****

**SCHEME**

**&**

**SYLLABUS**

**For Academic Session**

**2022-2022**

**DEPARTMENT OF ELECTRICAL ENGINEERING**

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**GYAN VIHAR SCHOOL OF ENGINEERING & TECHNOLOGY**

**DEPARTMENT OF ELECTRICAL ENGINEERING**

**CURRICULUM FOR ACADEMIC SESSION 2022 - 2023 FOR THE FOLLOWING PROGRAMME**

1. B.Tech I year ( Common to all branches of Engineering)

1. B.Tech Electrical Engineering
2. M.Tech Power System
3. Dual Degree (B.Tech Electrical Engineering + M.Tech Power Systems)
4. Diploma in Electrical Engineering

|  |  |  |
| --- | --- | --- |
| S. No | Programs | Remarks |
| 1 | B.Tech I Year (Common to all branches of Engineering) | I Sem to II Sem |
| 2 | B.Tech Electrical Engineering | III Sem to VIII Sem |
| 3 | M.Tech Power System | I Sem to IV Sem |
| 4 | Dual Degree (B.Tech Electrical Engineering + M.Tech Power Systems) | III Sem to VIII Sem |
| 5 | Diploma Electrical Engineering | I Sem to VI Sem |

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**GYAN VIHAR SCHOOL OF ENGINEERING AND TECHNOLOGY**

**DEPARTMENT OF ELECTRICAL ENGINEERING**

**HIGH LIGHTS OF THE SYLLABI**

**A. COURSE NUMBER CODING SCHEME**

Coding for all the papers has been done so as to make syllabi more systematic and easy to locate.

**1.** A course is identified by a course code designated by a string of six alphanumeric characters and a course title.

**2.** In a course code, first letter indicates the type of course whether CORE or ELECTIVE, next two letters of the string indicate the Department/School offering the course and the later three numerals designate a particular course number. The letters symbolizing various Academic Department offering a course are:

**CY Chemistry**

**EN English**

**HS Humanities and Social Sciences**

**MA Mathematics**

**PY Physics**

**CA Computer Application**

**CE Civil Engineering**

**CP Computer Engineering**

**EC Electronics and Communication Engineering**

**EE Electrical Engineering**

**IT Information Technology**

**ME Mechanical Engineering**

**BM Business Management**

**HM Hotel Management**

**PH Pharmacy**

**SC Sciences**

**3. Course number**

**a.** First Numerical digit denotes the level of the course that corresponds to the Year of Study.

**b.** Next two Numerical digits denote the number of the course, which will usually be odd for courses offered in the Odd Semester and even for

courses offered in the Even Semester.

**c.** Lower levels corresponds the UG courses, while higher level the PG courses. Suggested levels will be as follows:

|  |  |  |
| --- | --- | --- |
| **All UG Programmes** | **All PG programmes** | **PG Diploma** |
| Level 1 to 4 | Level 5 to 7 | Level 8, 9 |

**EXAMPLES:**

|  |  |
| --- | --- |
| **UG Programmes** | **PG programmes** |
| For e.g. EE 203  EE denotes Electrical Engineering  2 denoted second Year  03 represent Course | For e.g. EE 503  EE denotes Electrical Engineering  5 denoted Fifth Year of PG Programme  03 represent Course |

**B. CREDIT SYSTEM**

Each academic year consists of two semesters and a summer term. The education system is organized around a credit system, which ensures continuous evaluation of the student's performance and provides at an optimum pace suited to one's ability or of credits depending upon the class contact hours. A minimum number of credits are to be completed in order to qualify for the award of degree. A minimum level of performance is necessary for satisfactory progress. SGVU has revised its curriculum with effect from the academic session 2022-2023. The revised curriculum emphasizes on self-learning, project activity and laboratory work. It leaves sufficient time for the student to take part in other activities like sport and recreation as well as to think and to be creative and innovative.

Each course, except for a few special courses, has a certain number of credits assigned to it depending on its lecture, tutorial and laboratory work contact hours in a week. Each course is coordinated by a member of the faculty called the course coordinator. He/she has the full responsibility for coordinating the course, faculty involved in the course, holding tests and awarding grades. In case of any difficulty, students are expected to approach the course coordinator for advice and clarification.

