

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech. in ELECTRICAL AND ELECTRONICS ENGINEERING
COURSE STRUCTURE & SYLLABUS (R18)

Applicable From 2018-19 Admitted Batch

I YEAR I SEMESTER

| S. No. | Course Code | Course Title | L | T | P | Credits |
|--------|-------------|---|-----------|----------|-----------|-----------|
| 1 | MA101BS | Mathematics - I | 3 | 1 | 0 | 4 |
| 2 | CH102BS | Chemistry | 3 | 1 | 0 | 4 |
| 3 | EE103ES | Basic Electrical Engineering | 3 | 0 | 0 | 3 |
| 4 | ME105ES | Engineering Workshop | 1 | 0 | 3 | 2.5 |
| 5 | EN105HS | English | 2 | 0 | 0 | 2 |
| 6 | CH106BS | Engineering Chemistry Lab | 0 | 0 | 3 | 1.5 |
| 7 | EN107HS | English Language and Communication Skills Lab | 0 | 0 | 2 | 1 |
| 8 | EE108ES | Basic Electrical Engineering Lab | 0 | 0 | 2 | 1 |
| | | Induction Programme | | | | |
| | | Total Credits | 12 | 2 | 10 | 19 |

I YEAR II SEMESTER

| S. No. | Course Code | Course Title | L | T | P | Credits |
|--------|-------------|-------------------------------------|-----------|----------|-----------|-----------|
| 1 | MA201BS | Mathematics - II | 3 | 1 | 0 | 4 |
| 2 | AP202BS | Applied Physics | 3 | 1 | 0 | 4 |
| 3 | CS203ES | Programming for Problem Solving | 3 | 1 | 0 | 4 |
| 4 | ME204ES | Engineering Graphics | 1 | 0 | 4 | 3 |
| 5 | AP205BS | Applied Physics Lab | 0 | 0 | 3 | 1.5 |
| 6 | CS206ES | Programming for Problem Solving Lab | 0 | 0 | 3 | 1.5 |
| 7 | *MC209ES | Environmental Science | 3 | 0 | 0 | 0 |
| | | Total Credits | 13 | 3 | 10 | 18 |

II YEAR I SEMESTER

| S. No. | Course Code | Course Title | L | T | P | Credits |
|--------|-------------|-----------------------------|-----------|----------|----------|-----------|
| 1 | EE301ES | Engineering Mechanics | 3 | 1 | 0 | 4 |
| 2 | EE302PC | Electrical Circuit Analysis | 3 | 1 | 0 | 4 |
| 3 | EE303PC | Analog Electronics | 3 | 0 | 0 | 3 |
| 4 | EE304PC | Electrical Machines - I | 3 | 1 | 0 | 4 |
| 5 | EE305PC | Electromagnetic Fields | 3 | 0 | 0 | 3 |
| 6 | EE306PC | Electrical Machines Lab - I | 0 | 0 | 2 | 1 |
| 7 | EE307PC | Analog Electronics Lab | 0 | 0 | 2 | 1 |
| 8 | EE308PC | Electrical Circuits Lab | 0 | 0 | 2 | 1 |
| 9 | *MC309 | Gender Sensitization Lab | 0 | 0 | 2 | 0 |
| | | Total Credits | 15 | 3 | 8 | 21 |

II YEAR II SEMESTER

| S. No. | Course Code | Course Title | L | T | P | Credits |
|--------|-------------|---|---|---|---|---------|
| 1 | MA401BS | Laplace Transforms, Numerical Methods & Complex variables | 3 | 1 | 0 | 4 |

| | | | | | | |
|---|---------|------------------------------|-----------|----------|----------|-----------|
| 2 | EE402PC | Electrical Machines – II | 3 | 1 | 0 | 4 |
| 3 | EE403PC | Digital Electronics | 3 | 0 | 0 | 3 |
| 4 | EE404PC | Control Systems | 3 | 1 | 0 | 4 |
| 5 | EE405PC | Power System - I | 3 | 0 | 0 | 3 |
| 6 | EE406PC | Digital Electronics Lab | 0 | 0 | 2 | 1 |
| 7 | EE407PC | Electrical Machines Lab - II | 0 | 0 | 2 | 1 |
| 8 | EE408PC | Control Systems Lab | 0 | 0 | 2 | 1 |
| 9 | *MC409 | Constitution of India | 3 | 0 | 0 | 0 |
| | | Total Credits | 18 | 3 | 6 | 21 |

