

Curriculum (2024) B.Tech-Semester I to VIII

Electronics & Computer Engineering Branch Code: ER (Group B)

Pattoor P. O., Nooranad, Alappuzha-690529 Website: sbce.ac.in



Note

This curriculum adheres to the syllabus prescribed by APJ Abdul Kalam Technological University for the academic year 2024. All courses, credits, and evaluation criteria are implemented as per the regulations and guidelines issued by the university.

The institution ensures full compliance with the university's curriculum framework, ensuring quality education aligned with its standards.



Chairman

Academic Council CHAIRMAN ACADEMIC COUNCIL SREE BUDDHA COLLEGE OF ENGINEERING PATTOOR, (AUTONOMOUS), NOORANAD ALAPPUZHA-690529

3

| | | | | | FIRST SEMESTER (July-December): | Gra | oup | B | | | | | | |
|---------|------------------|-------------------------|-------------|--------------------|---|------|------------|----|---|-----------|------|--------------|---------|--------------|
| | | | | | 10 Days Compulsory Induction Program | an | d U | ΗV | 7 | | | | | |
| SI N | Slot | Course Code | Course Type | Course Category | Course Title | s | Cro tru | | | SS | - | otal arks | Credits | Hrs./ Wee |
| N 0: | 0, | Code | Cours | Co Cat | (Course Name) | L | Т | Р | R | | CIA | ESE | | k |
| 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 GXCYT122 | BSC | GC | Physics for Electrical Science Chemistry for Electrical Science | 3 | 0 | 2 | 0 | 5.5 | 40 | 60 | 4 | 5 |
| 3 | C | GMEST103 | ESC | GC | Engineering Graphics and Computer Aided Drawing. | 2 | 0 | 2 | 0 | 4 | 40 | 60 | 3 | 4 |
| 4 | D | G <mark>X</mark> EST104 | ESC | | 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 | G <mark>X</mark> ESL106 | ESC | (+(' | Basic Electrical and Electronics Engineering Workshop | 0 | 0 | 2 | 0 | 1 | 50 | 50 | 1 | 2 |
| _ | I* | UCHWT127 | HWP | | Health and Wellness | 1 | 0 | 1 | 0 | 0 | 50 | 0 | | |
| 7 | S1/ S2 | UCHUT128 | НМС | UC | Life Skills and Professional Communication | 2 | 0 | 1 | 0 | 3.5 | 100 | 0 | 1 | 2/3 |
| 8 | ${f S_1/ \ S_2}$ | UCSEM129 | SEC | UC | Skill Enhancement Course: Digital 101(NASSCOM) | | MC | OC | | 2 | | | - | |
| | | | | | Total | | | | | 30/ 32 | | | 20 | 25/ 26 |
| | | Brid | lge Co | ourse (| Mathematics or Introduction to Computer S | cien | ce) | *: | r | Fotal | 15 H | rs. | | |

*Valuation for HMC courses will be done at college level, Question papers will be provided by the University. *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

| | Digital 101 (NASSCOM) | |
|-----|---|-------|
| Sl. | Technologies Covered | Hours |
| No: | | |
| 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 |

Note: Physics, Chemistry, Health and Wellness and Life skill and Professional Communication shall be offered in both S1 and S2.

