledge and skills in digital technologies, preparing them for further studies and careers in the digital domain. By incorporating the Digital 101 course into the curriculum, KTU ensures that all students gain valuable digital skills early in their academic journey, enhancing their readiness for advanced courses and future careers in technology.

Course Registration and Completion:

- Students have the flexibility to register and complete the Digital 101 course either in their first semester (S1) or second semester (S2).
- The credit for this course (1 credit) will be officially recorded in the second semester grade card.

| THIRD SEMESTER (July-December) | | | | | | | | | | | | | | |
|--|------------|-------------|-------------|-----------------|--|------------------|---|---|--------------|-----|-------------|---------------|---------------|-----------|
| Sl. No: | Slot | Course Code | Course Type | Course Category | Course Title (Course Name) | Credit Structure | | | | SS | Total Marks | | Credits | Hrs./Week |
| | | | | | | L | T | P | R | | CIA | ESE | | |
| 1 | A | GYMAT301 | BSC | GC | Mathematics for Electrical Science - 3 | 3 | 0 | 0 | 0 | 4.5 | 40 | 60 | 3 | 3 |
| 2 | B | PCEET302 | PC | PC | Circuits and Networks | 3 | 1 | 0 | 0 | 5 | 40 | 60 | 4 | 4 |
| 3 | C | PCEET303 | PC | PC | DC Machines and Transformers | 3 | 1 | 0 | 0 | 5 | 40 | 60 | 4 | 4 |
| 4 | D | PBEET304 | PC-PBL | PB | Analog Electronics | 3 | 0 | 0 | 1 | 5.5 | 60 | 40 | 4 | 4 |
| 5 | F | GNEST305 | ESC | GC | Introduction to Artificial Intelligence and Data Science | 3 | 1 | 0 | | 5 | 40 | 60 | 4 | 4 |
| 6 | G S3/S4 | UCHUT346 | HMC | UC | Economics for Engineers | 2 | 0 | 0 | 0 | 3 | 50 | 50 | 2 | 2 |
| | | UCHUT347 | | | Engineering Ethics and Sustainable Development | | | | | | | | | |
| 7 | L | PCEEL307 | PCL | PC | Circuits and Measurements Lab | 0 | 0 | 3 | 0 | 1.5 | 50 | 50 | 2 | 3 |
| 8 | Q | PCEEL308 | PCL | PC | Analog Electronics Lab | 0 | 0 | 3 | 0 | 1.5 | 50 | 50 | 2 | 3 |
| 9 | R/M | | VAC | | Remedial/Minor Course | 3 | 1 | 0 | 0 | 5 | | | 4* | 4* |
| Total | | | | | | | | | 31/36 | | | 25/29* | 27/31* | |
| Bridge Course for Lateral Entry Students: Total 15 Hrs. | | | | | | | | | | | | | | |

| FOURTH SEMESTER (January-June) | | | | | | | | | | | | | | |
|--------------------------------|------------|-------------|-------------|-----------------|--|------------------|---|---|--------------|-----|-------------|---------------|---------------|-----------|
| Sl. No: | Slot | Course Code | Course Type | Course Category | Course Title (Course Name) | Credit Structure | | | | SS | Total Marks | | Credits | Hrs./Week |
| | | | | | | L | T | P | R | | CIA | ESE | | |
| 1 | A | GBMAT401 | BSC | GC | Mathematics for Electrical Science - 4 | 3 | 0 | 0 | 0 | 4.5 | 40 | 60 | 3 | 3 |
| 2 | B | PCEET402 | PC | PC | Synchronous and Induction Machines | 3 | 1 | 0 | 0 | 5 | 40 | 60 | 4 | 4 |
| 3 | C | PCEET403 | PC | PC | Power Electronics and Drives | 3 | 1 | 0 | 0 | 5 | 40 | 60 | 4 | 4 |
| 4 | D | PBEET404 | PC-PBL | PB | Digital Electronics | 3 | 0 | 0 | 1 | 5.5 | 60 | 40 | 4 | 4 |
| 5 | E | PEEET41N | PE | PE | PE-1 | 3 | 0 | 0 | 0 | 4.5 | 40 | 60 | 3 | 3 |
| 6 | G S3/S4 | UCHUT346 | HMC | UC | Economics for Engineers | 2 | 0 | 0 | 0 | 3 | 50 | 50 | 2 | 2 |
| | | UCHUT347 | | | Engineering Ethics and Sustainable Development | | | | | | | | | |
| 7 | L | PCEEL407 | PCL | PC | DC Machines and Transformers Lab | 0 | 0 | 3 | 0 | 1.5 | 50 | 50 | 2 | 3 |
| 8 | Q | PCEEL408 | PCL | PC | Power Electronics and Drives Lab | 0 | 0 | 3 | 0 | 1.5 | 50 | 50 | 2 | 3 |
| 9 | R/M/ H | | VAC | | Remedial/Minor/Honours Course | 3 | 1 | 0 | 0 | 5 | | | 4* | 4* |
| Total | | | | | | | | | 31/36 | | | 24/28* | 26/30* | |