III YEAR I SEMESTER

| S. No. | Course Code | Course Title | L | T | P | Credits |
|--------|-------------|---|-----------|----------|----------|-----------|
| 1 | EE501PE | Power Electronics | 3 | 1 | 0 | 4 |
| 2 | EE502PE | Power System-II | 3 | 1 | 0 | 4 |
| 3 | EE503PE | Measurements and Instrumentation | 3 | 1 | 0 | 4 |
| 4 | | Professional Elective-I | 3 | 0 | 0 | 3 |
| 5 | SM504MS | Business Economics and Financial Analysis | 3 | 0 | 0 | 3 |
| 6 | EE505PC | Power System Simulation Lab | 0 | 0 | 2 | 1 |
| 7 | EE506PC | Power Electronics Lab | 0 | 0 | 2 | 1 |
| 8 | EE507PC | Measurements and Instrumentation Lab | 0 | 0 | 2 | 1 |
| 9 | EN508HS | Advanced Communication Skills Lab | 0 | 0 | 2 | 1 |
| 10 | *MC510 | Intellectual Property Rights | 3 | 0 | 0 | 0 |
| | | Total Credits | 18 | 3 | 8 | 22 |

III YEAR II SEMESTER

| S. No | Course Code | Course Title | L | T | P | Credits |
|-------|-------------|--|-----------|----------|----------|-----------|
| 1 | | Open Elective-I | 3 | 0 | 0 | 3 |
| 2 | | Professional Elective-II | 3 | 0 | 0 | 3 |
| 3 | EE601PC | Signals and Systems | 2 | 1 | 0 | 3 |
| 4 | EE602PC | Microprocessors & Microcontrollers | 3 | 0 | 0 | 3 |
| 5 | EE603PC | Power System Protection | 3 | 1 | 0 | 4 |
| 6 | EE604PC | Power System Operation and Control | 3 | 0 | 0 | 3 |
| 7 | EE605PC | Power System Lab | 0 | 0 | 2 | 1 |
| 8 | EE606PC | Microprocessors & Microcontrollers Lab | 0 | 0 | 2 | 1 |
| 9 | EE607PC | Signals and Systems Lab | 0 | 0 | 2 | 1 |
| 10 | *MC609 | Environmental Science | 3 | 0 | 0 | 0 |
| | | Total Credits | 20 | 2 | 6 | 22 |

IV YEAR I SEMESTER

| S. No. | Course Code | Course Title | L | T | P | Credits |
|--------|-------------|---|---|---|---|---------|
| 1 | | Open Elective-II | 3 | 0 | 0 | 3 |
| 2 | | Professional Elective-III | 3 | 0 | 0 | 3 |
| 3 | | Professional Elective-IV | 3 | 0 | 0 | 3 |
| 4 | SM701MS | Fundamentals of Management for Engineers | 3 | 0 | 0 | 3 |
| 5 | EE701PC | Electrical & Electronics Design Lab | 1 | 0 | 4 | 3 |
| 6 | EE702PC | Industrial Oriented Mini Project/ Summer Internship | 0 | 0 | 4 | 2* |
| 7 | EE703PC | Seminar | 0 | 0 | 2 | 1 |

| | | | | | | |
|--|---------|----------------------|-----------|----------|-----------|-----------|
| | EE704PC | Project Stage - I | 0 | 0 | 6 | 3 |
| | | Total Credits | 13 | 0 | 16 | 21 |

IV YEAR II SEMESTER

| S. No. | Course Code | Course Title | L | T | P | Credits |
|--------|-------------|--------------------------|----------|----------|-----------|-----------|
| 1 | | Open Elective-III | 3 | 0 | 0 | 3 |
| 2 | | Professional Elective-V | 3 | 0 | 0 | 3 |
| 3 | | Professional Elective-VI | 3 | 0 | 0 | 3 |
| 4 | EE801PC | Project Stage - II | 0 | 0 | 14 | 7 |
| | | Total Credits | 9 | 0 | 14 | 16 |

***MC - Environmental Science – Should be Registered by Lateral Entry Students Only.**

***MC – Satisfactory/Unsatisfactory**

NOTE: Industrial Oriented Mini Project/ Summer Internship is to be carried out during the summer vacation between 6th and 7th semesters. Students should submit report of Industrial Oriented Mini Project/ Summer Internship for evaluation.