| | | | | | SECOND SEMESTER (January-June): | Gr | oup |) B | | | | | | |
|---------|----------------------|----------------|---------|--------------------|---|----|------------|-----|---|-----|-----|--------------|---------|--------------|
| SI N | Slot | Course Code | se Type | Course Category | Course Title | s | Cro tru | | | SS | | otal arks | Credits | Hrs./ Wee |
| 0: | • | Coue | Course | CC Cat | (Course Name) | L | Т | Р | R | | CIA | ESE | | k |
| 1 | Α | GYMAT201 | BSC | GC | Mathematics for Electrical Science-2 | 3 | 0 | 0 | 0 | 4.5 | 40 | 60 | 3 | 3 |
| 2 | B S1/ | GBPHT121 | BSC | GC | Physics for Electrical Science | 3 | 0 | 2 | 0 | 5.5 | 40 | 60 | 4 | 5 |
| 2 | S1/ S2 | GXCYT122 | DSC | uc | Chemistry for Electrical Science | | | 2 | | 5.5 | | 00 | - | |
| 3 | С | GXEST203 | ESC | | Foundations of Computing: From Hardware Essentials to Web Design | 3 | 0 | 0 | 0 | 4.5 | 40 | 60 | 3 | 3 |
| 4 | D | GXEST204 | ESC | GC | Programming in C | 3 | 0 | 2 | 0 | 5.5 | 40 | 60 | 4 | 5 |
| 5 | Е | PCERT205 | PC | PC | Digital Electronics | 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 |
| _ | I* | UCHWT127 | HWP | | Health and Wellness | 1 | 0 | 1 | 0 | 0 | 50 | 0 | | |
| 7 | S1/ S2 | UCHUT128 | HMC | UC | Life Skills and Professional Communication | 2 | 0 | 1 | 0 | 3.5 | 100 | 0 | 1 | 2/3 |
| 8 | L | GXESL208 | ESC | GC | IT Workshop | 0 | 0 | 2 | 0 | 1 | 50 | 50 | 1 | 2 |
| | ${f S_1/} \ {f S_2}$ | UCSEM129 | SEC | | Skill Enhancement Course: Digital 101(NASSCOM) | | MC | 000 | | | | | 1 | |
| | | | | | Total | | | | | 34 | | | 24 | 27/ 28 |

Institutions can advise students belonging to about 50% of the number of branches in the Institution to opt for Physics/ Health and Wellness in SI and Chemistry/ Life Skills and Professional Communication in S2 & vice versa.

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

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-Decem | ıber) | | | | | | | | |
|-------------|-----------|----------|----------------|--------------------|---|-------|------------|------|----|-----------|----------------|---------|------------|------------|
| S l N | Slot | Course | Course Type | Course Category | Course Title | | Cre ruc | | e | S | Total Marks | | Credi | Hrs ./ |
| 0 : | S | Code | CO | Co Cat | (Course Name) | L | Т | Р | R | S | CI A | ES E | ts | We ek |
| 1 | Α | GYMAT301 | BSC | GC | Mathematics for Electrical Science-3 | 3 | 0 | 0 | 0 | 4. 5 | 40 | 60 | 3 | 3 |
| 2 | В | PCERT302 | PC | PC | Data Structures | 3 | 1 | 0 | 0 | 5 | 40 | 60 | 4 | 4 |
| 3 | С | PCERT303 | PC | PC | Digital System Design Using Verilog | 3 | 1 | 0 | 0 | 5 | 40 | 60 | 4 | 4 |
| 4 | D | PBERT304 | PC- PBL | PB | Electronic Devices and Circuits | 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 |
| | G | UCHUT346 | | | Economics for Engineers | | | | | | | | | |
| 6 | S3/ S4 | UCHUT347 | HM C | UC | Engineering Ethics and Sustainable Development | 2 | 0 | 0 | 0 | 3 | 50 | 50 | 2 | 2 |
| 7 | L | PCERL307 | PCL | PC | Data Structures Lab | 0 | 0 | 3 | 0 | 1. 5 | 50 | 50 | 2 | 3 |
| 8 | Q | PCERL308 | PCL | PC | Digital System Design 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 * | 27/3 1* |
| | | |] | Bridge (| Course for Lateral Entry Students: | Tota | 1 15 | 5 Hr | s. | | | | | |