Note: Economics for Engineers and Engineering Ethics and Sustainable Development shall be offered in both S3 and S4. Institutions can advise students belonging to about 50% of the number of branches in the Institution to opt for Economics for Engineers in S3 and Engineering Ethics & Sustainable Development in S4 and vice versa.

| PROGRAM ELECTIVE I: PEEET41N | | | | | |
|------------------------------|-------------|----------------------------------|---------|-------|--------|
| SLOT | COURSE CODE | COURSES | L-T-P-R | HOURS | CREDIT |
| E | PEEET411 | Electronic Instrumentation | 3-0-0-0 | 3 | 3 |
| | PEEET412 | Renewable Energy Sources | 3-0-0-0 | | 3 |
| | PEEET413 | Mathematics for Machine Learning | 3-0-0-0 | | 3 |
| | PEEET414 | Theory of Computation | 3-0-0-0 | | 3 |
| | PEEET416 | Computer Organization | 3-0-0-0 | | 3 |
| | PEEET417 | Solid State Devices | 3-0-0-0 | | 3 |
| | PEEET418 | Illumination Technology | 3-0-0-0 | | 3 |
| | PEEET419 | Object Oriented Programming | 3-0-0-0 | | 3 |

| FIFTH SEMESTER (July-December) | | | | | | | | | | | | | | |
|--------------------------------|------------------------------------|---|-------------|-----------------|---|------------------|---|---|---|-------------------|-------------|-----|---------------|---------------|
| Sl. No: | Slot | Course Code | Course Type | Course Category | Course Title (Course Name) | Credit Structure | | | | SS | Total Marks | | Credits | Hrs./Week |
| | | | | | | L | T | P | R | | CIA | ESE | | |
| 1 | A | PCEET501 | PC | PC | Power Generation, Transmission and Protection | 3 | 1 | 0 | 0 | 5 | 40 | 60 | 4 | 4 |
| 2 | B | PCEET502 | PC | PC | Electromagnetic Theory | 3 | 1 | 0 | 0 | 5 | 40 | 60 | 4 | 4 |
| 3 | C | PCEET503 | PC | PC | Signals & Systems | 3 | 0 | 0 | 0 | 4.5 | 40 | 60 | 3 | 3 |
| 4 | D | PBEET504 | PC-PBL | PB | Microprocessor and Embedded Systems | 3 | 0 | 0 | 1 | 5.5 | 60 | 40 | 4 | 4 |
| 5 | E | PEEET52N | PE | PE | PE-2 | 3 | 0 | 0 | 0 | 4.5 | 40 | 60 | 3 | 3 |
| 6 | I* | UCHUM506 | HMC | UC | Constitution of India (MOOC) | - | - | - | - | 2 | - | - | 1 | - |
| 7 | L | PCEEL507 | PCL | PC | AC Machines Lab | 0 | 0 | 3 | 0 | 1.5 | 50 | 50 | 2 | 3 |
| 8 | Q | PCEEL508 | PCL | PC | Microprocessor and Embedded Systems Lab | 0 | 0 | 3 | 0 | 1.5 | 50 | 50 | 2 | 3 |
| 9 | R/M/H | | VAC | | Remedial/Minor/Honours Course | 3 | 1 | 0 | 0 | 5 | | | 4* | 4* |
| | S ₅ / S ₆ | Industrial Visit (Maximum 12 Days are permitted, Not Exceeding more than 6 Working Days) /Industrial Training | | | | | | | | | | | | |
| Total | | | | | | | | | | 30/ 35 | | | 23/27* | 24/28* |

*No Grade Points will be awarded for the MOOC course and I slot course.

