

# **Department of Electrical and Electronics Engineering**

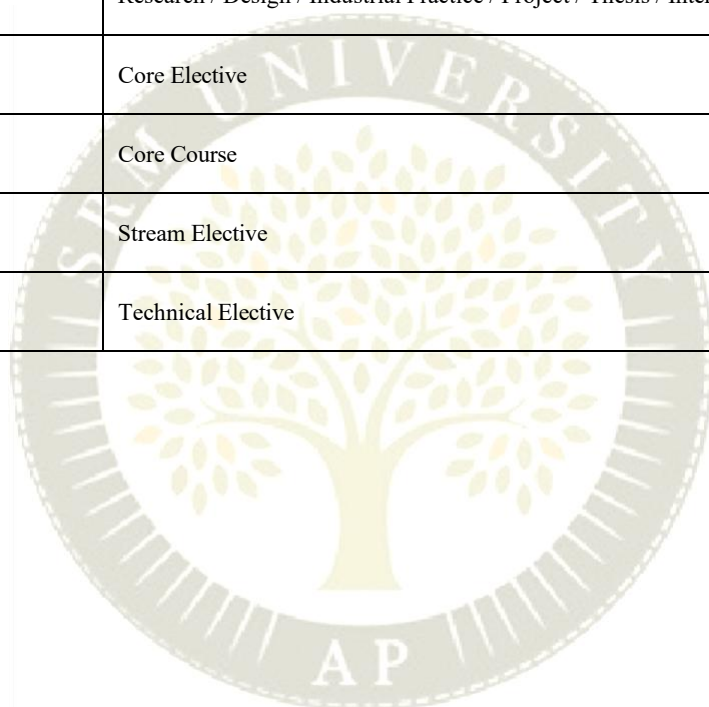
## **B.Tech. Electrical and Electronics Engineering Curriculum**

*(Applicable to the students admitted from AY: 2023 onwards)*



**School of Engineering and Sciences  
SRM University AP, Andhra Pradesh**

| ABBREVIATIONS |                                                                         |
|---------------|-------------------------------------------------------------------------|
| AEC           | Ability Enhancement Courses                                             |
| VAC           | Value Added Courses                                                     |
| SEC           | Skill Enhancement Courses                                               |
| FIC           | Foundation & Interdisciplinary Courses                                  |
| OE            | Open Elective                                                           |
| RDIP          | Research / Design / Industrial Practice / Project / Thesis / Internship |
| CE            | Core Elective                                                           |
| CC            | Core Course                                                             |
| SE            | Stream Elective                                                         |
| TE            | Technical Elective                                                      |



| SEMESTER - I   |          |              |                                                |    |     |          |    |
|----------------|----------|--------------|------------------------------------------------|----|-----|----------|----|
| S. No          | Category | Sub-Category | Course Title                                   | L  | T/D | P/P<br>r | C  |
| 1              | AEC      | U AEC        | Art of Listening, Speaking and Reading Skills  | 1  | 0   | 1        | 2  |
| 2              | VAC      | U VAC        | Environmental Science                          | 2  | 0   | 0        | 2  |
| 3              | SEC      | S SEC        | Analytical Reasoning and Aptitude Skills       | 1  | 1   | 1        | 3  |
| 4              | FIC      | S FIC        | Emerging Technologies                          | 2  | 0   | 0        | 2  |
| 5              | FIC      | S FIC        | Engineering Physics                            | 2  | 0   | 1        | 3  |
| 6              | FIC      | S FIC        | Calculus For Engineers                         | 3  | 0   | 0        | 3  |
| 7              | FIC      | S FIC        | Fundamentals of Computing and Programming in C | 3  | 0   | 1        | 4  |
| Semester Total |          |              |                                                | 14 | 1   | 4        | 19 |

