

School of Engineering and Applied Sciences

B. Tech Electrical and Electronics Engineering

Academic Batch: 2021-2025

Department of Electrical and Electronics Engineering

SRM University-AP, Andhra Pradesh

Syllabus B. Tech in Electrical and Electronics Engineering

| SEMESTER-I | | | | | | |
|-------------------|--------------------|--|----------|----------|----------|-----------|
| S. No | Course Code | Course Name | L | T | P | C |
| 1 | EGL 101 | Communicative English | 3 | 0 | 0 | 3 |
| 2 | MAT 112 | Single Variable Calculus | 3 | 0 | 0 | 3 |
| 3 | PHY 101 | Engineering Physics | 3 | 0 | 0 | 3 |
| 4 | PHY 101 L | Engineering Physics Lab /Chemistry for Engineers Lab | 0 | 0 | 2 | 1 |
| 5 | EEE 101 | Fundamentals of Electrical Engineering | 3 | 0 | 0 | 3 |
| 6 | CSE 105 | Introduction to Programming using C | 3 | 0 | 0 | 3 |
| 7 | CSE 105L | Introduction to Programming using C Lab | 0 | 0 | 2 | 1 |
| 8 | ENV 111 | Environmental Science | 2 | 0 | 0 | 2 |
| 9 | ENV 111 L | Environmental Science Lab | 0 | 0 | 2 | 1 |
| 10 | ISES 101 | Industry Specific Employability Skills | 1 | 1 | 0 | 1 |
| Total | | | | | | 21 |

| SEMESTER-II | | | | | | |
|--------------------|--------------------|---|----------|----------|----------|----------|
| S. No | Course Code | Course Name | L | T | P | C |
| 1 | MAT 121 | Multi Variable Calculus | 3 | 0 | 0 | 3 |
| 2 | EGL 125 | Critical Thinking | 4 | 0 | 0 | 4 |
| 3 | MAT 211 | Linear Algebra | 3 | 0 | 0 | 3 |
| 4 | MAT 221 | Probability & Statistics for Engineers | 3 | 0 | 0 | 3 |
| 5 | CSE 107 | Data Structures | 3 | 0 | 0 | 3 |
| 6 | CSE 107 L | Data Structures Lab | 0 | 0 | 2 | 1 |
| 7 | ENG 111 | Basic Electronics | 3 | 0 | 0 | 3 |
| 8 | ENG 111L | Basic Electronics Lab | 0 | 0 | 2 | 1 |
| 9 | ISES 102 | Industry Specific Employability Skills II | 1 | 1 | 0 | 1 |

| 10 | CSE 230 | Industry Standard Coding Practice-I | 0 | 0 | 4 | 1 |
|---------------------|-------------|--|---|---|---|-----------|
| Total | | | | | | 23 |
| SEMESTER-III | | | | | | |
| S. No | Course Code | Course Name | L | T | P | C |
| 1 | MAT 141 | Discrete Mathematics | 3 | 0 | 0 | 3 |
| 2 | CSE 206 | Object Oriented Programming with C++ | 3 | 0 | 0 | 3 |
| 3 | CSE 206 L | Object Oriented Programming with C++ Lab | 0 | 0 | 2 | 1 |
| 4 | EE 201 | Electrical and Electronics Measurement | 3 | 0 | 0 | 3 |
| 5 | EE 201 L | Electrical and Electronics Measurement lab | 0 | 0 | 2 | 1 |
| 6 | EEE 202 | Electrical Circuits Theory | 3 | 0 | 0 | 3 |
| 7 | EEE 202 L | Electrical Circuits Theory Lab | 0 | 0 | 2 | 1 |
| 8 | ECE 211 | Digital Electronics | 2 | 1 | 0 | 3 |
| 9 | ECE 211 L | Digital Electronics Lab | 0 | 0 | 2 | 1 |
| 10 | EEE 206 | Principles of Signal Processing | 3 | 0 | 0 | 3 |
| 11 | EEE 206 L | Principles of Signal Processing lab | 0 | 0 | 2 | 1 |
| 12 | ISES 201 | Industry Specific Employability Skills-III | 1 | 1 | 0 | 1 |
| 13 | CSE 230 | Industry Standard Coding Practice-2 | 0 | 0 | 4 | 1 |
| Total | | | | | | 25 |

