

# ADHIYAMAAN COLLEGE OF ENGINEERING

[An Autonomous Institution Affiliated to Anna University, Chennai]
[Accredited by NAAC]
Dr.M.G.R NAGAR, HOSUR, KRISHNAGIRI (DT) – 635 130, TAMILNADU, INDIA
REGULATION 2018
CHOICE BASED CREDIT SYSTEM

#### **B.E - ELECTRICAL AND ELECTRONICS ENGINEERING**

#### VISION

The Department of Electrical and Electronics Engineering is focused to produce competent Electrical Engineers by imparting effective teaching learning process to meet the rapidly changing technical scenario.

#### **MISSION**

- To produce exemplary Electrical Engineers with sound knowledge on fundamentals.
- To inculcate the students with innovative technical skills, entrepreneurial expertise and research capabilities.
- To promote leadership qualities and ethical attitude.

The Programme defines Programme Educational Objectives, Programme Outcomes and Programme Specific Outcomes as follows:

#### I. PROGRAMME EDUCATIONAL OBJECTIVES [PEOs]

- **PEO 1:** Graduates will excel in industry and in higher studies by learning the Engineering Sciences with more emphasis in Electrical and Electronics Engineering along with moral values.
- **PEO 2:** Graduates will have good scientific and engineering expertise so as to comprehend, to analyze, to design and to create innovative products.
- **PEO 3:** Graduates will exhibit professional and ethical attitude, effective communication skills, teamwork skills, leadership skills, entrepreneurial thinking and an ability to transform engineering solutions into broader social context.

### II. PROGRAMME OUTCOMES [POs]

- **PO1:** An ability to exhibit the knowledge of science, mathematics, communication and programming skills.
- **PO2:** An ability to identify, formulate and analytically solve electrical engineering problems.
- **PO3:** Demonstrate their ability in designing analog and digital systems and develop products and solutions.
- **PO4:** An ability to investigate the complex problems in research and industry.
- **PO5:** Build the capability to use all current and future modern tools to analyze problems in global contexts.
- **PO6:** An ability to exhibit the knowledge to assess societal, health, safety, legal and cultural issues and the relevant responsibilities to the professional engineering practice.
- **PO7:** An ability to design electrical systems those are efficient, within realistic context such as economic, environmental, social, political, manufacturability and sustainability.
- **PO8:** Ability to impart holistic professional and ethical values.
- **PO9:** To function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary settings.
- **PO10:** An ability to listen and communicate effectively in verbal and written form.
- **PO11:** Ability to exhibit quality managerial skills in finance, economics and project management.
- **PO12:** Competent enough for self study and for life-long learning in the broadest context of rapid technological changes.

#### III. PROGRAM SPECIFIC OUTCOMES [PSOs]

#### **PSO1:** Skilled Professional in Electrical & Electronics Engineering:

Ability to identify, formulate and solve real time problems by applying the knowledge acquired during the programme.

#### **PSO2: Problem Solving Skills:**

Ability to understand the recent technological developments and to develop products to cater the societal & Industrial needs.

#### **PSO3:** Successful Career:

Ability to utilize the modern technologies in building innovative career and to have a zest for higher studies.

#### **Correlation of PEOs with POs and PSOs**

| Program           |   | Program Outcomes(POs) |   |   |   |   |   |   |   | Program Specific |    |       |        |           |   |  |
|-------------------|---|-----------------------|---|---|---|---|---|---|---|------------------|----|-------|--------|-----------|---|--|
| Educational       |   |                       |   |   |   |   |   |   |   |                  |    | Outco | mes (P | es (PSOs) |   |  |
| Objectives (PEOs) | 1 | 2                     | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10               | 11 | 12    | 1      | 2         | 3 |  |
| PEO I             | 3 | 2                     | 3 | 3 | 3 |   | 2 |   |   |                  | 2  | 3     | 3      | 3         | 3 |  |
| PEO II            | 2 | 3                     | 3 | 3 | 3 | 2 | 3 |   | 2 | 3                | 1  | 2     | 2      | 2         | 3 |  |
| PEO III           |   |                       |   |   |   | 3 | 2 | 3 | 3 | 3                | 3  | 3     |        |           | 3 |  |

#### **ADHIYAMAAN COLLEGE OF ENGINEERING**

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# REGULATIONS 2018 CHOICE BASED CREDIT SYSTEM B.E- ELECTRICAL AND ELECTRONICS ENGINEERING CURRICULA AND SYLLABI FOR SEMESTERS I TO VIII

#### Semester I

| S.<br>NO | COURSE   | COURSE TITLE                      | CATE- | PEF | RIODS<br>WEEK |   | TOTAL<br>CONTACT | CREDITS |
|----------|----------|-----------------------------------|-------|-----|---------------|---|------------------|---------|
| NO       | CODE     |                                   | GORY  | L   | T             | Р | PERIODS          |         |
| THE      | ORY      |                                   |       |     |               |   |                  |         |
| 1.       | 118ENT01 | Technical English                 | HS    | 2   | 0             | 0 | 2                | 2       |
| 2.       | 118MAT02 | Engineering Mathematics-I         | BS    | 3   | 0             | 0 | 3                | 3       |
| 3.       | 118PHT03 | Engineering Physics               | BS    | 2   | 0             | 0 | 2                | 2       |
| 4.       | 118CYT04 | Engineering Chemistry             | BS    | 3   | 0             | 0 | 3                | 3       |
| 5.       | 118PPT05 | Problem Solving And               | ES    | 3   | 0             | 0 | 3                | 3       |
|          |          | Python Programming                |       |     |               |   |                  |         |
| 6.       | 118ESE0X | ELECTIVE (GROUP1)                 | ES    | 3   | 0             | 0 | 3                | 3       |
| PRA      | CTICALS  |                                   |       |     |               |   |                  |         |
| 7.       | 118PHP07 | Engineering Physics<br>Laboratory | BS    | 0   | 0             | 2 | 2                | 1       |
| 8.       | 118PPP08 | Problem Solving and               |       |     |               |   |                  |         |
|          |          | Python Programming                | ES    | 0   | 0             | 2 | 2                | 1       |
|          |          | Laboratory                        |       |     |               |   |                  |         |
|          |          |                                   | TOTAL | 16  | 0             | 4 | 20               | 18      |