A letter grade with a specified number of grade points is awarded in each course for which a student is registered. A student's performance is measured by the number of credits that he/she has earned and by the weighted grade point average maintained by him/her. A minimum grade point average is necessary in order to qualify for the degree.

A total of minimum 180 credit points are necessary for the student enrolled to get B.Tech degree out of total 220 teaching credits offered overall in various courses.

**C. COURSE OUTLOOK:**

The course of B. Tech. in Electrical Engineering is of 4 years. These 4 years are divided in 8 semesters, each of 6 months. After every semester an examination is conducted so that the teachers as well as students get to know their strengths and weakness and work on their weak points to have an overall development. Subjects are divided into two main categories- CORE and ELECTIVES, which are further classified as PROGRAM and UNIVERSITY.

**ELIGIBILITY**

Eligibility for Admission 10+2 with 60 % and JEE (Main/Advanced) score Credit system based syllabi

**OBJECTIVES OF THE SYLLABI**

• To advance, evolve and enhance Electrical Engineering fundamentals

• To build the interest in students for research

• To guide students in the development of power system

* To create the ability in students for better hardware production

• Choice-based credit system

* To make the students up-to-date with the latest industrial advancements

**SIGNIFICANCE AND CARRER OPTIONS OF B. TECH. (Electrical Engineering)**

Electrical Engineering is one of the fastest growing branches of studies which are being carried out all over India. It is one of the most developing and in demand trades of engineering. B. Tech in Electrical Engineering includes study of various aspects of Electrical Engineering to meet the requirements of the various industries. The course contains study of the basic Electrical and its application, as well as the detailed study of the various aspects of its working.

Today Computers have not only assumed strategic importance in the corporate world, they are also being effectively used in almost every field of human endeavour, ranging from space exploration to food processing and banking to communication, power system etc. B. Tech (Electrical Engineering), a study of the theoretical foundations of information and computation, offers a foundation which permits the students to adapt new technologies and ideas. This branch of engineering has many sub-fields for e.g. Transmission and distribution, Network theory, Power system, Machines, Control Theory and much more. After doing B. Tech (Electrical Engineering) from the SGVU, an individual can find a good job in any renowned Electrical Engineering organization. He can work in various areas/companies such as given below.

**Career Options in B. Tech (Electrical Engineering):**

* Power Engineer
* Power Grid
* DRDO
* ISRO
* BEL
* BSNL
* NTPC
* HAL
* GAIL
* SAIL
* BHEL
* Railway
* Telecommunication
* Networking Engineer
* Software Developer
* SEB
* Consumer Electrical Company, etc. …………

**Program Outcomes**

On completion of the courses offered by the Department of Electrical Engineering, the following outcomes are expected.

1. Ability to apply knowledge of mathematics, science and engineering for the solution of electrical engineering problems.
2. Ability to formulate and analyse complex electrical engineering problems.
3. Ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, and public health.
4. Ability to design and conduct experiments, and to analyse and interpret data.
5. Ability to use the techniques, skills, and modern engineering tools necessary for electrical engineering practice.
6. Ability to include social, cultural, ethical issues with engineering solutions.
7. Ability to consider the impact of engineering solutions on environment and the need for sustainable development.
8. Ability to function effectively on multidisciplinary teams.
9. Ability to communicate effectively.
10. Knowledge and understanding of principles of management and finance in relation to engineering projects.
11. Appreciation of technological change and the need for independent lifelong learning.