| | | | | | FOURTH SEMESTER (January-J | une) | I | | | | | | | |
|-------------|---------------|-------------------------|------------|--------------------|---|------|---------------|---|---|-----------|----------|-------------|------------|------------|
| S 1 | ot | Course | Type | rse gory | Course Title | | Cree truct | | e | 66 | To Ma | | Credi | Hrs./ |
| N O : | Slot | Code | Course' | Course Category | (Course Name) | L | Т | Р | R | SS | CI A | E S E | ts | Week |
| 1 | Α | GBMAT401 | BSC | GC | Mathematics for Electrical Science-4 | 3 | 0 | 0 | 0 | 4.5 | 40 | 60 | 3 | 3 |
| 2 | В | PCERT402 | PC | PC | Computer Organization and Architecture | 3 | 1 | 0 | 0 | 5 | 40 | 60 | 4 | 4 |
| 3 | С | PCERT403 | PC | PC | Computer Networks | 3 | 1 | 0 | 0 | 5 | 40 | 60 | 4 | 4 |
| 4 | D | PB <mark>ER</mark> T404 | PC- PBL | PB | Integrated Circuits | 3 | 0 | 0 | 1 | 5.5 | 60 | 40 | 4 | 4 |
| 5 | Е | PEERT41N | PE | PE | PE-1 | 3 | 0 | 0 | 0 | 4.5 | 40 | 60 | 3 | 3 |
| | G | UCHUT346 | | | Economics for Engineers | | | | | | | | | |
| 6 | S3 /S 4 | UCHUT347 | HM C | UC | Engineering Ethics and Sustainable Development | 2 | 0 | 0 | 0 | 3 | 50 | 50 | 2 | 2 |
| 7 | L | PCERL407 | PCL | PC | Computer Networking Lab | 0 | 0 | 3 | 0 | 1.5 | 50 | 50 | 2 | 3 |
| 8 | Q | PCERL408 | PCL | PC | Integrated Circuits 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: PEERT 41N

| SLOT | COURSE CODE | COURSES | L-T-P-R | HOURS | CREDIT |
|------|----------------|--|---------|-------|--------|
| | PEERT 411 | Communication Engineering | 3-0-0-0 | | 3 |
| | PEERT 412 | Basic VLSI Design | 3-0-0-0 | | 3 |
| | PEERT 413 | Biomedical Signals and Transducers | 3-0-0-0 | | 3 |
| Е | PEERT 414 | Foundations of Machine Learning | 3-0-0-0 | 3 | 3 |
| - | PEERT 416 | Object Oriented Programming Using Java | 3-0-0-0 | | 3 |
| | PEERT 415 | Java Programming & Application development | 3-0-0-0 | | 5/3 |

Note: Level 5 courses in the B. Tech curriculum carry a total of 5 credits, consisting of 3 credits for the Programme Elective and 2 additional credits. The additional 2 credits shall be awarded only if the student meets the eligibility conditions specified in the B. Tech. -2024 regulations. If those conditions are not fulfilled, the student will receive only 3 credits for the course.

| | | | | | FIFTH SEMESTER (July-Decem | ber |) | | | | | | | |
|-------------|---|-------------------------|-------------|--------------------|----------------------------------|-----|---|-------------|---|-----------|---------|--------------|----------------|------------|
| S 1 | Slot | Course | Course Type | Course Category | Course Title | | | edit ctu | | SS | | otal arks | Cr edi | Hrs./ |
| N 0 : | S | Code | Cours | Coi Cate | (Course Name) | L | Т | Р | R | 55 | CI A | E S E | ts | Week |
| 1 | А | PCERT501 | PC | PC | Digital Signal Processing | 3 | 1 | 0 | 0 | 5 | 40 | 60 | 4 | 4 |
| 2 | В | PCERT502 | PC | PC | Theory of Computation | 3 | 1 | 0 | 0 | 5 | 40 | 60 | 4 | 4 |
| 3 | С | PCERT503 | PC | PC | Microcontrollers and Interfacing | 3 | 0 | 0 | 0 | 4.5 | 40 | 60 | 3 | 3 |
| 4 | D | PBERT504 | | | | | | | | | | | 4 | 4 |
| 5 | Е | PE <mark>ER</mark> T52N | PE | PE | PE-2 | 3 | 0 | 0 | 0 | 4.5 | 40 | 60 | 3 | 3 |
| 6 | I* | UCHUM506 | HM C | UC | Constitution of India (MOOC) | - | - | - | - | 2 | - | - | 1 | - |
| 7 | L | PCERL507 | PC L | PC | Digital Signal Processing Lab | 0 | 0 | 3 | 0 | 1.5 | 50 | 50 | 2 | 3 |
| 8 | Q | PCERL508 | PC L | PC | Database Management 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* |
| | S5 Industrial Visit (Maximum 12 Days are permitted, Not Exceeding more than 6 S6 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.