# **ELECTIVE (GROUP 1)**

| S.<br>NO | COURSE   | COURSE TITLE   | CATE-<br>GORY |   | RIODS<br>WEEK |   | TOTAL<br>CONTACT | CREDITS |
|----------|----------|--|---------------|---|---------------|---|------------------|---------|
| NO       | CODE     |  | GONT          | L | T             | Р | PERIODS          |         |
| 1.       | 118ESE01 | Basic Civil and Mechanical<br>Engineering                    | ES            | 3 | 0             | 0 | 3                | 3       |
| 2.       | 118ESE05 | Basic Mechanical Electrical and Instrumentation Engineering  | ES            | 3 | 0             | 0 | 3                | 3       |
| 3.       | 118ESE06 | Basic Electrical Electronics and Instrumentation Engineering | ES            | 3 | 0             | 0 | 3                | 3       |
| 4.       | 118ESE07 | Biology For Engineers  | ES            | 3 | 0             | 0 | 3                | 3       |

#### Semester II

| s.<br>NO | COURSE<br>CODE | COURSE TITLE                                | CATE-<br>GORY |    | RIODS<br>WEEK |    | TOTAL<br>CONTACT | CREDITS |
|----------|----------------|---|---------------|----|---------------|----|------------------|---------|
|          |                |   |               | L  | T             | P  | PERIODS          |         |
| THE      | ORY            |   |               |    |               |    |                  |         |
| 1.       | 218ENT01       | Communicative English                       | HS            | 2  | 0             | 2  | 4                | 3       |
| 2.       | 218MAT02       | Engineering Mathematics- II                 | BS            | 3  | 1             | 0  | 4                | 4       |
| 3.       | 218GET03       | Environmental Science and Engineering       | BS            | 2  | 0             | 0  | 2                | 2       |
| 4.       | 218EGT04       | Engineering Graphics                        | ES            | 2  | 0             | 4  | 6                | 4       |
| 5.       | 215CAT05       | Circuit Theory                              | PC            | 3  | 0             | 0  | 3                | 3       |
| 6.       | X18MCT01       | Indian Constitution                         | MC            | 1  | 0             | 0  | 1                | 0       |
| 7.       | 218BSE0X       | ELECTIVE (GROUP 2)                          | BS            | 2  | 0             | 0  | 2                | 2       |
| PRA      | CTICALS        |   | •             |    |               |    |                  |         |
| 8.       | 218CYP07       | Engineering Chemistry<br>Laboratory         | BS            | 0  | 0             | 2  | 2                | 1       |
| 9.       | 218EPP08       | Engineering Practice<br>Laboratory          | ES            | 0  | 0             | 2  | 2                | 1       |
| 10.      | 218EDP09       | Electron Devices and<br>Circuits Laboratory | ES            | 0  | 0             | 2  | 2                | 1       |
|          |                |   | TOTAL         | 15 | 1             | 12 | 28               | 21      |

# **ELECTIVE (GROUP 2)**

| S. | COURSE   | COURSE TITLE                           | CATE- | PEI | RIODS<br>WEEK |   | TOTAL<br>CONTAC | CREDITS |
|----|----------|--|-------|-----|---------------|---|-----------------|---------|
| 0  | CODE     | COORSE TITLE                           | GORY  | L   | Т             | Р | T<br>PERIODS    | CREDITS |
| 1. | 218BSE03 | Chemistry for<br>Technologists         | BS    | 2   | 0             | 0 | 2               | 2       |
| 2. | 218BSE04 | Energy Storage Devices and Fuel Cells  | BS    | 2   | 0             | 0 | 2               | 2       |
| 3. | 218BSE07 | Physics Of Semiconductor               | BS    | 2   | 0             | 0 | 2               | 2       |
| 4. | 218BSE08 | Physics for Electronics<br>Engineering | BS    | 2   | 0             | 0 | 2               | 2       |