| SEMESTER – II  |          |              |                                              |    |     |          |    |
|----------------|----------|--------------|----------------------------------------------|----|-----|----------|----|
| S. No          | Category | Sub-Category | Course Title                                 | L  | T/D | P/P<br>r | C  |
| 1              | AEC      | U AEC        | Effective Writing and Presentation Skills    | 1  | 0   | 1        | 2  |
| 2              | VAC      | U VAC        | Universal Human Values and Ethics            | 2  | 0   | 0        | 2  |
| 3              | SEC      | S SEC        | Entrepreneurial Mindset                      | 2  | 0   | 0        | 2  |
| 4              | FIC      | S FIC        | Fundamentals of Chemistry for Engineers      | 2  | 0   | 1        | 3  |
| 5              | FIC      | S FIC        | Linear Algebra and Differential Equations    | 3  | 0   | 0        | 3  |
| 6              | CC       | Core         | Basic Electrical and Electronics Engineering | 2  | 0   | 1        | 3  |
| 7              | CC       | Core         | Measurements and Instrumentation             | 3  | 0   | 1        | 4  |
| Semester Total |          |              |                                              | 15 | 0   | 4        | 19 |

| SEMESTER - III |          |              |                                             |    |     |          |    |
|----------------|----------|--------------|---------------------------------------------|----|-----|----------|----|
| S.No           | Category | Sub-Category | Course Title                                | L  | T/D | P/P<br>r | C  |
| 1              | AEC      | S AEC        | Problem Solving Skills                      | 1  | 0   | 1        | 2  |
| 2              | VAC      | S VAC        | Co-Curricular Activities                    | 0  | 0   | 2        | 2* |
| 3              | VAC      | S VAC        | Community Service and Social Responsibility | 0  | 0   | 2        | 2* |
| 4              | SEC      | D SEC        | Data Structures                             | 2  | 0   | 1        | 3  |
| 5              | CC       | Core         | Circuit Theory                              | 3  | 0   | 1        | 4  |
| 6              | CC       | Core         | Electrical Machines - I                     | 3  | 0   | 1        | 4  |
| 7              | CC       | Core         | Principles of Signal Processing             | 3  | 0   | 0        | 3  |
| 8              | CC       | Core         | Digital Electronics                         | 3  | 0   | 1        | 4  |
| 9              | Elective | OE           | Open Elective                               | 3  | 0   | 0        | 3  |
| Semester Total |          |              |                                             | 18 | 0   | 5        | 23 |

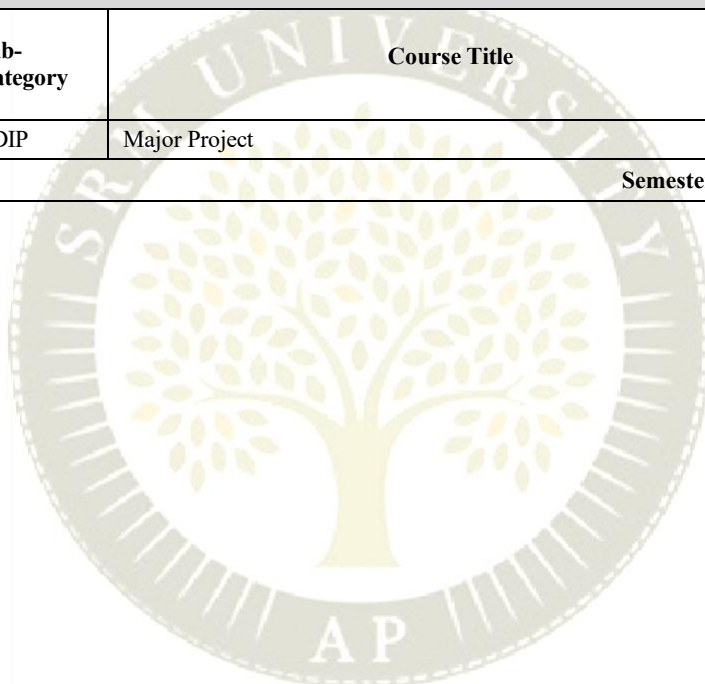
| SEMESTER – IV  |          |              |                                                 |    |     |          |    |
|----------------|----------|--------------|-------------------------------------------------|----|-----|----------|----|
| S.No           | Category | Sub-Category | Course Title                                    | L  | T/D | P/P<br>r | C  |
| 1              | AEC      | U AEC        | Creativity and Critical thinking Skills         | 1  | 0   | 1        | 2  |
| 2              | VAC      | U VAC        | Co-Curricular Activities                        | 0  | 0   | 2        | 2* |
| 3              | VAC      | U VAC        | Community Service and Social Responsibility     | 0  | 0   | 2        | 2* |
| 4              | SEC      | D SEC        | Solid State Devices                             | 2  | 0   | 0        | 2  |
| 5              | CC       | Core         | Power Generation, Transmission and Distribution | 3  | 0   | 1        | 4  |
| 6              | CC       | Core         | Electrical Machines - II                        | 3  | 0   | 1        | 4  |
| 7              | CC       | Core         | Analog Circuits                                 | 3  | 0   | 1        | 4  |
| 8              | CC       | Core         | Linear Systems and Control Design               | 3  | 0   | 1        | 4  |
| 9              | Elective | OE           | Open Elective                                   | 3  | 0   | 0        | 3  |
| Semester Total |          |              |                                                 | 18 | 0   | 5        | 23 |