Professional Elective - I

| | |
|---------|---------------------------|
| EE511PE | Computer Architecture |
| EE512PE | High Voltage Engineering |
| EE513PE | Electrical Machine Design |

Professional Elective - II

| | |
|---------|-------------------------------|
| EE611PE | Optimization Techniques |
| EE612PE | Power Semiconductor Drives |
| EE613PE | Wind and Solar Energy systems |

Professional Elective - III

| | |
|---------|--------------------------------|
| EE711PE | Digital Control systems |
| EE712PE | Digital Signal Processing |
| EE713PE | Electrical and Hybrid Vehicles |

Professional Elective - IV

| | |
|---------|-------------------------------|
| EE721PE | HVDC Transmission |
| EE722PE | Power System Reliability |
| EE723PE | Industrial Electrical Systems |

Professional Elective - V

| | |
|---------|---|
| EE811PE | Power Quality & FACTS |
| EE812PE | Control Systems Design |
| EE813PE | AI Techniques in Electrical Engineering |

Professional Elective - VI

| | |
|---------|-------------------------------------|
| EE821PE | Smart Grid Technologies |
| EE822PE | Electrical Distribution Systems |
| EE823PE | Advanced Control of Electric Drives |

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
R18 B.TECH. List of Open Electives
Applicable From 2018-19 Admitted Batch

| Branch | III Yr II Sem Open Elective (OE – I) | IV Yr I Sem Open Elective (OE – II) | IV Yr II Sem Open Elective (OE – III) |
|---|---|---|--|
| Civil Engineering | Disaster Preparedness & Planning Management | Remote Sensing & GIS | Environmental Impact Assessment |
| Computer Science & Engineering / Information Technology | 1. Entrepreneurship 2. Fundamentals of Management for Engineers 3. Cyber Law & Ethics | 1. Data Structures 2. Artificial Intelligence 3. Python Programming 4. Java Programming | 1. Machine Learning 2. Mobile Application Development 3. Scripting Languages 4. Database Management Systems |
| Electronics and Instrumentation Engineering | Basics of Sensors Technology | Fundamentals of Biomedical Applications | Basics of Virtual Instrumentation |
| Electronics and Communication Engineering | Fundamentals of Internet of Things | Electronic Sensors | Measuring Instruments |
| Electrical and Electronics Engineering | 1. Reliability Engineering 2. Renewable Energy Sources | 1. Utilization of Electrical Energy 2. Electric Drives and Control | 1. Basics of Power Plant Engineering 2. Energy Sources and Applications |
| Mechanical Engineering | Quantitative Analysis for Business Decisions | Basic Mechanical Engineering | Non-Conventional Sources of energy |
| Aeronautical Engineering | Quantitative Analysis for Business Decisions | Basics of Aeronautical Engineering | Elements of Rocket Propulsion |
| Mechatronics | 1. Industrial Management 2. Non-Conventional Energy Sources | 1. Intellectual Property Rights 2. Principles of Entrepreneurship 3. Basic Mechanical Engineering | 1. Fundamentals of Robotics 2. Linear and Non-Linear Optimization Techniques 3. Total Quality Management |
| Petroleum Engineering | General Geology | Natural Gas Engineering | Green Fuel Technologies |
| Metallurgical and Materials Engineering | 1. Testing of Materials 2. Alloy Steels | 1. Engineering Materials 2. Surface Engineering | 1. High Temperature Materials 2. Light Metals and Alloys |
| Mining Engineering | 1. Introduction to Mining Technology 2. Coal Gasification, CBM & Shale Gas | 1. Health & Safety in Mines 2. Material Handling in Mines | 1. Solid Fuel Technology 2. Remote Sensing and GIS in Mining |

***Note:** Students should take Open Electives from the List of Open Electives Offered by Other Departments/Branches Only.