#### Semester III

| s.   | COURSE   | COURSE TITLE  | CATE- |    | ODS<br>WEEK |   | TOTAL<br>CONTACT | CREDITS  |
|------|----------|---|-------|----|-------------|---|------------------|----------|
| NO   | CODE     |   | GORY  | L  | Т           | Р | PERIODS          | CILEDITO |
| THE  | ORY      |   | •     |    |             |   |                  | •        |
| 1.   | 318MAT01 | Engineering Mathematics-III                           | BS    | 3  | 1           | 0 | 4                | 4        |
| 2.   | 318EET02 | Electromagnetic Theory                                | PC    | 3  | 0           | 0 | 3                | 3        |
| 3.   | 318EET03 | Network Analysis and<br>Synthesis                     | PC    | 3  | 0           | 0 | 3                | 3        |
| 4.   | 318EET04 | Linear Integrated Circuits and Applications           | PC    | 3  | 0           | 0 | 3                | 3        |
| 5.   | 318EET05 | Measurements and Instrumentation                      | PC    | 3  | 0           | 0 | 3                | 3        |
| 6.   | 318EET06 | Fundamentals of Data<br>Structures in C               | PC    | 3  | 0           | 0 | 3                | 3        |
| PRAG | CTICALS  |   |       |    |             |   |                  |          |
| 7.   | 318EEP07 | Linear Integrated Circuits Laboratory                 | PC    | 0  | 0           | 2 | 2                | 1        |
| 8.   | 318EEP08 | Measurements and Instrumentation Laboratory           | PC    | 0  | 0           | 2 | 2                | 1        |
| 9.   | 318EEP09 | Fundamentals of Data<br>Structures in C<br>Laboratory | PC    | 0  | 0           | 2 | 2                | 1        |
|      |          | •   | TOTAL | 18 | 1           | 6 | 25               | 22       |

#### **Semester IV**

| S.  | COURSE   | COURSE TITLE   | CATE- |    | ODS |   | TOTAL<br>CONTACT | CREDITS |
|-----|----------|--|-------|----|-----|---|------------------|---------|
| NO  | O CODE   |  | GORY  | L  | T   | P | PERIODS          | CKEDITS |
| THE | DRY      |  |       | •  |     | • |                  |         |
| 1.  | 418NMT01 | Numerical Methods  | BS    | 3  | 1   | 0 | 4                | 4       |
| 2.  | 418EET02 | Control Systems  | PC    | 3  | 0   | 0 | 3                | 3       |
| 3.  | 418EET03 | Digital Electronic Circuits                                    | PC    | 3  | 0   | 0 | 3                | 3       |
| 4.  | 418EET04 | Power Generation Systems                                       | PC    | 3  | 0   | 0 | 3                | 3       |
| 5.  | 418EET05 | Electrical Machines – I  | PC    | 3  | 0   | 0 | 3                | 3       |
| 6.  | 418EEEXX | Professional Elective-III                                      | PE    | 3  | 0   | 0 | 3                | 3       |
| PRA | CTICALS  |  |       |    |     |   |                  |         |
| 7.  | 418EEP07 | Electrical Machines-I<br>Laboratory                            | PC    | 0  | 0   | 2 | 2                | 1       |
| 8.  | 418EEP08 | Electrical and Electronic<br>Circuits Simulation<br>Laboratory | PC    | 0  | 0   | 2 | 2                | 1       |
| 9.  | 418EEP09 | Control Systems Laboratory                                     | PC    | 0  | 0   | 2 | 2                | 1       |
|     |          |  | TOTAL | 18 | 1   | 6 | 25               | 22      |

#### PROFESSIONAL ELECTIVE -III

| S. COURSE<br>NO CODE |          | COURSE TITLE                         | CATE-<br>GORY | PERIODS PER<br>WEEK |   | TOTAL<br>CONTACT | CREDITS |   |
|----------------------|----------|--------------------------------------|---------------|---------------------|---|------------------|---------|---|
| NO                   | CODE     |                                      | GORT          |                     | Т | Р                | PERIODS |   |
| 1.                   | 418EEE06 | Bio-Medical<br>Instrumentation       | PE            | 3                   | 0 | 0                | 3       | 3 |
| 2.                   | 418EEE07 | Neural Networks and<br>Fuzzy Systems | PE            | 3                   | 0 | 0                | 3       | 3 |
| 3.                   | 418EEE08 | Electrical Engineering<br>Materials  | PE            | 3                   | 0 | 0                | 3       | 3 |
| 4.                   | 418EEE09 | Fundamentals of Nano<br>Science      | PE            | 3                   | 0 | 0                | 3       | 3 |

#### Semester V

| S.<br>NO | COURSE<br>CODE | THEORY  | CATE-<br>GORY |    | IODS<br>WEE | PER | TOTAL<br>CONTACT | CREDITS |
|----------|----------------|---|---------------|----|-------------|-----|------------------|---------|
| NO       | CODE           |   | GOKT          | ٦  | T           | Р   | PERIODS          |         |
| 1        | 518EET01       | Microprocessors and Microcontrollers            | PC            | 3  | 0           | 0   | 3                | 3       |
| 2        | 518EET02       | Electrical Machines – II                        | PC            | 3  | 0           | 0   | 3                | 3       |
| 3        | 518EET03       | Advanced Control<br>Theory                      | PC            | 3  | 1           | 0   | 4                | 4       |
| 4        | 518EET04       | Protection and Switchgear                       | PC            | 3  | 0           | 0   | 3                | 3       |
| 5        | 518EET05       | Transmission and Distribution                   | PC            | 3  | 0           | 0   | 3                | 3       |
| 6        |                | Open Elective-I                                 | OE            | 3  | 0           | 0   | 3                | 3       |
|          |                | P   | RACTICALS     |    |             |     |                  |         |
| 7        | 518EEP07       | Electrical Machines<br>Laboratory – II          | PC            | 0  | 0           | 2   | 2                | 1       |
| 8        | 518EEP08       | Microprocessors and Microcontrollers Laboratory | РС            | 0  | 0           | 2   | 2                | 1       |
| 9        | 518EEP09       | Digital Electronics<br>Laboratory               | PC            | 0  | 0           | 2   | 2                | 1       |
|          |                |   | TOTAL         | 18 | 1           | 6   | 25               | 22      |