**SUMMARY OF SYLLABUS UPDATION FOR 2022-2023**

1. **LIST OF PROGRAMS WHO’s SYLLABUS HAVE BEEN SUBMITTED**
2. B. Tech I year ( Common to all branches of Engineering)
3. B. Tech Electrical Engineering
4. M. Tech Power System

1. Dual Degree (B. Tech Electrical Engineering + M. Tech Power Systems)
2. Diploma in Electrical Engineering
3. **CREDIT DISTRIBUTION**

The credit distribution for each program in the four categories of University Core, Program Core, University Elective and Program Elective are given as follows:

***Summary of Semester-wise Credit Distribution for B. Tech Electrical Engineering Program (Except PCA & Employability Skills)***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Year** | **Semester** | **University Core** | **Program Core** | **Program Elective** | **University Elective** | **Total credits** |
| **I** | **Autumn** | 6 | 19 | 0 | 0 | 25 |
| **Spring** | 6 | 17 | 0 | 0 | 23 |
| **II** | **Autumn** | 6 | 19 | 0 | 0 | 25 |
| **Spring** | 3 | 21 | 0 | 0 | 24 |
| **III** | **Autumn** | 3 | 23 | 3 | 0 | 29 |
| **Spring** | 3 | 22 | 3 | 0 | 28 |
| **IV** | **Autumn** | 3 | 16 | 3 | 0 | 22 |
| **Spring** | 3 | 17 | 3 | 0 | 23 |
| **Program Total** | | | | | | **199** |

***Summary of Semester-wise Credit Distribution for M.Tech. Power Systems Program***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Year** | **Semester** | **University Core** | **Program Core** | **Program Elective** | **University Elective** | **Total credits** |
| **I** | **Autumn** | 10 | 10 | 03 | 01 | 23 |
| **Spring** | 06 | 13 | 03 | 01 | 22 |
| **II** | **Autumn** | 02 | 14 | 03 | 01 | 19 |
| **Spring** | 18 | 00 | 00 | 01 | 18 |
| **Program Total** | | | | | | **82** |

1. **No. of Total Courses Being offered (Semester wise):**

|  |  |  |  |
| --- | --- | --- | --- |
| **S.No.** | **Semester** | **Number of Courses** | **Credits** |
|  | B. Tech. I | 10 | 25 |
|  | B. Tech. II | 10 | 23 |
|  | B. Tech. III | 12 | 25 |
|  | B. Tech. IV | 11 | 24 |
|  | B. Tech. V | 13 | 29 |
|  | B. Tech. VI | 13 | 28 |
|  | B. Tech. VII | 8 | 22 |
|  | B. Tech. VIII | 6 | 23 |
|  | M. Tech. I | 10 | 22 |
|  | M. Tech. II | 9 | 21 |
|  | M. Tech. III | 6 | 19 |
|  | M. Tech. IV | 1 | 18 |

1. **List of Alumni, Industry and Academic Institution, whose Feedback has been taken**

|  |  |  |  |
| --- | --- | --- | --- |
| **S.No.** | **Name of Industry** | **Details of Alumni/Industry Person** | **Remark/Suggestions** |
| 1. | Anchor Electricals Pvt. Ltd., Haridwar | Mr. Chhatrpal (Manager) 8791090390 | Addition in “Electrical Machines-I” |
| 2. | J.En, Jawahar Nagar | Mr. Kamal Ved | Addition in “Electrical Machines-II” |
| 3. | Professor, MNIT | Dr. Rajeev Tiwari, | Introduce New Course on Electric and Hybrid Vehicles, Basics of PLC, Machine Learning, |
| 4. | A.En, GENCO | Mr. Prahlad Kumar Sharma | Addition in “Switchgear & Protection” |

1. **Any other Major or Minor Information or Updating:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| * Following subjects are Added and Shifted from Program Core to Program Elective and Vice Versa  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Sr. No.** | Semester | Course Code | Course Name | Credit | L | T | P | Hrs. | ISE | ESE | | **1** | 5 | EE 313  EE 339 | Machine Learning  Machine Learning Lab | 2  1 | 2  0 | 0  0 | 0  2 | 3  3 | 40  60 | 60  40 | | **2** | 5 | EE 319 | Modern Power Electronics | 3 | 3 |  |  | 3 | 40 | 60 | | **3** | 5 | EC 317 | Principle of communication systems | 3 | 3 | 0 | 0 | 3 | 40 | 60 | | **4** | 6 | EE 316 | Electrical and Hybrid Vehicles. | 3 | 2 | 1 | 0 | 3 | 40 | 60 | | **5** | 6 | EC 316 | Fundamental of Digital Communication | 3 | 2 | 1 | 0 | 3 | 40 | 60 | | **6** | 7 | MAP 401 | BASICS OF PLC | 2 | 3 | 1 | 0 | 3 | 60 | 40 | | 7 | MAP 451 | Programmable logic controller lab | 1 | 0 | 0 | 2 | 3 | 40 | 60 | |