| SEMESTER-IV | | | | | | |
|--------------------|-------------|---|---|---|---|-----------|
| S. No | Course Code | Course Name | L | T | P | C |
| 1 | EEE 203 | Control Systems | 3 | 0 | 0 | 3 |
| 2 | EEE 203 L | Control Systems Lab | 0 | 0 | 2 | 1 |
| 3 | EEE 204 | DC Machines and Transformers | 3 | 0 | 0 | 3 |
| 4 | EEE 204 L | DC Machines and Transformers Lab | 0 | 0 | 2 | 1 |
| 5 | ECE 221 | Analog Electronics | 3 | 0 | 0 | 3 |
| 6 | ECE 221 L | Analog Electronics Lab | 0 | 0 | 2 | 1 |
| 7 | EEE 205 | Numerical Techniques | 3 | 0 | 0 | 3 |
| 8 | EEE 206 | Field Theory | 3 | 0 | 0 | 3 |
| 9 | OE | Open Elective-1 | 3 | 0 | 0 | 3 |
| 10 | ISES 202 | Industry Specific Employability Skills-IV | 1 | 1 | 0 | 1 |
| 11 | CSE 330 | Industry Standard Coding Practice- 3 | 0 | 0 | 4 | 1 |
| Total | | | | | | 23 |

| SEMESTER-V | | | | | | |
|-------------------|-------------|--|---|---|---|---|
| S. No | Course Code | Course Name | L | T | P | C |
| 1 | EEE 302 | Induction and Synchronous Machines | 3 | 0 | 0 | 3 |
| 2 | EEE 302 L | Induction and Synchronous Machines Lab | 0 | 0 | 2 | 1 |
| 3 | EEE 304 | Fundamentals of Power System | 3 | 0 | 0 | 3 |
| 4 | EEE 308 | Power Electronics | 3 | 0 | 0 | 3 |
| 5 | EEE 308 L | Power Electronics Lab | 0 | 0 | 2 | 1 |
| 6 | TE | Technical Elective-1 | 3 | 0 | 0 | 3 |

| | | | | | | |
|----------------------|--------------------|---|----------|----------|----------------|--------------|
| 7 | TE | Stream Specific Elective-1/Technical Elective-2 | 3 | 0 | 0/2 | 3/4 |
| 8 | OE | Open Elective-2 | 3 | 0 | 0/2 | 3/4 |
| 9 | ISES 301 | Industry Specific Employability Skills-V | 1 | 1 | 0 | 0 |
| Total | | | | | | 20/22 |
| SEMESTER-VI | | | | | | |
| S. No | Course Code | Course Name | L | T | P | C |
| 1 | EEE 306 | Power System Analysis | 3 | 0 | 0 | 3 |
| 2 | EEE 306 L | Power System Analysis Lab | 0 | 0 | 2 | 1 |
| 3 | TE | Stream Specific Elective-2/Technical Elective-3 | 3 | 0 | 0/2 | 3/4 |
| 4 | OE | Open Elective-3 | 3 | 0 | 0/2 | 3/4 |
| 5 | OE | Open Elective-4 | 3 | 0 | 0 | 3 |
| 6 | EEE 310 P | Undergraduate Research Opportunity Project | 0 | 0 | 6 | 3 |
| 7 | ISES 302 | Industry Specific Employability Skills-VI | 1 | 1 | 0 | 0 |
| Total | | | | | | 16/18 |
| SEMESTER-VII | | | | | | |
| S. No | Course Code | Course Name | L | T | P | C |
| 1 | EEE 401 | Switch Gear and Protection | 3 | 0 | 0 | 3 |
| 2 | EEE 401 L | Switch Gear and Protection Lab | 0 | 0 | 2 | 1 |
| 3 | EEE 402 | High Voltage Engineering | 3 | 0 | 0 | 3 |
| 4 | EEE 402 L | High Voltage Engineering Lab | 0 | 0 | 2 | 1 |
| 5 | TE | Stream Specific Elective-3/Technical Elective-4 | 3 | 0 | 0/2 | 3/4 |
| 6 | TE | Stream Specific Elective-4/Technical Elective-5 | 3 | 0 | 0/2 | 3/4 |
| 7 | OE | Open Elective-5 | 3 | 0 | 0 | 3 |
| Total | | | | | | 17/19 |
| SEMESTER-VIII | | | | | | |
| S. No | Course Code | Course Name | L | T | P | C |
| 1 | EEE 410 P | Capstone Project | 0 | 0 | 24 | 12 |
| Total | | | | | | 12 |
| Total Credits | | | | | 157/163 | |