#### **OPEN ELECTIVE-I**

| S.<br>NO | COURSE    | COURSE TITLE     | CATE-<br>GORY |   | IODS I<br>WEEK |   | TOTAL<br>CONTACT | CREDITS |
|----------|-----------|------------------|---------------|---|----------------|---|------------------|---------|
| NO       | CODE      |                  | GORT          | L | T              | Р | PERIODS          |         |
| 1.       | 518ECO06/ | Communication    | OE            | 3 | 0              | 0 | 3                | 3       |
|          | 518ECT03  | Theory           | UE            | 3 | U              | U | 3                | 3       |
| 2.       | 518MEO07  | Mechatronics and | OE            | 3 | 0              | 0 | 3                | 3       |
|          | /715MET01 | Robotics         | OE .          | 3 | U              | U | 3                | 3       |
| 3.       | 518ITO08/ | Computer         | OE            | 3 | 0              | 0 | 3                | 3       |
|          | 318CIT06  | Organization     | UE            | 3 | U              | U | 5                | 5       |
| 4.       | 518ECO09/ | Digital Signal   | OE            | 3 | 0              | 0 | 3                | 3       |
|          | 518ECT01  | Processing       | J OE          | 3 | U              | U | 3                | 3       |

#### Semester VI

| S.  | COURSE   | THEORY                                 | CATE-     |    | RIOD<br>WE |   | TOTAL   | CDEDITO |
|-----|----------|--|-----------|----|------------|---|---------|---------|
| NO  | CODE     | CODE GORY                              |           | L  | т          | Р | PERIODS | CREDITS |
| THE | ORY      |  |           |    |            |   |         |         |
| 1   | 618EET01 | Electrical Machine Design              | PC        | 3  | 0          | 0 | 3       | 3       |
| 2   | 618EET02 | Power Electronics                      | PC        | 3  | 0          | 0 | 3       | 3       |
| 3   | 618EET03 | Power System Analysis and Stability    | PC        | 3  | 1          | 0 | 4       | 4       |
| 4   | 618EET04 | High Voltage Engineering               | PC        | 3  | 0          | 0 | 3       | 3       |
| 5   | 618EET05 | Renewable Energy<br>Sources            | PC        | 3  | 0          | 0 | 3       | 3       |
| 6   |          | PROFESSIONAL<br>ELECTIVE-IV            | PE        | 3  | 0          | 0 | 3       | 3       |
|     |          | PF                                     | RACTICALS |    |            |   |         |         |
| 7   | 618EEP07 | Power Electronics<br>Laboratory        | PC        | 0  | 0          | 2 | 2       | 1       |
| 8   | 618EEP08 | Electronic System Design<br>Laboratory | PC        | 0  | 0          | 2 | 2       | 1       |
| 9   | 618EEP09 | Employability Skills<br>Laboratory     | EEC       | 0  | 0          | 2 | 2       | 1       |
|     | <u> </u> |  | TOTAL     | 18 | 1          | 6 | 25      | 22      |

#### **PROFESSIONAL ELECTIVE IV**

| s. | COURSE   | COURSE TITLE   | CATE- | PEI | RIODS<br>WEEK |   | TOTAL<br>CONTAC | CREDITS  |
|----|----------|--|-------|-----|---------------|---|-----------------|----------|
| NO | CODE     | COOKSE TITLE   | GORY  | L   | Т             | Р | T<br>PERIODS    | 0.120.10 |
| 1. | 618EEE01 | Distributed Generation and Micro Grid                                  | PE    | 3   | 0             | 0 | 3               | 3        |
| 2. | 618EEE02 | VLSI Design  | PE    | 3   | 0             | 0 | 3               | 3        |
| 3. | 618EEE03 | High Voltage Direct Current Transmission                               | PE    | 3   | 0             | 0 | 3               | 3        |
| 4. | 618EEE04 | Artificial Intelligence and Data Science                               | PE    | 3   | 0             | 0 | 3               | 3        |
| 5. | 618EEE05 | Machine Learning with<br>Application to Object<br>Oriented Recognition | PE    | 3   | 0             | 0 | 3               | 3        |
| 6. | 618EEE06 | Electric Vehicle Charging Systems                                      | PE    | 3   | 0             | 0 | 3               | 3        |

#### **Semester VII**

| s.<br>NO                      | COURSE   | COURSE TITLE                | CATE-<br>GORY | PER | RIODS<br>WEEK |    | TOTAL<br>CONTACT | CREDITS |
|-------------------------------|----------|-----------------------------|---------------|-----|---------------|----|------------------|---------|
| IVO                           | CODL     |                             | GOKI          | L   | T             | Р  | PERIODS          |         |
| THE                           | ORY      |                             |               |     |               |    |                  |         |
| 1.                            | 718EET01 | Power System Operation      | PC            | 3   | 0             | 0  | 3                | 3       |
|                               |          | and Control                 |               |     |               |    |                  |         |
| 2.                            | 718EET02 | Electric Drives and Control | PC            | 3   | 1             | 0  | 4                | 4       |
| 3.                            | 718EET03 | Special Electrical Machines | PC            | 3   | 0             | 0  | 3                | 3       |
| 4.                            | 718EET04 | Power Quality               | PC            | 3   | 0             | 0  | 3                | 3       |
|                               |          | Management                  |               |     |               |    |                  |         |
| 5.                            |          | PROFESSIONAL ELECTIVE-V     | PE            | 3   | 0             | 0  | 3                | 3       |
| 6.                            |          | PROFESSIONAL ELECTIVE-      | PE            | 3   | 0             | 0  | 3                | 3       |
|                               |          | VI                          |               |     |               |    |                  |         |
| PRAG                          | CTICALS  |                             |               |     |               |    |                  |         |
| 7.                            | 718EEP07 | Power System Simulation     | PC            | 0   | 0             | 2  | 2                | 1       |
|                               |          | Laboratory                  |               |     |               |    | 1                |         |
| 8.                            | 718EEP08 | Electric Drives Laboratory  | PC            | 0   | 0             | 2  | 2                | 1       |
| 9. 718EEP09 Mini Project Work |          |                             | EEC           | 0   | 0             | 2  | 2                | 1       |
|                               |          |                             | 18            | 1   | 6             | 25 | 22               |         |