| SLOT | COURSE CODE | COURSES | L-T-P-R | HOURS | CREDIT |
|------|--------------------------|---|---------|-------|--------|
| | PEERT 521 | Wireless Sensor Networks | 3-0-0-0 | | 3 |
| | PEERT 522 | CMOS VLSI Design | 3-0-0-0 | | 3 |
| | PEECT 523 | Sensors and Actuators | 3-0-0-0 | | 3 |
| E | PEERT 524 | Cloud Computing | 3-0-0-0 | 3 | 3 |
| | PEERT 526 | Python for Machine Learning | 3-0-0-0 | | 3 |
| | PE <mark>ER</mark> T 525 | Computational Fundamentals for Machine Learning | 3-0-0-0 | | 5/3 |

PROGRAM ELECTIVE 2: PEERT 52N

| | S S Credit Total | | | | | | | | | | | | | |
|---|-----------------------|--|----------------|--------------------|---|---|------------|---|---|-----------|---------|--------------|-------------|--------------|
| S 1 | | | Fype | se ory | | | Cre tru | | | | | otal arks | G | TT (|
| N 0 : | Slot | Course Code | Course Type | Course Category | Course Title (Course Name) | L | Т | Р | R | SS | CI A | ES E | Cre dits | Hrs/ Week |
| 1 | Α | PCERT601 | PC | PC | Operating Systems | 3 | 1 | 0 | 0 | 5 | 40 | 60 | 4 | 4 |
| 2 | В | PCERT602 | PC | PC | Data Communication and Networking | 3 | 0 | 0 | 0 | 4.5 | 40 | 60 | 3 | 3 |
| 3 | C | PE <mark>ER</mark> T63N | PE | PE | PE-3 | 3 | 0 | 0 | 0 | 4.5 | 40 | 60 | 3 | 3 |
| 4 | D | PBERT604 | PC- PB L | PB | Embedded Systems and IoT | 3 | 0 | 0 | 1 | 5.5 | 60 | 40 | 4 | 4 |
| 5 | F | GYEST605 | ES C | GC | Design Thinking and Product Development (Group Specific Syllabus) | 2 | 0 | 0 | 0 | 3 | 40 | 60 | 2 | 2 |
| 6 | 0 | OE <mark>ER</mark> T61 N /IEERT61 N | OE/ ILE | OE/I E | OE/ILE-1 | 3 | 0 | 0 | 0 | 4.5 | 40 | 60 | 3 | 3 |
| 7 | L | PC <mark>ER</mark> L607 | PC L | PC | Embedded Systems and IoT Lab | 0 | 0 | 3 | 0 | 1.5 | 50 | 50 | 2 | 3 |
| 8 | Р | PCERP608 | PW S | PC | Mini Project: Socially Relevant Project | 0 | 0 | 0 | 3 | 3 | 50 | 50 | 2 | 3 |
| 9 | R / M / H | | VA C | | Remedial/Minor/Honours Course | 3 | 0 | 0 | 0 | 4.5 | | | 3* | 3* |
| S 5/ Industrial Visit (Maximum of 12 Days are permitted, Not Exceeding more than 6 S Working Days) /Industrial Training | | | | | | | | | | | | | | |
| | | | | | Total | | | | | 32/ 36 | | | 23/ 26* | 25/28 * |