Industrial Training:

Students who are not participating in the industrial visit must attend industrial training during that period.

| PROGRAM ELECTIVE 2: PEEET52N | | | | | |
|------------------------------|-------------|----------------------------------|---------|-------|--------|
| SLOT | COURSE CODE | COURSES | L-T-P-R | HOURS | CREDIT |
| E | PEEET521 | Energy Storage Systems | 3-0-0-0 | 3 | 3 |
| | PEEET522 | Electric Vehicles | 3-0-0-0 | | 3 |
| | PEEET523 | Digital System Design | 3-0-0-0 | | 3 |
| | PEEET524 | Software Engineering | 3-0-0-0 | | 3 |
| | PEEET526 | Data Structures | 3-0-0-0 | | 3 |
| | PEEET527 | Introduction to Machine Learning | 3-0-0-0 | | 3 |
| | PEEET528 | Computer Network Systems | 3-0-0-0 | | 3 |

| SIXTH SEMESTER (January-June) | | | | | | | | | | | | | | |
|-------------------------------|---------------|--|-------------|-----------------|---|------------------|---|---|---|-------------------|-------------|---------------|---------------|----------|
| Sl. No: | Slot | Course Code | Course Type | Course Category | Course Title (Course Name) | Credit Structure | | | | SS | Total Marks | | Credits | Hrs/Week |
| | | | | | | L | T | P | R | | CIA | ESE | | |
| 1 | A | PCEET601 | PC | PC | Control Systems | 3 | 1 | 0 | 0 | 4.5 | 40 | 60 | 4 | 4 |
| 2 | B | PCEET602 | PC | PC | Electrical System Design and Estimation | 3 | 0 | 0 | 0 | 4.5 | 40 | 60 | 3 | 3 |
| 3 | C | PEEET63N | PE | PE | PE-3 | 3 | 0 | 0 | 0 | 4.5 | 40 | 60 | 3 | 3 |
| 4 | D | PBEET604 | PC-PBL | PB | Power System Analysis | 3 | 0 | 0 | 1 | 5.5 | 60 | 40 | 4 | 4 |
| 5 | F | GXEEST605 | ESC | GC | Design Thinking and Product Development (Group Specific Syllabus) | 2 | 0 | 0 | 0 | 3 | 40 | 60 | 2 | 2 |
| 6 | O | OEEET61N /IEEET61N | OE/ILE | OE/IE | OE/ILE-1 | 3 | 0 | 0 | 0 | 4.5 | 40 | 60 | 3 | 3 |
| 7 | L | PCEEL607 | PCL | PC | Control Systems Lab | 0 | 0 | 3 | 0 | 1.5 | 50 | 50 | 2 | 3 |
| 8 | P | PCEEP608 | PWS | PC | Mini Project: Socially Relevant Project | 0 | 0 | 0 | 3 | 3 | 50 | 50 | 2 | 3 |
| 9 | Q | PCEEL609 | PCL | PC | Power Systems Lab | 0 | 0 | 2 | 0 | 1 | 50 | 50 | 1 | 2 |
| 10 | R/ M/ H | | VAC | | Remedial/Minor/Honours Course | 3 | 0 | 0 | 0 | 4.5 | | | 3* | 3* |
| S5/ S6 | | Industrial Visit (Maximum of 12 Days are permitted, Not Exceeding more than 6 Working Days) /Industrial Training | | | | | | | | | | | | |
| Total | | | | | | | | | | 32/ 36 | | 23/26* | 26/29* | |

Note: Open Electives are such courses which will be offered by other departments. Like CSE department students have to opt open electives from ECE/ME/EEE etc. departments.