#### **PROFESSIONAL ELECTIVE V**

| S.<br>N | COURSE   | COURSE TITLE                        | CATE- | PEI | RIODS<br>WEEK |   | TOTAL<br>CONTAC | CREDITS |
|---------|----------|-------------------------------------|-------|-----|---------------|---|-----------------|---------|
| 0       | CODE     | COOKSE TITLE                        | GORY  | L   | Т             | Р | T<br>PERIODS    | CREDITS |
| 1.      | 718EEE05 | Flexible AC Transmission<br>Systems | PE    | 3   | 0             | 0 | 3               | 3       |
| 2.      | 718EEE06 | Embedded Systems                    | PE    | 3   | 0             | 0 | 3               | 3       |
| 3.      | 718EEE07 | Smart Grid                          | PE    | 3   | 0             | 0 | 3               | 3       |
| 4.      | 718EEE08 | Modern Power<br>Converters          | PE    | 3   | 0             | 0 | 3               | 3       |

#### **PROFESSIONAL ELECTIVE VI**

| S.<br>N | COURSE   | COURSE TITLE   | CATE- | PEI | RIODS<br>WEEK |   | TOTAL<br>CONTAC | CREDITS |
|---------|----------|--|-------|-----|---------------|---|-----------------|---------|
| 0       | CODE     | COOKSE TITLE   | GORY  | L   | ТР            |   | T<br>PERIODS    | CKEDITS |
| 1.      | 718EEE09 | <b>EHV Power Transmission</b>                        | PE    | 3   | 0             | 0 | 3               | 3       |
| 2.      | 718EEE10 | Power Electronics for<br>Renewable Energy<br>Systems | PE    | 3   | 0             | 0 | 3               | 3       |
| 3.      | 718EEE11 | Aircraft Electrical Systems                          | PE    | 3   | 0             | 0 | 3               | 3       |
| 4.      | 718EEE12 | Adaptive Control                                     | PE    | 3   | 0             | 0 | 3               | 3       |

#### **Semester VIII**

| S.   | COURSE<br>CODE | COURSE TITLE                               | CATE- | PE     | RIODS<br>WEE |   | TOTAL<br>CONTACT | CREDITS |
|------|----------------|--|-------|--------|--------------|---|------------------|---------|
| NO   |                |  | GORY  | L      | Т            | P | PERIODS          |         |
| THE  | DRY            |  |       | •      |              |   |                  |         |
| 1.   | 818EET01       | Electric Power Utilization Energy Auditing | PC    | 3      | 3 0 0        |   | 3                | 3       |
| 2.   |                | PROFESSIONAL ELECTIVE-VII                  | PE    | 3      | 0            | 0 | 3                | 3       |
| 3.   |                | PROFESSIONAL ELECTIVE-VIII                 | PE    | 3      | 0            | 0 | 3                | 3       |
| PRAG | PRACTICALS     |  |       |        |              |   |                  |         |
| 4.   | 818EEP04       | Project Work                               | EEC   | 0 0 12 |              |   | 12               | 6       |
|      |                |  | TOTAL | 9 0 12 |              |   | 21               | 15      |

#### **PROFESSIONAL ELECTIVE VII**

| S.<br>N | COURSE   | COURSE TITLE                               | CATE-                     | PEI | RIODS<br>WEEK |   | TOTAL<br>CONTAC | CREDITS |
|---------|----------|--|---------------------------|-----|---------------|---|-----------------|---------|
| 0       | CODE     | COOKSE TITLE                               | GORY                      | L   | Т             | P | T<br>PERIODS    | CKLDII3 |
| 1.      | 818EEE02 | Disaster Management                        | PE                        | 3   | 0             | 0 | 3               | 3       |
| 2.      | 818EEE03 | Electric Vehicle Technology                | PE                        | 3   | 0             | 0 | 3               | 3       |
| 3.      | 818EEE04 | Total Quality Management                   | PE                        | 3   | 0             | 0 | 3               | 3       |
| 4.      | 818EEE05 | Industrial Automation                      | PE                        | 3   | 0             | 0 | 3               | 3       |
| 5.      | 818EEE06 | Powering IOT using<br>Arduino /Rasberry Pi | Powering IOT using PF 3 0 |     | 0             | 3 | 3               |         |

