**S R ENGINEERING COLLEGE (Autonomous)**
**(RA18) COURSE STRUCTURE::B. TECH. ELECTRONICS AND COMMUNICATION ENGINEERING**
(Applicable from the batch admitted during 2018-19 academic year and onwards)

**L: Theory, T: Tutorial, P/D: Practical/Drawing, C: Credits,**
**CIE: Continuous Internal Evaluation, SEE: Semester End Examination**

**I Year I Semester**

| S. No. | Course Code | Course | Hours/Week | | | |
|---|---|---|---|---|---|---|
| | | | L | T | P/D | C |
| 1 | 18HS101 | English I | 2 | - | - | 2 |
| 2 | 18HS103 | Finance for Engineers | 3 | - | - | 3 |
| 3 | 18BS101 | Mathematics I | 3 | 1 | - | 4 |
| 4 | 18BS103 | Engineering Physics I | 3 | - | - | 3 |
| 5 | 18BS105 | Engineering Chemistry | 3 | 1 | - | 4 |
| 6 | 18BS107 | Engineering Chemistry Lab | - | - | 2 | 1 |
| 7 | 18ES104 | Introduction to Programming Lab | - | - | 3 | 1.5 |
| **Total** | | | | | | **18.5** |

**I Year II Semester**

| S. No. | Course Code | Course | Hours/Week | | | |
|---|---|---|---|---|---|---|
| | | | L | T | P/D | C |
| 1 | 18HS102 | English II | 2 | - | - | 2 |
| 2 | 18BS102 | Mathematics II | 3 | 1 | - | 4 |
| 3 | 18BS104 | Engineering Physics II | 3 | 1 | - | 4 |
| 4 | 18ES101 | Product Design Studio | 2 | - | 2 | 3 |
| 5 | 18ES103 | Problem Solving with Programming | 2 | - | - | 2 |
| 6 | 18HS104 | English Language Communication Skills Lab | - | - | 3 | 1.5 |
| 7 | 18BS106 | Engineering Physics Lab | - | - | 2 | 1 |
| 8 | 18ES105 | Graphics and Design Modelling Lab | - | - | 3 | 1.5 |
| 9 | 18ES106 | Problem Solving with Programming Lab | - | - | 3 | 1.5 |
| **Total** | | | | | | **20.5** |

## II Year I Semester

| S. No. | Course Code | Course | Hours/Week | | | |
|---|---|---|---|---|---|---|
| | | | L | T | P/D | C |
| 1 | 18BS111 | Integral and Discrete Transforms | 3 | - | - | 3 |
| 2 | 18ES102 | Smart System Design | 3 | - | - | 3 |
| 3 | 18EC101 | Probability Theory and Stochastic Process | 3 | - | - | 3 |
| 4 | 18EC102 | Analog Electronics | 4 | - | - | 4 |
| 5 | 18EC103 | Signals and Systems | 3 | - | - | 3 |
| 6 | 18EC104 | Network Analysis | 3 | - | - | 3 |
| 7 | 18EC107 | Analog Electronics Lab | - | - | 3 | 1.5 |
| 8 | 18EC108 | Basic Signals and Circuits Simulation Lab | - | - | 2 | 1 |
| 9 | 18MC102 | Environmental Studies | - | - | - | - |
| **Total** | | | | | | **21.5** |

## II Year II Semester

| S. No. | Course Code | Course | Hours/Week | | | |
|---|---|---|---|---|---|---|
| | | | L | T | P/D | C |
| 1 | 18BS114 | Engineering Mathematics | 3 | - | - | 3 |
| 2 | 18ES108 | Engineering Design Process | 3 | - | - | 3 |
| 3 | 18ES109 | Data Structures | 3 | - | - | 3 |
| 4 | 18OE101 | **Open Elective I** | 3 | - | - | 3 |
| 5 | 18EC105 | Linear Integrated Circuits | 3 | - | - | 3 |
| 6 | 18EC106 | Digital Electronics | 3 | - | - | 3 |
| 7 | 18EC109 | Linear and Digital Circuits Lab | - | - | 3 | 1.5 |
| 8 | 18ES113 | Data Structures Lab | - | - | 2 | 1 |
| 9 | 18MC101 | Gender Sensitization | - | - | - | 0 |
| **Total** | | | | | | **20.5** |

**III Year I Semester**

| S. No. | Course Code | Course | Hours/Week | | | |
|---|---|---|---|---|---|---|
| | | | L | T | P/D | C |
| 1 | 18OE102 | **Open Elective II** | 3 | - | - | 3 |
| 2 | 18EC110-114 | **Professional Elective I** | 3 | - | - | 3 |
| 3 | 18EC115 | Analog and Digital Communications | 4 | - | - | 4 |
| 4 | 18EC116 | Electromagnetic Waves and Transmission Lines | 3 | 1 | - | 4 |
| 5 | 18EC117 | Microcontrollers and Applications | 3 | - | - | 3 |
| 6 | 18EC124 | Microcontrollers and Applications Lab | - | - | 3 | 1.5 |
| 7 | 18EC125 | Analog and Digital Communication Lab | - | - | 3 | 1.5 |
| **Total** | | | | | | **20** |