1. **All approvals at the department level to be taken to the University BoS meeting.**

**Signature Signature**

**Convener-BoS Dean/Principal/HoD**



**Gyan Vihar School of Engineering and Technology**

**Teaching and Examination Scheme**

**B. Tech./Dual Degree I Year (Common to All)**

**CSE/ECE/EE/ME/CE**

**Effective from Academic Session 2022-2026**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S. No.** | **Course Code** | **Course Name** | **Credits** | **Contact Hrs/Wk.** | | | **Exam Hrs.** | **Weightage (in%)** | |
| **L** | **T/S** | **P** | **CIE** | **ESE** |
| **A** |  | **University Core** |  |  |  |  |  |  |  |
| **1** | PC 101 | Proficiency in Co-curricular Activities | 2 | 0 | 0 | 0 | 0 | 0 | 100 |
| **2** | FD 102 | Foundation Course-I | 1 | 2 | 0 | 0 | 3 | 25 | 75 |
| **3** | EN 105 | Professional Communication I | 2 | 2 | 0 | 0 | 3 | 40 | 60 |
| **4** | EN 151 | Professional Communication Lab | 1 | 0 | 0 | 2 | 2 | 60 | 40 |
| **B** |  | **Program Core** |  |  |  |  |  |  |  |
| **5** | **PY 103** | Physics | 4 | 3 | 1 | 0 | 3 | 40 | 60 |
| **6** | MA 103 | Mathematics – I | 4 | 3 | 1 | 0 | 3 | 40 | 60 |
| **7** | EE 105 | Basic Electrical Engineering | 4 | 3 | 1 | 0 | 3 | 40 | 60 |
| **8** | CP 107 | Programming for Problem Solving | 3 | 3 | 0 | 0 | 3 | 40 | 60 |
| **9** | CP 153 | Programming for Problem Solving Lab | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| **10** | ME 157 | Engineering Graphics & Design Lab | 2 | 0 | 0 | 3 | 3 | 60 | 40 |
| **11** | PY 152 | Engineering Physics Lab | 1 | 0 | 0 | 3 | 3 | 60 | 40 |
| **C** |  | **University/Open Elective** |  |  |  |  |  |  |  |
|  |  | Students can choose elective from the attached list. |  |  |  |  |  |  |  |
|  |  | **Total** | **25** |  |  |  |  |  |  |

