

SWARNANDHRA

COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous)

Seetaramapuram, Narsapur-534280, W.G. Dt.
Andhra Pradesh, India.



COURSE STRUCTURE

R-19 REGULATION

(CHOICE BASED CREDIT SYSTEM)

Electrical and Electronics Engineering

for

Bachelor of Technology (B. Tech)

(Applicable from batches admitted in AY: 2019-2020

&

Lateral Entry in AY: 2020-2021)



SWARNANDHRA COLLEGE OF ENGINEERING & TECHNOLOGY
Seetaramapuram, Narsapur-534280
Department of Electrical and Electronics Engineering

SEMSTER-I

| S. No. | Course Code | Course Title | L | T | P | C |
|--------------|-------------|---|----|---|----|-------------|
| 1 | 19MA1T01 | Calculus and Linear Algebra | 3 | 1 | 0 | 4.0 |
| 2 | 19BS1T01 | Engineering Physics | 3 | 0 | 0 | 3.0 |
| 3 | 19CS1T01 | Problem Solving and Programming Using C | 3 | 0 | 0 | 3.0 |
| 4 | 19ME1T01 | Engineering Graphics | 2 | 0 | 2 | 3.0 |
| 5 | 19BS1L01 | Engineering Physics Lab | 0 | 0 | 3 | 1.5 |
| 6 | 19CS1L01 | C Programming Lab | 0 | 0 | 3 | 1.5 |
| 7 | 19CS1L02 | IT Workshop | 0 | 0 | 3 | 1.5 |
| 8 | 19HS1L01 | English Proficiency Lab | 0 | 0 | 3 | 1.5 |
| Total | | | 11 | 1 | 14 | 19.0 |

SEMSTER-II

| S. No. | Course Code | Course Title | L | T | P | C |
|--------------|-------------|--|----|---|----|-------------|
| 1 | 19MA2T02 | Differential Equations and Vector Calculus | 3 | 0 | 0 | 3.0 |
| 2 | 19BS2T02 | Engineering Chemistry | 3 | 0 | 0 | 3.0 |
| 3 | 19BS2T01 | English | 3 | 0 | 0 | 3.0 |
| 4 | 19ME2T02 | Basics of Mechanical Engineering | 3 | 0 | 0 | 3.0 |
| 5 | 19EE2T02 | Electrical Networks | 3 | 0 | 0 | 3.0 |
| 6 | 19BS2L02 | Engineering Chemistry Lab | 0 | 0 | 3 | 1.5 |
| 7 | 19ME2L01 | Engineering Workshop | 0 | 0 | 3 | 1.5 |
| 8 | 19ME2L02 | Mechanical Engineering Lab | 0 | 0 | 3 | 1.5 |
| 9 | 19HS2L02 | English Communication Skill Lab | 0 | 0 | 3 | 1.5 |
| Total | | | 15 | 0 | 12 | 21.0 |



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SEMESTER-III

| S. No. | Course Code | Course Title | L | T | P | C |
|--------------|-------------|--|----|----|----|-------------|
| 1 | 19MA3T06 | Numerical Methods and Transforms | 3 | 0 | 0 | 3.0 |
| 2 | 19EE3T01 | Electrical Circuits and Synthesis | 3 | 0 | 0 | 3.0 |
| 3 | 19EE3T02 | Electromagnetic Fields | 3 | 0 | 0 | 3.0 |
| 4 | 19EE3T03 | Electrical Machines-I | 3 | 0 | 0 | 3.0 |
| 5 | 19EC3T04 | Analog Electronics | 3 | 0 | 0 | 3.0 |
| 6 | 19EE3L01 | Electrical Circuits and Simulation Lab | 0 | 0 | 3 | 1.5 |
| 7 | 19EC3L04 | Analog Electronics Lab | 0 | 0 | 3 | 1.5 |
| 8 | 19CS3L03 | C++ Programming Lab | 0 | 0 | 4 | 2.0 |
| 9 | 19CE0M01 | Environmental Science | 2 | -- | 0 | -- |
| Total | | | 17 | 0 | 10 | 20.0 |

SEMESTER-IV

| S. No. | Course Code | Course Title | L | T | P | C |
|--------------|-------------|--|----|---|----|-------------|
| 1 | 19EE4T01 | Electrical Machines-II | 3 | 0 | 0 | 3.0 |
| 2 | 19EE4T02 | Control Systems | 3 | 0 | 0 | 3.0 |
| 3 | 19EE4T03 | Electrical and Electronics Instrumentation | 3 | 0 | 0 | 3.0 |
| 4 | 19EC4T02 | Digital Electronics | 3 | 0 | 0 | 3.0 |
| 5 | 19CS4T05 | Data Structures | 3 | 0 | 0 | 3.0 |
| 6 | 19EE4L01 | Electrical Machines Lab-I | 0 | 0 | 3 | 1.5 |
| 7 | 19EE4L02 | Electrical Measurements Lab | 0 | 0 | 3 | 1.5 |
| 8 | 19EC4L02 | Digital Electronics Lab | 0 | 0 | 3 | 1.5 |
| 9 | 19CS4L05 | Data Structures Lab | 0 | 0 | 3 | 1.5 |
| 10 | 19BM0M03 | Indian Constitution | 2 | 0 | 0 | -- |
| Total | | | 17 | 0 | 12 | 21.0 |