Industrial Training:

Students who are not participating in the industrial visit must attend industrial training during that period.

| PROGRAM ELECTIVE 3: PEEET63N | | | | | |
|------------------------------|-------------|-------------------------------------|---------|-------|--------|
| SLOT | COURSE CODE | COURSES | L-T-P-R | HOURS | CREDIT |
| C | PEEET631 | Digital protection of power systems | 3-0-0-0 | 3 | 3 |
| | PEEET632 | Operating Systems | 3-0-0-0 | | 3 |
| | PEEET633 | High Voltage Engineering | 3-0-0-0 | | 3 |
| | PEEET634 | Internet of Things | 3-0-0-0 | | 3 |
| | PEEET636 | Digital Signal Processing | 3-0-0-0 | | 3 |
| | PEEET637 | Cloud Computing | 3-0-0-0 | | 3 |
| | PEEET638 | Optimization Techniques | 3-0-0-0 | | 3 |

| OPEN ELECTIVE 1: OEEET61N | | | | | |
|---------------------------|-------------|---------------------------------|---------|-------|--------|
| SLOT | COURSE CODE | COURSES | L-T-P-R | HOURS | CREDIT |
| O | OEEET611 | Introduction to Control Systems | 3-0-0-0 | 3 | 3 |
| | OEEET612 | Energy Management | 3-0-0-0 | | 3 |
| | OEEET613 | Renewable Energy Systems | 3-0-0-0 | | 3 |

| SEVENTH SEMESTER (July-December) | | | | | | | | | | | | | | |
|----------------------------------|------|-------------------------------------|-------------|-----------------|--|------------------|---|---|---|-------------------|-------------|-----|---------------|---------------|
| Sl. No: | Slot | Course Code | Course Type | Course Category | Course Title (Course Name) | Credit Structure | | | | SS | Total Marks | | Credits | Hrs/Week |
| | | | | | | L | T | P | R | | CIA | ESE | | |
| 1 | A | PEEET74N/ PEEEM74N | PE | PE | PE-4 (Internship Students: Self Study/MOOC Approved by the University/Online Classes) | 3 | 0 | 0 | 0 | 4.5 | 40 | 60 | 3 | 3 |
| 2 | B | PEEET75N/ PEEEM75N | PE | PE | PE-5 (Internship Students: Self Study/MOOC Approved by the University/Online Classes) | 3 | 0 | 0 | 0 | 4.5 | 40 | 60 | 3 | 3 |
| 3 | O | OEEET72N/ /IEEET72N/ OEEEM72N | OE/ ILE | OE/IE | OE/ILE-2 (Internship Students: Self Study/MOOC Approved by the University/Online Classes) | 3 | 0 | 0 | 0 | 4.5 | 40 | 60 | 3 | 3 |
| 4 | I* | UEHUT704/ UEHUM70N | HM C | UE | Elective (Internship Students: Self Study/MOOC Approved by the University/Online Classes) | 2 | 0 | 0 | 0 | 3 | 50 | 50 | 2 | 2 |
| 5 | S | PCEES705 | PWS | PC | Seminar | 0 | 0 | 3 | 0 | 1.5 | 50 | 0 | 2 | 3 |
| 6 | P | PCEEP706/ PCEEI706 | PWS | PC | Option 1: Major Project Option 2: Internship (4-6 Months) | 0 | 0 | 0 | 8 | 8 | 100 | 0 | 4 | 8 |
| 7 | R/H | | VAC | | Remedial/Honours Course | 3 | 0 | 0 | 0 | 4.5 | | | 3* | 3* |
| Total | | | | | | | | | | 26/ 31 | | | 17/20* | 22/25* |

*No Grade Points will be awarded for the I slot courses

*Students can opt for the internship either in the 7th or 8th semester.

* Option 1: Work on a Project in the institute/department under the mentorship of faculty members.