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: PEERT 63N

| SLOT | COURSE CODE | COURSES | L-T-P-R | HOURS | CREDIT |
|------|--------------------------|------------------------------------|---------|-------|--------|
| | PE <mark>ER</mark> T 631 | Network and Linear Control Systems | 3-0-0-0 | | 3 |
| | PE <mark>ER</mark> T 632 | Micro-Electro-Mechanical-Systems | 3-0-0-0 | | 3 |
| C | PEERT 633 | Foundations of Data Science | 3-0-0-0 | | 3 |
| С | PEERT 634 | Compiler Design | 3-0-0-0 | 3 | 3 |
| | PE <mark>ER</mark> T 636 | Algorithm Analysis and Design | 3-0-0-0 | | 3 |
| | PEERT 635 | Design & Analysis of Algorithms | 3-0-0-0 | | 5/3 |

| SLOT | COURSE CODE | COURSES | L-T-P-R | HOURS | CREDIT |
|------|-------------------------|---|---------|-------|--------|
| | OE <mark>ER</mark> T611 | Basics of Analog and Digital Communication | 3-0-0-0 | | 3 |
| | OE <mark>ER</mark> T612 | Robotics and Automation | 3-0-0-0 | | 3 |
| 0 | OE <mark>ER</mark> T613 | Object Oriented Concepts | 3-0-0-0 | 3 | 3 |
| | OE <mark>ER</mark> T614 | Internet of Things | 3-0-0-0 | | 3 |
| | OEERT615 | Introduction to Artificial Intelligence | 3-0-0-0 | | 3 |

OPEN ELECTIVE 1: OEERT 61N

| | SEVENTH SEMESTER (July-December) S Credit Total | | | | | | | | | | | | | |
|--------|---|------------------------------------|--------------------|--------------------|--|---|---|--------------|---|-----|------------|-------------|-------|------|
| S 1 | t | Course | se | 'se ory | Course Title | s | - | edit ctur | | | Tot Mai | | Credi | Hrs/ |
| N 0 | Slot | Code | Course | Course Category | (Course Name) | L | Т | Р | R | SS | CI A | E S E | ts | Week |
| 1 | A | PEERT74N / PEERM74N | P E | 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 | В | PEERT75N/ PEERM75N | P E | 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 | 0 | OEERT72N /IEERT72N/ OEERM72N | O E/ IL E | 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 | H M 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 | PCERS705 | P W S | PC | Seminar | 0 | 0 | 3 | 0 | 1.5 | 50 | 0 | 2 | 3 |
| 6 | Р | PCERP706/ PCERI706 | P W S | PC | Option 1: Major Project Option 2: Internship (4-6 Months) | 0 | 0 | 0 | 8 | 8 | 100 | 0 | 4 | 8 |
| | | | | | Total | | | | | 26 | | | 17 | 22 |

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

*Students can opt for the internship either in the 7^{th} or 8^{th} 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.

| SLOT | COURSE CODE | COURSES | L-T-P-R | HOURS | CREDIT |
|------|------------------|--------------------------|---------|-------|--------|
| | PEERT 741 | Image Processing | 3-0-0-0 | | 3 |
| | PEECT 742 | Deep Learning | 3-0-0-0 | | 3 |
| | PEECT 743 | Robotics and Automation | 3-0-0-0 | 2 | 3 |
| A | PEERT 744 | Nano electronics | 3-0-0-0 | 3 | 3 |
| | PEERT 746 | Block Chain Technologies | 3-0-0-0 | | 3 |
| | PEERT 745 | Network Security | 3-0-0-0 | | 5/3 |

PROGRAM ELECTIVE 4: PEERT 74N

PROGRAM ELECTIVE 5: PEERT 75N

| SLOT | COURSE CODE | COURSES | L-T-P-R | HOURS | CREDIT |
|------|------------------|---------------------------------|---------|-------|--------|
| | PEERT 751 | Web Programming | 3-0-0-0 | | 3 |
| | PEERT 752 | Low Power VLSI Design | 3-0-0-0 | | 3 |
| В | PEECT 753 | Real Time Operating Systems | 3-0-0-0 | 2 | 3 |
| D | PEERT 754 | Client Server Architecture | 3-0-0-0 | 5 | 3 |
| | PEECT 756 | Speech and Audio Processing | 3-0-0-0 | | 3 |
| | PEERT 755 | Neural Networks & Deep Learning | 3-0-0-0 | | 5/3 |