#### PROFESSIONAL ELECTIVE VIII

| S. | COURSE   | COURSE TITLE  | CATE- | PEI | RIODS<br>WEEK |   | TOTAL<br>CONTAC | CREDITS |
|----|----------|---|-------|-----|---------------|---|-----------------|---------|
| 0  | CODE     | COOKSE TITLE  | GORY  | L   | Т             | Р | T<br>PERIODS    | CKEDITS |
| 1. | 818EEE07 | Power System Dynamics                                   | PE    | 3   | 0             | 0 | 3               | 3       |
| 2. | 818EEE08 | Professional Ethics and<br>Human Values                 | PE    | 3   | 0             | 0 | 3               | 3       |
| 3. | 818EEE09 | Insulation and Testing<br>Engineering                   | PE    | 3   | 0             | 0 | 3               | 3       |
| 4. | 818EEE10 | Wireless Power Transfer<br>Technologies                 | PE    | 3   | 0             | 0 | 3               | 3       |
| 5. | 818CIE08 | Augmented Reality and<br>Virtual Reality<br>Development | PE    | 3   | 0             | 0 | 3               | 3       |
| 6. | 818MEE13 | Industry 4.0  | PE    | 3   | 0             | 0 | 3               | 3       |

#### **ALLOCATION OF CREDITS**

| Semester | I  | II  | 111 | IV | V  | VI | VII | VII |  |  |  |  |
|----------|----|-----|-----|----|----|----|-----|-----|--|--|--|--|
| Credits  | 18 | 21  | 22  | 22 | 22 | 22 | 22  | 15  |  |  |  |  |
| Total    |    | 164 |     |    |    |    |     |     |  |  |  |  |

# **Humanities and Social Science (HS)**

| SL.No. | Course   | Course Course Title   |   | eriods<br>& Cre | Preferred<br>Semester |   |          |
|--------|----------|-----------------------|---|-----------------|-----------------------|---|----------|
|        | Code     |                       |   | T               | Р                     | С | Semester |
| 1      | 118ENT01 | Technical English     | 2 | 0               | 0                     | 2 | 1        |
| 2      | 218ENT01 | Communicative English | 2 | 0               | 2                     | 3 | 2        |

#### **Basic Science (BS)**

| SL.No. | Course<br>Code | Course Title                             |   | W | riods<br>eek<br>redit | & | Preferred<br>Semester |
|--------|----------------|--|---|---|-----------------------|---|-----------------------|
|        | 33.0           |  |   | Т | Р                     | С |                       |
| 1      | 118MAT02       | Engineering Mathematics-I                | 3 | 0 | 0                     | 3 | 1                     |
| 2      | 118PHT03       | Engineering Physics                      | 2 | 0 | 0                     | 2 | 1                     |
| 3      | 118CYT04       | Engineering Chemistry                    | 3 | 0 | 0                     | 3 | 1                     |
| 4      | 118PHP07       | Engineering Physics Laboratory           | 0 | 0 | 2                     | 1 | 1                     |
| 5      | 218MAT02       | Engineering Mathematics-II               | 3 | 1 | 0                     | 4 | 2                     |
| 6      | 218GET03       | Environmental Science and Engineering    | 2 | 0 | 0                     | 2 | 2                     |
| 7      | 218CYP07       | Engineering Chemistry Laboratory         | 0 | 0 | 2                     | 1 | 2                     |
| 8      | 218BSE03       | Chemistry for Technologists              | 2 | 0 | 0                     | 2 | 2                     |
| 9      | 218BSE04       | Energy Storage Devices and Fuel<br>Cells | 2 | 0 | 0                     | 2 | 2                     |
| 10     | 218BSE07       | Physics Of Semiconductor                 | 2 | 0 | 0                     | 2 | 2                     |
| 11     | 218BSE08       | Physics for Electronics Engineering      | 2 | 0 | 0                     | 2 | 2                     |
| 12     | 318EET01       | Engineering Mathematics-III              | 3 | 1 | 0                     | 4 | 3                     |
| 13     | 418EET01       | Numerical Methods                        | 3 | 1 | 0                     | 4 | 4                     |

# **Engineering Science (ES)**

| SL.No. | Course Code | Course<br>Title   | Per | _ | / We | ek & | Preferred<br>Semester |
|--------|-------------|---|-----|---|------|------|-----------------------|
|        |             | Title   | L   | Т | Р    | С    |                       |
| 1      | 118PPT05    | Problem Solving And Python Programming                          | 3   | 0 | 0    | 3    | 1                     |
| 2      | 118PPP08    | Problem Solving and Python Programming Laboratory               | 0   | 0 | 2    | 1    | 1                     |
| 3      | 118ESE01    | Basic Civil and Mechanical<br>Engineering                       | 3   | 0 | 0    | 3    | 1                     |
| 4      | 118ESE05    | Basic Mechanical Electrical and Instrumentation Engineering     | 3   | 0 | 0    | 3    | 1                     |
| 5      | 118ESE06    | Basic Electrical Electronics and<br>Instrumentation Engineering | 3   | 0 | 0    | 3    | 1                     |
| 6      | 118ESE07    | Biology For Engineers   | 3   | 0 | 0    | 3    | 1                     |
| 7      | 218EGT04    | Engineering Graphics  | 2   | 0 | 4    | 4    | 2                     |
| 8      | 218EPP08    | Engineering Practice Laboratory                                 | 0   | 0 | 2    | 1    | 2                     |
| 9      | 218EDP09    | Electron Devices and Circuits<br>Laboratory                     | 0   | 0 | 2    | 1    | 2                     |