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SEMESTER-V

| S. No. | Course Code | Course Title | L | T | P | C |
|--------------|-------------|---|----|---|----|-------------|
| 1 | 19EE5T01 | Power Generation and Transmission Systems | 3 | 0 | 0 | 3.0 |
| 2 | 19EC5T04 | Linear IC Applications | 3 | 0 | 0 | 3.0 |
| 3 | 19BM5T02 | Principles of Economics and Management | 3 | 0 | 0 | 3.0 |
| 4 | | Elective-I | 3 | 0 | 0 | 3.0 |
| 5 | | Open Elective-I | 3 | 0 | 0 | 3.0 |
| 6 | 19EE5L01 | Electrical Machines – II Lab | 0 | 0 | 3 | 1.5 |
| 7 | 19EE5L02 | Control Systems and Simulation Lab | 0 | 0 | 3 | 1.5 |
| 8 | 19CS5L04 | Java Programming Lab | 0 | 0 | 4 | 2.0 |
| 9 | 19BM0M02 | Introduction to Cyber Law | 2 | 0 | 0 | -- |
| Total | | | 17 | 0 | 10 | 20.0 |

SEMESTER-VI

| S. No. | Course Code | Course Title | L | T | P | C |
|--------------|-------------|--------------------------------------|----|----|----|-------------|
| 1 | 19EE6T01 | Power System Analysis | 3 | 1 | 0 | 4.0 |
| 2 | 19EE6T02 | Power Electronics | 3 | 0 | 0 | 3.0 |
| 3 | | Elective-II | 3 | 0 | 0 | 3.0 |
| 4 | | Elective-III | 3 | 0 | 0 | 3.0 |
| 5 | | Open Elective-II | 3 | 0 | 0 | 3.0 |
| 6 | 19EE6L01 | Power Electronics and Simulation Lab | 0 | 0 | 3 | 1.5 |
| 7 | 19EE6L02 | Industrial Automation Lab Using PLC | 0 | 0 | 3 | 1.5 |
| 8 | 19CS6L03 | Python and Application Lab | 0 | 0 | 4 | 2.0 |
| 9 | 19HS6L03 | Advanced English Communication Lab | 0 | 0 | 2 | 1.0 |
| 10 | 19BM0M01 | Professional Ethics and IPR | 2 | -- | -- | -- |
| Total | | | 17 | 1 | 12 | 22.0 |



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SEMESTER-VII

| S. No. | Course Code | Course Title | L | T | P | C |
|--------------|-------------|-------------------------------------|----|----|----|-------------|
| 1 | 19EE7T01 | Power System Operation and Control | 3 | 0 | 0 | 3.0 |
| 2 | 19EC7T03 | Micro Processor and Controllers | 3 | 0 | 0 | 3.0 |
| 3 | | Elective-IV | 3 | 0 | 0 | 3.0 |
| 4 | | Open Elective-III | 3 | 0 | 0 | 3.0 |
| 5 | | Open Elective-IV | 3 | 0 | 0 | 3.0 |
| 6 | 19EE7L01 | Power System Simulation Lab | 0 | 0 | 3 | 1.5 |
| 7 | 19EC7L03 | Micro Processor and Controllers Lab | 0 | 0 | 3 | 1.5 |
| 8 | 19EE7P01 | Mini Project | 0 | 0 | 6 | 3.0 |
| 9 | 19EE7I01 | Internship | -- | -- | -- | 1.0 |
| Total | | | 15 | 0 | 12 | 22.0 |

SEMESTER-VIII

| S. No. | Course Code | Course Title | L | T | P | C |
|--------------|-------------|--------------------|---|---|----|-------------|
| 1 | | Elective-V | 3 | 0 | 0 | 3.0 |
| 2 | | Elective-VI | 3 | 0 | 0 | 3.0 |
| 3 | 19EE8P01 | Project Work | 0 | 0 | 18 | 9.0 |
| Total | | | 6 | 0 | 18 | 15.0 |

CONSOLIDATION

| SEM. | No. Theories | No. Practical's | Mini/Final Project | MC/MOO CS | Internship | Credits | IM | EM | TM |
|--------------|--------------|-----------------|--------------------|-----------|------------|------------|-------------|-------------|-------------|
| I | 4 | 4 | - | - | - | 19.0 | 240 | 560 | 800 |
| II | 5 | 4 | - | - | - | 21.0 | 270 | 630 | 900 |
| III | 5 | 4 | - | 1 | - | 20.0 | 240 | 560 | 800 |
| IV | 5 | 4 | - | 1 | - | 21.0 | 270 | 630 | 900 |
| V | 5 | 3 | - | 1 | - | 20.0 | 240 | 560 | 800 |
| VI | 5 | 4 | - | 1 | - | 22.0 | 290 | 560 | 850 |
| VII | 5 | 2 | 1 | - | 1 | 22.0 | 290 | 560 | 850 |
| VIII | 2 | - | 1 | - | - | 15.0 | 120 | 280 | 400 |
| Total | 36 | 25 | 2 | 4 | 1 | 160 | 1960 | 4340 | 6300 |