Option 2: Full semester Internship in an Industry/organization (7th or 8th semester)

Note: Open Electives are such courses which will be offered by other departments.

| PROGRAM ELECTIVE 4: PEEET74N | | | | | |
|------------------------------|-------------|------------------------------------|---------|-------|--------|
| SLOT | COURSE CODE | COURSES | L-T-P-R | HOURS | CREDIT |
| A | PEEET741 | Power System Operation and Control | 3-0-0-0 | 3 | 3 |
| | PEEET742 | Energy Management and Auditing | 3-0-0-0 | | 3 |
| | PEEET743 | Special Electrical Machines | 3-0-0-0 | | 3 |
| | PEEET744 | Discrete Time Control Systems | 3-0-0-0 | | 3 |
| | PEEET746 | Digital Image Processing | 3-0-0-0 | | 3 |

| PROGRAM ELECTIVE 5: PEEET75N | | | | | |
|------------------------------|-------------|---------------------------|---------|-------|--------|
| SLOT | COURSE CODE | COURSES | L-T-P-R | HOURS | CREDIT |
| B | PEEET751 | Power Quality | 3-0-0-0 | 3 | 3 |
| | PEEET752 | Nonlinear Control Systems | 3-0-0-0 | | 3 |
| | PEEET753 | Deep Learning | 3-0-0-0 | | 3 |
| | PEEET754 | Computer Vision | 3-0-0-0 | | 3 |

| OPEN ELECTIVE 2: OEEET72N | | | | | |
|---------------------------|-------------|--|---------|-------|--------|
| SLOT | COURSE CODE | COURSES | L-T-P-R | HOURS | CREDIT |
| O | OEEET721 | Design of Solar PV systems | 3-0-0-0 | 3 | 3 |
| | OEEET722 | Hybrid and Electric Vehicles | 3-0-0-0 | | 3 |
| | OEEET723 | Introduction to Energy Storage Systems | 3-0-0-0 | | 3 |

| Slot I: HMC Elective | |
|----------------------|--|
| 1 | Project Management: Planning, Execution, Evaluation and Control |
| 2 | Proficiency course in French. (MOOC) (B1 level) |
| 3 | Proficiency Course in German (B1 Level). (MOOC) |
| 4 | Proficiency Course in Spanish (B1 Level) (MOOC) |
| 5 | Introduction to Japanese Language and Culture (N5 level). (MOOC) |

| EIGHTH SEMESTER (January-June) | | | | | | | | | | | | | | |
|--------------------------------|------|------------------------------------|-------------|-----------------|--|------------------|---|---|-----------|-----|-------------|-----------|-----------|----------|
| Sl. No: | Slot | Course Code | Course Type | Course Category | Course Title (Course Name) | Credit Structure | | | | SS | Total Marks | | Credits | Hrs/Week |
| | | | | | | L | T | P | R | | CIA | ESE | | |
| 1 | A | PEEET86N/ PEEEM86N | PE | PE | PE-6 (Internship Students: Self Study/MOOC Approved by the University/Online Classes) | 3 | 0 | 0 | 0 | 4.5 | 40 | 60 | 3 | 3 |
| 2 | O | OEEET83N/ IEEET83N/ OEEEM83N | OE/ ILE | OE/IE | OE/ILE-3 (Internship Students: Self Study/MOOC Approved by the University/Online Classes) | 3 | 0 | 0 | 0 | 4.5 | 40 | 60 | 3 | 3 |
| 3 | I* | UEHUT803/ UEHUM803 | HMC | UC | Organizational Behavior and Business Communication (Internship Students: Self Study/MOOC Approved by the University/Online Classes) | 2 | 0 | 0 | 0 | 3 | 50 | 50 | 1 | 2 |
| 4 | P | PCEEP806/ PCEEI806/ PCEEJ806 | PWS | PC | Option 1: Major Project Option 2: Internship (4-6 Months) Option 3: Major Project Phase -II (For the students who have not opted for internship in S7/S8) | 0 | 0 | 0 | 8 | 8 | 100 | 0 | 4 | 8 |
| Total | | | | | | | | | 20 | | | 11 | 16 | |

*No Grade Points will be awarded for the I slot courses

* Option 2: Full semester Internship in an Industry/organization (7th or 8th semester)

| PROGRAM ELECTIVE 6: PEEET86N | | | | | |
|------------------------------|-------------|--------------------------|---------|-------|--------|
| SLOT | COURSE CODE | COURSES | L-T-P-R | HOURS | CREDIT |
| A | PEEET861 | Smart Grid Technologies | 3-0-0-0 | 3 | 3 |
| | PEEET862 | HVDC and FACTS | 3-0-0-0 | | 3 |
| | PEEET863 | Mechatronic Systems | 3-0-0-0 | | 3 |
| | PEEET864 | Electronic Communication | 3-0-0-0 | | 3 |