# **Professional Core (PC)**

| SL.No. | Course Code | Course<br>Title   | Per |   | / We | ek & | Preferred |
|--------|-------------|---|-----|---|------|------|-----------|
|        |             | Title   | L   | T | Р    | С    | Semester  |
| 1      | 218CAT05    | Circuit Theory  | 3   | 0 | 0    | 3    | 2         |
| 2      | 318EET02    | Electromagnetic Theory                                      | 3   | 0 | 0    | 3    | 3         |
| 3      | 318EET03    | Network Analysis and Synthesis                              | 3   | 0 | 0    | 3    | 3         |
| 4      | 318EET04    | Linear Integrated Circuits and Applications                 | 3   | 0 | 0    | 3    | 3         |
| 5      | 318EET05    | Measurements and Instrumentation                            | 3   | 0 | 0    | 3    | 3         |
| 6      | 318EET06    | Fundamentals of Data Structures in C                        | 3   | 0 | 0    | 3    | 3         |
| 7      | 318EEP07    | Linear Integrated Circuits Laboratory                       | 0   | 0 | 2    | 1    | 3         |
| 8      | 318EEP08    | Measurements and Instrumentation<br>Laboratory              | 0   | 0 | 2    | 1    | 3         |
| 9      | 318EEP09    | Fundamentals of Data Structures in C Laboratory             | 0   | 0 | 2    | 1    | 3         |
| 10     | 418EET02    | Control Systems   | 3   | 0 | 0    | 3    | 4         |
| 11     | 418EET03    | Digital Electronic Circuits                                 | 3   | 0 | 0    | 3    | 4         |
| 12     | 418EET04    | Power Generation Systems                                    | 3   | 0 | 0    | 3    | 4         |
| 13     | 418EET05    | Electrical Machines – I                                     | 3   | 0 | 0    | 3    | 4         |
| 14     | 418EEP07    | Electrical Machines-I Laboratory                            | 0   | 0 | 2    | 1    | 4         |
| 15     | 418EEP08    | Electrical and Electronic Circuits<br>Simulation Laboratory | 0   | 0 | 2    | 1    | 4         |

| 16 | 418EEP09 | Control system Laboratory                         | 0 | 0 | 2 | 1 | 4 |
|----|----------|---|---|---|---|---|---|
| 17 | 518EET01 | Microprocessors and Microcontrollers              | 3 | 0 | 0 | 3 | 5 |
| 18 | 518EET02 | Electrical Machines – II                          | 3 | 0 | 0 | 3 | 5 |
| 19 | 518EET03 | Advanced Control Theory                           | 3 | 1 | 0 | 4 | 5 |
| 20 | 518EET04 | Protection and Switchgear                         | 3 | 0 | 0 | 3 | 5 |
| 21 | 518EET05 | Transmission and Distribution                     | 3 | 0 | 0 | 3 | 5 |
| 22 | 518EEP07 | Electrical Machines-II Laboratory                 | 0 | 0 | 2 | 1 | 5 |
| 23 | 518EEP08 | Microprocessor and Micro controllers Laboratory   | 0 | 0 | 2 | 1 | 5 |
| 24 | 518EEP09 | Digital Electronic Laboratory                     | 0 | 0 | 2 | 1 | 5 |
| 25 | 618EET01 | Electrical Machine Design                         | 3 | 0 | 0 | 3 | 6 |
| 26 | 618EET02 | Power Electronics                                 | 3 | 0 | 0 | 3 | 6 |
| 27 | 618EET03 | Power System Analysis and Stability               | 3 | 1 | 0 | 4 | 6 |
| 28 | 618EET04 | High Voltage Engineering                          | 3 | 0 | 0 | 3 | 6 |
| 29 | 618EET05 | Renewable Energy Sources                          | 3 | 0 | 0 | 3 | 6 |
| 30 | 618EEP07 | Power Electronics Laboratory                      | 0 | 0 | 2 | 1 | 6 |
| 31 | 618EEP08 | Electronic System Design Laboratory               | 0 | 0 | 2 | 1 | 6 |
| 32 | 718EET01 | Power System Operation and Control                | 3 | 0 | 0 | 3 | 7 |
| 33 | 718EET02 | Electric Drives and Control                       | 3 | 1 | 0 | 4 | 7 |
| 34 | 718EET03 | Special Electrical Machines                       | 3 | 0 | 0 | 3 | 7 |
| 35 | 718EET04 | Power Quality Management                          | 3 | 0 | 0 | 3 | 7 |
| 36 | 718EEP07 | Power System Simulation Laboratory                | 0 | 0 | 2 | 1 | 7 |
| 37 | 718EEP08 | Electric Drives laboratory                        | 0 | 0 | 2 | 1 | 7 |
| 38 | 818EET01 | Electric Power Utilization and Energy<br>Auditing | 3 | 0 | 0 | 3 | 8 |

# **Professional Elective (PE)**

| SL.No | Course   | Course                                | Periods / Week<br>& Credits |   |   | Preferred |          |
|-------|----------|---------------------------------------|-----------------------------|---|---|-----------|----------|
| •     | Code     | Title                                 |                             | Т | Р | С         | Semester |
| 1.    | 418EEE06 | Bio-Medical Instrumentation           | 3                           | 0 | 0 | 3         | 4        |
| 2.    | 418EEE07 | Neural Networks and Fuzzy Systems     | 3                           | 0 | 0 | 3         | 4        |
| 3.    | 418EEE08 | Electrical Engineering Materials      | 3                           | 0 | 0 | 3         | 4        |
| 4.    | 418EEE09 | Fundamentals of Nano Science          | 3                           | 0 | 0 | 3         | 4        |
| 5.    | 618EEE01 | Distributed Generation and Micro Grid | 3                           | 0 | 0 | 3         | 6        |
| 6.    | 618EEE02 | VLSI Design                           | 3                           | 0 | 0 | 3         | 6        |
| 7.    | 618EEE03 | High Voltage Direct Current           |                             | 0 | 0 | 3         | 6        |
|       |          | Transmission                          |                             |   |   |           |          |
| 8.    | 618EEE04 | Artificial Intelligence and Data      | 3                           | 0 | 0 | 3         | 6        |
|       |          | Systems                               |                             |   |   |           |          |
| 9.    | 718EEE05 | Flexible AC Transmission Systems      | 3                           | 0 | 0 | 3         | 7        |
| 10.   | 718EEE06 | Embedded Systems                      | 3                           | 0 | 0 | 3         | 7        |