| SEMESTER - V   |          |              |                                             |    |     |          |    |
|----------------|----------|--------------|---------------------------------------------|----|-----|----------|----|
| S.No           | Category | Sub-Category | Course Title                                | L  | T/D | P/P<br>r | C  |
| 1              | VAC      | U VAC        | Co-Curricular Activities                    | 0  | 0   | 2        | 2* |
| 2              | VAC      | U VAC        | Community Service and Social Responsibility | 0  | 0   | 2        | 2* |
| 3              | SEC      | E SEC        | Career Skills - I                           | 3  | 0   | 0        | 3  |
| 4              | CC       | Core         | Electromagnetic Field Theory                | 3  | 0   | 0        | 3  |
| 5              | CC       | Core         | Power System Analysis                       | 3  | 0   | 1        | 4  |
| 6              | CC       | Core         | Nonlinear Systems and Control               | 2  | 0   | 1        | 3  |
| 7              | CC       | Core         | Power Electronics                           | 3  | 0   | 1        | 4  |
| 8              | CC       | Core         | Microcontrollers and Applications           | 2  | 0   | 1        | 3  |
| 9              | RDIP     | RDIP         | Internship                                  | 0  | 0   | 4        | 4  |
| 10             | Elective | OE           | Open Elective                               | 3  | 0   | 0        | 3  |
| Semester Total |          |              |                                             | 19 | 0   | 12       | 27 |

| SEMESTER – VI  |          |              |                           |    |     |          |    |
|----------------|----------|--------------|---------------------------|----|-----|----------|----|
| S.No           | Category | Sub-Category | Course Title              | L  | T/D | P/P<br>r | C  |
| 1              | VAC      | U VAC        | Co-Curricular Activities  | 0  | 0   | 2        | 2  |
| 2              | SEC      | E SEC        | Career Skills - II        | 3  | 0   | 0        | 3  |
| 3              | CC       | Core         | High Voltage Engineering  | 3  | 0   | 1        | 4  |
| 4              | CC       | Core         | Switchgear and Protection | 3  | 0   | 1        | 4  |
| 5              | CC       | Core         | Renewable Energy Sources  | 3  | 0   | 1        | 4  |
| 6              | Elective | CE           | Core Elective             | 3  | 0   | 0        | 3  |
| 7              | Elective | CE           | Core Elective             | 3  | 0   | 0        | 3  |
| 8              | Elective | OE           | Open Elective             | 3  | 0   | 0        | 3  |
| Semester Total |          |              |                           | 21 | 0   | 5        | 26 |