| OPEN ELECTIVE 3: OEEET83N | | | | | |
|---------------------------|-------------|---------------------------------|---------|-------|--------|
| SLOT | COURSE CODE | COURSES | L-T-P-R | HOURS | CREDIT |
| O | OEEET 831 | Introduction to Robotics | 3-0-0-0 | 3 | 3 |
| | OEEET 832 | PLC and Automation | 3-0-0-0 | | 3 |
| | OEEET 833 | Mechatronic Systems and Control | 3-0-0-0 | | 3 |

| HMC Courses | | | |
|----------------------|----------|--|----------|
| Sl. No: | Semester | Course Area | Credits |
| 1 | S1/S2 | Life Skills and Professional Communication | 1 |
| 2 | S3/S4 | Economics for Engineers | 2 |
| 3 | | Engineering Ethics and Sustainable Development | 2 |
| 4 | S5 | Constitution Of India. (MOOC) | 1 |
| 5 | S7 | Elective (Project Management/Foreign Languages) | 2 |
| 6 | S8 | Organizational Behavior and Business Communication | 1 |
| Total Credits | | | 9 |

| BSC Courses | | | |
|----------------------|----------|------------------------------|-----------|
| Sl. No: | Semester | Course Area | Credits |
| 1 | S1 | Group Specific Mathematics-1 | 3 |
| 2 | S1/S2 | Physics for Engineers | 4 |
| 3 | | Chemistry for Engineers | 4 |
| 4 | S2 | Group Specific Mathematics-2 | 3 |
| 5 | S3 | Group Specific Mathematics-3 | 3 |
| 6 | S4 | Group Specific Mathematics-4 | 3 |
| Total Credits | | | 20 |

| ESC Courses (Group B) | | | |
|-----------------------|----------|---|-----------|
| Sl. No: | Semester | Course Area | Credits |
| 1 | S1 | Engineering Graphics and Computer Aided Drawing | 3 |
| 2 | | Introduction to Electrical and Electronics Engineering | 4 |
| 3 | | Algorithmic Thinking with Python | 4 |
| 4 | | Basic Electrical and Electronics Engineering Workshop | 1 |
| 5 | S2 | Foundations of Computing: From Hardware Essentials to Web Design / Engineering Mechanics (EEE, CP, RA and RU) | 3 |
| 6 | | Programming in C | 4 |
| 7 | | Engineering Entrepreneurship and IPR | 3 |
| 8 | | IT Workshop | 1 |
| 9 | S3 | Introduction to Artificial Intelligence and Data Science | 4 |
| 10 | S6 | Design Thinking and Creativity | 2 |
| Total Credits | | | 29 |

| Programme Core Courses (PC) (CE,EE,ME) | | | |
|--|----------|--|---------|
| Sl. No: | Semester | Course Area | Credits |
| 1 | S2 | Core 1- Measurements and Instrumentation | 4 |
| 2 | S3 | Core 2- Circuits and Networks | 4 |
| 3 | | Core 3- DC Machines and Transformers | 4 |
| 4 | | Lab 1 - Circuits and Measurements Lab | 2 |
| 5 | S4 | Lab 2 - Analog Electronics Lab | 2 |
| 6 | | Core 4 – Synchronous and Induction Machines | 4 |
| 7 | | Core 5 - Power Electronics and Drives | 4 |
| 8 | | Lab 3 - DC Machines and Transformers Lab | 2 |
| 9 | | Lab 4 –Power Electronics and Drives Lab | 2 |
| 10 | S5 | Core 6 - Power Generation, Transmission and Protection | 4 |

| | | | |
|--|----|---|-----------|
| 11 | | Core 7 - Electromagnetic Theory | 4 |
| 12 | | Core 8 - Signals & Systems | 3 |
| 13 | | Lab 5 - AC Machines Lab | 2 |
| 14 | | Lab 6 - Microprocessor and Embedded Systems Lab | 2 |
| 15 | S6 | Core 9 - Control Systems | 3 |
| 16 | | Core 10 – Electrical System Design | 3 |
| 17 | | Lab 7 - Control Systems Lab | 2 |
| | | Lab 8 - Power System Lab | 1 |
| Total Credits (Theory -10, Lab-8) | | | 52 |