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Department of Electrical and Electronics Engineering

ELECTIVES

Track 1: Electrical Power System

Track 2: Power Electronics & Drives

Track 3: Electronics and Communication Engineering

Track 4: Computer Science and Engineering

| Elective-1 (Semester V) | | |
|-----------------------------------|----------|--|
| Track 1 | 19EE5E01 | Industrial Electrical Systems |
| Track 2 | 19EE5E02 | Special Electrical Machines |
| Track 3 | 19EC5E21 | Signals and System Properties |
| Track 4 | 19CS5E19 | Operating System |
| Elective-2 (Semester VI) | | |
| Track 1 | 19EE6E03 | Power System Protection |
| Track 2 | 19EE6E04 | Electrical Machine Design |
| Track 3 | 19EC6E22 | Analog and Digital Communication |
| Track 4 | 19CS6E21 | Database Management System |
| Elective-3 (Semester VI) | | |
| Track 1 | 19EE6E05 | High Voltage Engineering |
| Track 2 | 19EE6E06 | Line Commutated and Active Rectifiers |
| Track 3 | 19EC6E23 | Digital Signal Processing and Applications |
| Track 4 | 19CS6E20 | Computer Networks |
| Elective-4 (Semester VII) | | |
| Track 1 | 19EE7E07 | Electrical Distribution System |
| Track 2 | 19EE7E08 | Electric Drives |
| Track 3 | 19EC7E24 | VLSI System |
| Track 4 | 19CS7E26 | Principles of Software Engineering |
| Elective-5 (Semester VIII) | | |
| Track 1 | 19EE8E09 | Wind and Solar Energy Systems |
| Track 2 | 19EE8E10 | Advanced Electric Drives |
| Track 3 | 19EC8E25 | Embedded Systems and Applications |
| Track 4 | 19CS8E28 | Artificial Intelligence |
| Elective-6 (Semester VIII) | | |
| Track 1 | 19EE8E11 | FACTS: Flexible Alternating Current Transmission Systems |
| Track 2 | 19EE8E12 | Electrical and Hybrid Vehicles |
| Track 3 | 19EC8E26 | Digital Image and Video Processing |
| Track 4 | 19CS8E30 | Soft Computing |



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LIST OF OPEN ELECTIVES

| S. No. | Course Code | Course Title | Offering Dept. |
|---------------|--------------------|---|-----------------------|
| 1 | 19EEXO01 | Electrical Safety Management | EEE |
| 2 | 19EEXO02 | Non-conventional Energy sources | |
| 3 | 19EEXO03 | Electrical Vehicle | |
| 4 | 19EEXO04 | Electrical Energy Conservation and Auditing | |
| 5 | 19CEXO01 | Disaster Management | CE |
| 6 | 19CEXO02 | Water Pollution and Control | |
| 7 | 19CEXO03 | Solid Waste Management | |
| 8 | 19CEXO04 | Building Planning and Drawing | |
| 9 | 19MEXO01 | 3D Printing | ME |
| 10 | 19MEXO02 | Form Machinery | |
| 11 | 19MEXO03 | Bio-Mechanical Engineering | |
| 12 | 19MEXO04 | Waste to Energy Conversion | |
| 13 | 19CSXO01 | Internet of Things and Applications | CSE |
| 14 | 19CSXO02 | Foundation to Data Analytics | |
| 15 | 19CSXO03 | Data Engineering | |
| 16 | 19CSXO04 | Machine Learning | |
| 17 | 19ECXO01 | Nanotechnology and Applications | ECE |
| 18 | 19ECXO02 | Global Positioning and Navigation Satellite Systems | |
| 19 | 19ECXO03 | Remote Sensing | |
| 20 | 19ECXO04 | Mobile Communication and Applications | |
| 21 | 19ITXO01 | Software Engineering Principles | IT |
| 22 | 19ITXO02 | Cloud Computing Principles | |
| 23 | 19ITXO03 | E-Commerce | |
| 24 | 19ITXO04 | Web Technology Principles | |
| 25 | 19BMXO01 | Innovations and Entrepreneurship | MBA |
| 26 | 19BMXO02 | Industrial Sociology and Psychology | |
| 27 | 19BMXO03 | Digital Marketing | |
| 28 | 19BMXO04 | Business Environment | |
| 29 | 19MAXO01 | Operation Research | MATHS |
| 30 | 19MAXO02 | Optimization Models | |
| 31 | 19BSXO01 | Quantum Computing | BS |
| 32 | 19BSXO02 | Optoelectronics | |