OPEN ELECTIVE 2: OEERT 72N

| SLOT | COURSE CODE | COURSES | L-T-P-R | HOURS | CREDIT |
|------|--------------------------|---|---------|-------|--------|
| | OE <mark>ER</mark> T 721 | Sensors and Instrumentation | 3-0-0-0 | | 3 |
| | OE <mark>ER</mark> T 722 | Biomedical Instrumentation | 3-0-0-0 | | 3 |
| 0 | OE <mark>ER</mark> T 723 | Embedded System Design and Applications | 3-0-0-0 | 3 | 3 |
| | OE <mark>ER</mark> T 724 | Digital Image Processing | 3-0-0-0 | | 3 |
| | OE <mark>ER</mark> T 725 | Concepts in Machine Learning | 3-0-0-0 | | 3 |

| SL. No | Course Code | Slot I: HMC Elective |
|-----------|-------------------------|--|
| 1 | UEHU <mark>T</mark> 704 | Project Management: Planning, Execution, Evaluation and Control |
| 2 | UEHU <mark>M</mark> 701 | Proficiency course in French. (MOOC) (B1 level) |
| 3 | UEHUM702 | Proficiency Course in German (B1 Level). (MOOC) |
| 4 | UEHUM703 | Proficiency Course in Spanish (B1 Level) (MOOC) |
| 5 | UEHUM704 | Introduction to Japanese Language and Culture (N5 level). (MOOC) |

| | EIGHT SEMESTER (January-June) | | | | | | | | | | | | | |
|-------------|-------------------------------|------------------------------------|----------------|--------------------|---|----|---|--------------|----|-----|----------------|---------|------|-------------|
| S 1 | Slot | Course | Course Type | Course Category | Course Title | | | edit ctur | | SS | Total Marks | | Cre | Hrs/ Wee |
| N 0 : | SI | Code | Cours | Coi Cate | (Course Name) | L | Т | Р | R | 55 | CI A | ES E | dits | k |
| 1 | А | PEERT86N / PEERM86N | 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 | 0 | OEERT83N /IEERT83N/ OEERM83N | O E/I LE | OE/I E | 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 | H M C | 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 | Р | PCERP806/ PCER1806/ PCERJ806 | P W S | 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 | 10 0 | 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)

| SLOT | COURSE CODE | COURSES | L-T-P-R | HOURS | CREDIT |
|------|--------------------------|--------------------------------------|---------|-------|--------|
| | PE <mark>ER</mark> T 861 | PLC and Data Acquisition Systems | 3-0-0-0 | | 3 |
| | PEERT 862 | Electronic Product Design | 3-0-0-0 | | 3 |
| | PE <mark>ER</mark> T 863 | System Software | 3-0-0-0 | 2 | 3 |
| A | PE <mark>EC</mark> T 864 | Cyber Security | 3-0-0-0 | 3 | 3 |
| | PE <mark>ER</mark> T 866 | Cryptography and Network Security | 3-0-0-0 | | 3 |
| | PE <mark>ER</mark> T 865 | Cyber Forensics | 3-0-0-0 | | 5/3 |

PROGRAM ELECTIVE 6: PEERT 86N

OPEN ELECTIVE 3: OEERT 83N

| SLOT | COURSE CODE | COURSES | L-T-P-R | HOURS | CREDIT |
|------|--------------------------|-----------------------------------|---------|-------|--------|
| | OEERT 831 | Biomedical Signal Processing | 3-0-0-0 | | 3 |
| | OEERT 832 | Hybrid and Electric Vehicles | 3-0-0-0 | | 3 |
| 0 | OEERT 833 | Fundamentals of Computer Networks | 3-0-0-0 | 3 | 3 |
| | OE <mark>ER</mark> T 834 | Cloud Computing and Applications | 3-0-0-0 | | 3 |
| | OE <mark>ER</mark> T 835 | Introduction to Deep Learning | 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 Credits9 | | | | | | | |