| Programme Core-Project Based Learning (PBL) | | | |
|---|----------|-------------|-----------|
| Sl. No: | Semester | Course Area | Credits |
| 1 | S3 | Core PBL-1 | 4 |
| 2 | S4 | Core PBL-2 | 4 |
| 3 | S5 | Core PBL-3 | 4 |
| 4 | S6 | Core PBL-4 | 4 |
| Total Credits | | | 16 |

| Programme Elective Courses (PE) | | | |
|---------------------------------|----------|-------------|-----------|
| Sl. No: | Semester | Course Type | Credits |
| 1 | S4 | PE-1 | 3 |
| 2 | S5 | PE-2 | 3 |
| 3 | S6 | PE-3 | 3 |
| 4 | S7 | PE-4 | 3 |
| 5 | | PE-5 | 3 |
| 6 | S8 | PE-6 | 3 |
| Total Credits | | | 18 |

| Open Elective Courses/Industry Elective(OE/IEL) | | | |
|--|----------|-------------|----------|
| Sl. No: | Semester | Course Type | Credits |
| 1 | S6 | OE/ILE-1 | 3 |
| 2 | S7 | OE/ILE-2 | 3 |
| 3 | S8 | OE/ILE-3 | 3 |
| Total Credits | | | 9 |

| Project/ Internship and Seminar | | | |
|---------------------------------|----------|---|-----------|
| Sl. No: | Semester | Course Type | Credits |
| 1 | S6 | Mini Project | 2 |
| 2 | S7 | Seminar | 2 |
| 3 | | Major Project/Internship | 4 |
| 4 | S8 | Major Project/Internship/Research Project | 4 |
| Total Credits | | | 12 |

| Activity Points | | | | |
|-----------------|-------|--|------------------|--|
| Sl. No. | Group | Courses | Credits | Minimum Credit Requirements |
| 1 | I | NSS, NCC, NSO (National Sports Organization) | 1 (40 Points) | 3 Credits (One credit from each Group) |
| 2 | | Arts/Sports/Games | | |
| 3 | | Union/Club Activities | | |
| 4 | II | English Proficiency Certification (TOFEL, IELTS, BEC etc.) | 1 (40 Points) | |
| 5 | | Aptitude Proficiency Certification (GRE, CAT, GMAT etc.)/ Valid Gate Score. | | |
| 6 | | Short Term Internship (Minimum 2 weeks), Clinical Exposure/Training (Minimum 2 weeks), Conferences/Paper Presentation/ Workshop Activities/ Professional Body Activities, Participation in University level/State Level/ National Level Hackathons | | |
| 7 | III | Journal Publication, Patents, Start-Up, Innovation, Winners of National/ International Level Hackathons | 1 (40 Points) | |
| 8 | | Skilling Certificates (Approved by the University) | | |

- Students are required to acquire a minimum of 120 activity points, with at least 40 points per group, to fulfill the curriculum requirement of 3 activity credits.
- For B. Tech Lateral Entry students, 30 points per group are required. A minimum of 90 activity points must be acquired to obtain the 3 activity credits mandated by the curriculum.

| Course classifications of the B. Tech Programmes and Overall Credit Structure | | | |
|---|--|---------|------------|
| Sl. No | Category | Code | Credits |
| 1 | Humanities and Social Sciences including Management Courses | HMC | 9 |
| 2 | Basic Science Courses | BSC | 20 |
| 3 | Engineering Science Courses | ESC | 29 |
| 4 | Programme (Professional) Core Courses | PCC | 52 |
| 5 | Programme (Professional) Core Courses-Project Based Learning | PBL | 16 |
| 6 | Programme Elective Courses | PEC | 18 |
| 7 | Open Elective Courses/Industry Linked Elective | OEC/ILE | 9 |
| 8 | Mini Project, Project Work/Internship and Seminar | PWS | 12 |
| 9 | Health and Wellness | HWP | 1 |
| 10 | Skill Enhancement Courses (Digital 101) | SEC | 1 |
| 11 | Mandatory Student Activities | MSA | 3 |
| Total Credits | | | 170 |