**III Year II Semester**

| S. No. | Course Code | Course | Hours/Week | | | |
|---|---|---|---|---|---|---|
| | | | L | T | P/D | C |
| 1 | 18ES111 | Object Oriented Programming Concepts through JAVA | 3 | - | - | 3 |
| 2 | 18OE103 | **Open Elective III** | 3 | - | - | 3 |
| 3 | 18EC118-122 | **Professional Elective II** | 3 | - | - | 3 |
| 4 | 18EC123 | Digital Signal Processing | 3 | 1 | - | 4 |
| 5 | 18EE117 | Control Systems | 3 | 1 | - | 4 |
| 6 | 18ES114 | Object Oriented Programming Concepts through JAVA Lab | - | - | 2 | 1 |
| 7 | 18EC126 | Digital Signal Processing Lab | - | - | 2 | 1 |
| 8 | 18PR101 | Mini Project/Internship/Certification | - | - | - | 2 |
| **Total** | | | | | | **21** |

**IV Year I Semester**

| S. No. | Course Code | Course | Hours/Week | | | |
|---|---|---|---|---|---|---|
| | | | L | T | P/D | C |
| 1 | 18EC127 -130 | **Professional Elective III** | 3 | - | - | 3 |
| 2 | 18EC131 -134 | **Professional Elective IV** | 3 | - | - | 3 |
| 3 | 18EC135 | VLSI Design and Technology | 3 | | - | 3 |
| 4 | 18EC136 | Computer Networks | 3 | - | - | 3 |
| 5 | 18EC137 | Microwave Engineering | 3 | - | - | 3 |
| 6 | 18EC146 | VLSI Design and Technology Lab | - | - | 2 | 1 |
| 7 | 18EC147 | Microwave Lab | - | - | 2 | 1 |
| 8 | 18EC148 | Computer Networks Lab | - | - | 2 | 1 |
| 9 | 18PR102 | Capstone Phase I | - | - | - | 3 |
| **Total** | | | | | | **21** |

**IV Year II Semester**

| S. No. | Course Code | Course | Hours/Week | | | |
|---|---|---|---|---|---|---|
| | | | L | T | P/D | C |
| 1 | 18OE104 | **Open Elective IV** | 3 | - | - | 3 |
| 2 | 18EC138 -141 | **Professional Elective V** | 3 | - | - | 3 |
| 3 | 18EC142 -145 | **Professional Elective VI** | 3 | - | - | 3 |
| 4 | 18PR103 | Capstone Phase II/Practice School | - | - | - | 8 |
| **Total** | | | | | | **17** |

**Tracks**

1. **Instrumentation**
   Electronic Measurement and Instrumentation
   Biomedical Instrumentation
   Virtual Instrumentation

2. **IoT**
   Foundations of IoT
   Distributed IoT Systems
   Security in IoT

3. **Artificial Intelligence**
   Artificial Intelligence
   Neural Networks and Deep Learning
   Natural Language Processing

4. **Communication**
   Antenna and Wave Propagation
   Cellular and Mobile Communications
   Wireless Communication and Networks
   Optical Communication
   Coding Theory

5. **Embedded and VLSI**
   Computer Organization
   Embedded Systems
   ARM Architecture
   Digital Design Through HDL
   Low Power VLSI
   Scripting Languages in VLSI Design

| | |
|---|---|
| **Professional Elective I**<br>**18EC110** Artificial Intelligence<br>**18EC111** Electronic Measurement and Instrumentation<br>**18EC112** Foundations of IoT<br>**18EC113** Discrete Mathematical Structures<br>**18EC114** Computer Organization | **Professional Elective II**<br>**18EC118** Neural Networks and Deep Learning<br>**18EC119** Biomedical Instrumentation<br>**18EC120** Embedded Systems<br>**18EC121** Distributed IoT Systems<br>**18EC122** Antenna and wave propagation |
| **Professional Elective III**<br>**18EC127** Natural Language Processing<br>**18EC128** ARM Architecture<br>**18EC129** Security in IoT<br>**18EC130** Cellular and Mobile Communications | **Professional Elective IV**<br>**18EC131** Digital Signal Processors and Architectures<br>**18EC132** Wireless Communication and Networks<br>**18EC133** Digital Design Through HDL<br>**18EC134** Virtual Instrumentation |
| **Professional Elective V**<br>**18EC138** Low Power VLSI<br>**18EC139** Satellite Communications<br>**18EC140** Network Security and Cryptography<br>**18EC141** Optical Communication | **Professional Elective VI**<br>**18EC142** Radar systems<br>**18EC143** Digital Image Processing<br>**18EC144** Scripting Languages in VLSI Design<br>**18EC145** Coding Theory |