| Course Category | Category Code | No of Courses | Credits in curriculum |
|--------------------------------|----------------------|----------------------|------------------------------|
| Humanities and Social Sciences | HS | 8 | 11 |
| Basic Sciences | BS | 10 | 25 |
| Engineering Sciences | ES | 13 | 25 |
| Professional Core | C | 25 | 51 |
| Technical Elective | TE | 5 | 15/19 |
| Open Elective | OE | 5 | 15/17 |
| Project | PR | 2 | 15 |
| | Total | 68 | 157/163 |

| List of Stream Specific Electives | | | | | |
|--|---|----------|----------|----------|----------|
| Course Code | Course Name | L | T | P | C |
| Smart Grid | | | | | |
| EEE 2XX | Introduction to Smart Grid | 3 | 0 | 0 | 3 |
| EEE 3XX | Distributed Generation and Micro Grids | 3 | 0 | 0 | 3 |
| EEE 3XX | Intelligence and Communication in Smart Grid | 3 | 0 | 0 | 3 |
| EEE 4XX | Power Electronic Converters for Smart Grids | 3 | 0 | 0 | 3 |
| E-Mobility | | | | | |
| EEE 2XX | Introduction to Hybrid and Electric Vehicles | 3 | 0 | 0 | 3 |
| EEE 3XX | Communication Networks for Electric Vehicles | 3 | 0 | 0 | 3 |
| EEE 3XX | Electric Vehicle Batteries and Charging Systems | 3 | 0 | 0 | 3 |
| EEE 4XX | Power Electronic Converters for Electric Vehicles | 3 | 0 | 0 | 3 |
| Energy Efficient Systems | | | | | |
| EEE 2XX | Renewable Energy Sources | 3 | 0 | 0 | 3 |
| EEE 3XX | Distributed Generation and Micro Grids | 3 | 0 | 0 | 3 |
| EEE 3XX | Grid Integration of Renewable Energy | 3 | 0 | 0 | 3 |
| EEE 4XX | Intelligent Grid Technologies and Applications | 3 | 0 | 0 | 3 |

| List of Technical Electives | | | | | |
|------------------------------------|---|----------|----------|----------|----------|
| Course Code | Course Name | L | T | P | C |
| EEE 311 | Non - Linear Systems and Control | 3 | 0 | 0 | 3 |
| EEE 312 | Renewable Energy Systems | 3 | 0 | 0 | 3 |
| EEE 315 | Artificial Neural Networks | 3 | 0 | 0 | 3 |
| EEE 421 | Linear Systems | 3 | 0 | 0 | 3 |
| EEE 422 | Optimization Techniques | 3 | 0 | 0 | 3 |
| EEE 423 | Switched Mode DC DC Power Converters | 3 | 0 | 0 | 3 |
| EEE 424 | High Voltage DC Transmission | 3 | 0 | 0 | 3 |
| EEE 425 | Power System Operation and Control | 3 | 0 | 0 | 3 |
| EEE 426 | Pulsed power systems | 3 | 0 | 0 | 3 |
| EEE 427 | Flexible AC transmission system (FACTS) | 3 | 0 | 0 | 3 |
| EEE 428 | Power Semiconductor Drives | 3 | 0 | 0 | 3 |
| EEE 429 | Economics of Power Generation | 3 | 0 | 0 | 3 |
| EEE 311 | Non - Linear Systems and Control | 3 | 0 | 0 | 3 |

| List of Open Electives | | | | | |
|-------------------------------|-----------------------------------|----------|----------|----------|----------|
| Course Code | Course Name | L | T | P | C |
| ECE 222 | Digital Signal Processing | 3 | 0 | 2 | 4 |
| ECE 313 | Microprocessors and Interfacing | 3 | 0 | 2 | 4 |
| ECE 319 | Microcontrollers and Applications | 3 | 0 | 2 | 4 |