| 11. | 718EEE07 | Smart Grid                           | 3 | 0 | 0 | 3 | 7 |
|-----|----------|--------------------------------------|---|---|---|---|---|
| 12. | 718EEE08 | Modern Power Converters              | 3 | 0 | 0 | 3 | 7 |
| 13. | 718EEE09 | EHV Power Transmissions              | 3 | 0 | 0 | 3 | 7 |
| 14. | 718EEE10 | Power Electronics for Renewable      | 3 | 0 | 0 | 3 | 7 |
|     |          | Energy Systems                       |   |   |   |   |   |
| 15. | 718EEE11 | Aircraft Electronic Systems          | 3 | 0 | 0 | 3 | 7 |
| 16. | 718EEE12 | Adaptive Control                     | 3 | 0 | 0 | 3 | 7 |
| 17. | 818EEE02 | Disaster Management                  | 3 | 0 | 0 | 3 | 8 |
| 18. | 818EEE03 | Electric Vehicle Technology'         | 3 | 0 | 0 | 3 | 8 |
| 19. | 818EEE04 | Total Quality Management             | 3 | 0 | 0 | 3 | 8 |
| 20. | 818EEE05 | Industrial Automation                | 3 | 0 | 0 | 3 | 8 |
| 21. | 818EEE06 | Power System Dynamics                | 3 | 0 | 0 | 3 | 8 |
| 22. | 818EEE07 | Professional Ethics and Human Values | 3 | 0 | 0 | 3 | 8 |
| 23. | 818EEE08 | Insulation and Testing Engineering   | 3 | 0 | 0 | 3 | 8 |
| 24. | 818EEE09 | Wireless Power Transfer Technologies | 3 | 0 | 0 | 3 | 8 |

# Open Elective (OE)

| SL.No. | Course Code           | Cour<br>se                |   | ods /<br>Crec |   | Preferred |          |
|--------|-----------------------|---------------------------|---|---------------|---|-----------|----------|
|        |                       | Title                     | L | T             | Р | С         | Semester |
| 1      | 518ECO06/<br>518ECT03 | Communication Theory      | 3 | 0             | 0 | 3         | 5        |
| 2      | 518MEO07<br>/715MET01 | Mechatronics and Robotics | 3 | 0             | 0 | 3         | 5        |
| 3      | 518ITO08/3<br>18CIT06 | Computer Organization     | 3 | 0             | 0 | 3         | 5        |
| 4      | 518ECO09/<br>518ECT01 | Digital Signal Processing | 3 | 0             | 0 | 3         | 5        |

# **Employability Enhancement Courses (EEC)**

| SL.No. | Course<br>Code | Course<br>Title                 | Peri | - | / Weel<br>dits | Preferred<br>Semester |          |
|--------|----------------|---------------------------------|------|---|----------------|-----------------------|----------|
|        | Code           | Title                           | L    | Т | Р              | С                     | Semester |
| 1      | 618EEP09       | Employability Skills Laboratory | 0    | 0 | 2              | 1                     | 6        |
| 2      | 718EEP09       | Mini Project Work               | 0    | 0 | 2              | 1                     | 7        |
| 3      | 818EEP04       | Project Work                    | 0    | 0 | 12             | 6                     | 8        |

# Noncredit / Mandatory Courses (MC)

| SL.No. | Course Code | Course Title        | course Title Credits |   |   |   | Preferred<br>Semester |
|--------|-------------|---------------------|----------------------|---|---|---|-----------------------|
|        |             |                     | L                    | Т | Р | С | Semester              |
| 1.     | X18MCT01    | Indian Constitution | 1                    | 0 | 0 | 0 | 2                     |

#### **SUMMARY**

|     | Nam     | e of the | e Progra             | mme : E | B.E – Ele | ctrical a | nd Elect | ronics Er | ngineerin | g       |
|-----|---------|----------|----------------------|---------|-----------|-----------|----------|-----------|-----------|---------|
| SI  | Subject |          | Credits Per Semester |         |           |           |          |           |           |         |
| No. | Area    | I        | II                   | III     | IV        | V         | VI       | VII       | VIII      | Credits |
| 1   | HS      | 2        | 3                    |         |           |           |          |           |           | 5       |
| 2   | BS      | 9        | 9                    | 4       | 4         |           |          |           |           | 26      |
| 3   | ES      | 7        | 6                    |         |           |           |          |           |           | 13      |
| 4   | PC      |          | 3                    | 18      | 15        | 19        | 18       | 15        | 3         | 91      |
| 5   | PE      |          |                      |         | 3         |           | 3        | 6         | 6         | 18      |
| 6   | OE      |          |                      |         |           | 3         |          |           |           | 3       |
| 7   | EE      |          |                      |         |           |           | 1        | 1         | 6         | 8       |
| 8   | MC      |          | 0                    |         |           |           |          |           |           | 0       |
|     | Total   | 18       | 21                   | 22      | 22        | 22        | 22       | 22        | 15        | 164     |