| SEMESTER - VII |          |              |               |    |     |          |    |
|----------------|----------|--------------|---------------|----|-----|----------|----|
| S.No           | Category | Sub-Category | Course Title  | L  | T/D | P/P<br>r | C  |
| 1              | Elective | CE           | Core Elective | 3  | 0   | 0        | 3  |
| 2              | Elective | CE           | Core Elective | 3  | 0   | 0        | 3  |
| 3              | Elective | CE           | Core Elective | 3  | 0   | 0        | 3  |
| 4              | Elective | OE           | Open Elective | 3  | 0   | 0        | 3  |
| Semester Total |          |              |               | 12 | 0   | 0        | 12 |

| SEMESTER – VIII |          |              |               |   |     |          |    |
|-----------------|----------|--------------|---------------|---|-----|----------|----|
| S.No            | Category | Sub-Category | Course Title  | L | T/D | P/P<br>r | C  |
| 1               | RDIP     | RDIP         | Major Project | 0 | 0   | 12       | 12 |
| Semester Total  |          |              |               | 0 | 0   | 12       | 12 |



| Core Electives |          |              |                                                          |   |     |          |   |
|----------------|----------|--------------|----------------------------------------------------------|---|-----|----------|---|
| S.No           | Category | Sub-Category | Course Title                                             | L | T/D | P/P<br>r | C |
| 1              | Elective | CE           | Numerical Methods for Electrical Engineering             | 3 | 0   | 0        | 3 |
| 2              | Elective | CE           | Indian Standards for Electrical Engineering Applications | 3 | 0   | 0        | 3 |
| 3              | Elective | CE           | Power Semiconductor Drives                               | 3 | 0   | 0        | 3 |
| 4              | Elective | CE           | Computer Aided Design of Electrical Machines             | 3 | 0   | 0        | 3 |
| 5              | Elective | CE           | Power System Operation and Control                       | 3 | 0   | 0        | 3 |
| 6              | Elective | CE           | Switched Mode Power Converters                           | 3 | 0   | 0        | 3 |
| 7              | Elective | CE           | Control of Switched Mode Power Converters                | 3 | 0   | 0        | 3 |
| 8              | Elective | CE           | Embedded Systems for Power Applications                  | 3 | 0   | 0        | 3 |

| Specialization: Renewable Energy |          |              |                                                 |   |     |          |   |
|----------------------------------|----------|--------------|-------------------------------------------------|---|-----|----------|---|
| S.No                             | Category | Sub-Category | Course Title                                    | L | T/D | P/P<br>r | C |
| 1                                | Elective | CE           | Design of Photovoltaic Systems                  | 3 | 0   | 0        | 3 |
| 2                                | Elective | CE           | Modelling and Control of Battery Energy Systems | 3 | 0   | 0        | 3 |
| 3                                | Elective | CE           | Power Quality Issues and Mitigation Techniques  | 3 | 0   | 0        | 3 |
| 4                                | Elective | CE           | Renewable Energy Integration with the Grid      | 3 | 0   | 0        | 3 |
| 5                                | Elective | CE           | Control of Power Converters                     | 3 | 0   | 0        | 3 |
| 6                                | Elective | CE           | Microgrids and Energy Management                | 3 | 0   | 0        | 3 |

### Open Electives

| S.No | Category | Sub-Category | Course Title                              | L | T/D | P/P<br>r | C |
|------|----------|--------------|-------------------------------------------|---|-----|----------|---|
| 1    | Elective | OE           | Nuclear Power Generation                  | 3 | 0   | 0        | 3 |
| 2    | Elective | OE           | Introduction to Green Energy Technologies | 3 | 0   | 0        | 3 |
| 3    | Elective | OE           | Electric Vehicle Engineering              | 3 | 0   | 0        | 3 |
| 4    | Elective | OE           | Introduction to Electric Vehicles         | 3 | 0   | 0        | 3 |

### Career Skill Courses

| S.No | Category | Sub-Category | Course Title                         | L | T/D | P/P<br>r | C |
|------|----------|--------------|--------------------------------------|---|-----|----------|---|
| 1    | Elective | E SEC        | Design of Power Electronics Circuits | 1 | 0   | 2        | 3 |
| 2    | Elective | E SEC        | Design of Industrial Drives          | 3 | 0   | 0        | 3 |