| | BSC Courses | | | | | |
|---------|------------------|------------------------------|---------|--|--|--|
| Sl. No: | Semester | Course Area | Credits | | | |
| 1 | S1 | Group Specific Mathematics-1 | 3 | | | |
| 2 | 61/63 | Physics for Engineers | 4 | | | |
| 3 | S1/S2 | 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 | | | | |
|---------|------------------|--|---------|--|--|--|
| Sl. No: | Semester | Course Area | Credits | | | |
| 1 | | Engineering Graphics and Computer Aided Drawing | 3 | | | |
| 2 | S1 | Introduction to Electrical and Electronics Engineering | 4 | | | |
| 3 | | Algorithmic Thinking with Python | 4 | | | |
| 4 | | Basic Electrical and Electronics Engineering Workshop | 1 | | | |
| 5 | | Foundations of Computing: From Hardware Essentials to Web Design | 3 | | | |
| 6 | S2 | Programming in C | 4 | | | |
| 7 | 52 | Engineering Entrepreneurship and IPR | 3 | | | |
| 8 | | IT Workshop | 1 | | | |
| 9 | S 3 | Introduction to Artificial Intelligence and Data Science | 4 | | | |
| 10 | S6 | Design Thinking and Creativity | 2 | | | |
| | Total Credits 29 | | | | | |

| | Program Core Courses (PC) | | | | | |
|---------|---------------------------|--|---|--|--|--|
| Sl. No: | Semester Course Area | | | | | |
| 1 | S2 | Digital Electronics | 4 | | | |
| 2 | | Data Structures | 4 | | | |
| 3 | S3 | Digital System Design Using Verilog | 4 | | | |
| 4 | | Data Structures Lab | 2 | | | |
| 5 | | Digital System Design Lab | 2 | | | |
| 6 | | Computer Organization and Architecture | 4 | | | |
| 7 | 54 | Computer Networks | 4 | | | |
| 8 | S4 | Computer Networking Lab | 2 | | | |
| 9 | | Integrated Circuits Lab | 2 | | | |
| 10 | 85 | Digital Signal Processing | 4 | | | |
| 11 | | Theory of Computation | 4 | | | |

| 12 | | Microcontrollers and Interfacing | 3 | |
|-----------------------------------|-----------|-----------------------------------|---|--|
| 13 | | Digital Signal Processing Lab | 2 | |
| 14 | | Database Management Systems Lab | 2 | |
| 15 | | Operating Systems | 4 | |
| 16 | S6 | Data Communication and Networking | 3 | |
| 17 | | Embedded Systems and IoT Lab | 2 | |
| Total Credits (Theory -10, Lab-7) | | | | |

| Program Core-Project Based Learning (PBL) | | | | |
|---|---------------|-------------------------------|---------|--|
| Sl. No: | Semester | Course Area | Credits | |
| 1 | S3 | Electronic Devices & Circuits | 4 | |
| 2 | S4 | Integrated Circuits | 4 | |
| 3 | S 5 | Database Management Systems | 4 | |
| 4 | S6 | Embedded Systems & IoT | 4 | |
| | Total Credits | | | |

| Program 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 | S 7 | Seminar | 2 | |
| 3 | | Major Project/Internship | 4 | |
| 4 | S8 | Major Project/Internship/Research Project | 4 | |
| | Total Credits | | | |

| | Activity Points | | | | |
|------------|-----------------|--|------------------|---------------------------------|--|
| Sl. No. | Group | Courses | Credits | Minimum Credit Requirements | |
| 1 | | NSS, NCC, NSO (National Sports Organization) | | | |
| 2 | Ι | Arts/Sports/Games | 1 (40 Points) | | |
| 3 | | Union/Club Activities | | | |
| 4 | | English Proficiency Certification (TOFEL, IELTS, BEC etc.) | | | |
| 5 | | Aptitude Proficiency Certification (GRE, CAT, GMAT etc.)/ Valid Gate Score. | 1 | 3 Credits | |
| 6 | П | 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 | 1 (40 Points) | (One credit from each Group) | |
| 7 | | Journal Publication, Patents, Start-Up, Innovation, Winners of National/ International Level Hackathons | 1 | | |
| 8 | III | Skilling Certificates (Approved by the University) | (40 Points) | | |

• 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 | | | | |