**Year: I Semester: I (Autumn)**

**NOTE: The University Electives are apart from minimum credits required for award of degree.**

**L= Lecture T=Tutorial CIE=Continuous Internal Evaluation**

**S= Seminar P= Practical ESE= End Semester Examination**

**Members of BoS, EE Convener, BoS Engg.**



**Gyan Vihar School of Engineering and Technology**

**Teaching and Examination Scheme**

**B. Tech./Dual Degree I Year (Common to All)**

**CSE/ECE/EE/ME/CE**

**Effective from Academic Session 2022-2026**

**Year: I Semester: II (Spring)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S. No.** | **Course Code** | **Course Name** | **Credits** | **Contact Hrs/Wk.** | | | **Exam Hrs.** | **Weightage (in%)** | |
| **L** | **T/S** | **P** | **CIE** | **ESE** |
| **A** |  | **University Core** |  |  |  |  |  |  |  |
| **1** | PC 102 | Proficiency in Co-Curricular Activities | 2 | 0 | 0 | 0 | 0 | 0 | 100 |
| **2** | FD104 | Foundation Course –II | 1 | 1 | 0 | 0 | 3 | 25 | 75 |
| **3** | EM 102 | Employability Skills–I | 1 | 0 | 2 | 0 | 0 | 60 | 40 |
| **4** | EN 106 | Professional Communication II | 2 | 2 | 0 | 0 | 3 | 40 | 60 |
| **B** |  | **Program Core** |  |  |  |  |  |  |  |
| **5** | EC 106 | Basic Electronics Engineering | 3 | 3 | 0 | 0 | 3 | 40 | 60 |
| **6** | MA 104 | Mathematics – II | 4 | 3 | 1 | 0 | 3 | 40 | 60 |
| **7** | ME 102 | Engineering Mechanics | 3 | 3 | 0 | 0 | 3 | 40 | 60 |
| **8** | CY 102 | Chemistry | 3 | 3 | 0 | 0 | 3 | 40 | 60 |
| **9** | CY 152 | Chemistry lab | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| **10** | ME 158 | Workshop Manufacturing Practices | 2 | 0 | 0 | 3 | 3 | 60 | 40 |
| **11** | EE 151 | Electrical and Electronics Engineering Lab | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| **C** |  | **University/Open Elective** |  |  |  |  |  |  |  |
|  |  | Students can choose elective from the attached list. |  |  |  |  |  |  |  |
|  |  | **Total** | **23** |  |  |  |  |  |  |

**NOTE: The University Electives are apart from minimum credits required for award of degree.**

**L= Lecture T=Tutorial CIE=Continuous Internal Evaluation**

**S= Seminar P= Practical ESE= End Semester Examination**

**Members of BoS, EE Convener, BoS Engg.**

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**GYAN VIHAR SCHOOL OF ENGINEERING AND TECHNOLOGY**

**DEPARTMENT OF ELECTRICAL ENGINEERING**

**Teaching and Examination Scheme for B.Tech./Dual Degree (Electrical Engineering 4 Year Course)**

**EFFECTIVE FROM ACADEMIC SESSION 2022 - 2023**

**Year: II Semester: Autumn**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S. No.** | **Course Code** | **Course Name** | **Credits** | **Contact Hrs/Wk.** | | | **Exam Hrs.** | **Weightage (in%)** | |
| **L** | **T/S** | **P** | **CIE** | **ESE** |
| **A** |  | **University Core** |  |  |  |  |  |  |  |
| **1** | EM 201 | Employability Skills-II | 1 |  | 2 |  |  |  | 100 |
| **2** | PC 201 | Proficiency and Co-Curricular Activities-III | 2 |  |  |  |  |  |  |
| **3** | HS 203 | Economics and Social Sciences | 3 | 3 |  |  | 3 | 40 | 60 |
| **B** |  | **Program Core** |  |  |  |  |  |  |  |
| **1** | EE 201 | Electrical Circuit Analysis | 4 | 3 | 1 | 0 | 3 | 40 | 60 |
| **2** | EC 203 | Analog Electronics | 3 | 3 | 0 | 0 | 3 | 40 | 60 |
| **3** | EE 205 | Electrical Machines-I | 4 | 3 | 1 | 0 | 3 | 40 | 60 |
| **4** | EE 207 | Electromagnetic Field | 2 | 2 | 0 | 0 | 3 | 40 | 60 |
| **5** | EE 209 | Power Generation Process | 3 | 3 | 0 | 0 | 3 | 40 | 60 |
| **6** | EE 231 | Analog Electronics Lab | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| 7 | EE 233 | Electrical Machine-I Lab | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| 8 | EE 235 | Electrical circuit design Lab | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| **D** |  | **University Elective** |  |  |  |  |  |  |  |
|  |  | Swatch Bharat Abhiyan |  |  |  |  |  |  |  |
|  |  | **TOTAL** | **25** | **14** | **3** | **6** |  |  |  |

**NOTE: The University Electives are apart from minimum credits required for award of degree.**

**L= Lecture T=Tutorial CIE=Continuous Internal Evaluation**

**S= Seminar P= Practical ESE= End Semester Examination**

**Members of BoS, EE Convener, BoS Engg.**

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**GYAN VIHAR SCHOOL OF ENGINEERING AND TECHNOLOGY**

**DEPARTMENT OF ELECTRICAL ENGINEERING**

**Teaching and Examination Scheme for B.Tech./Dual Degree (Electrical Engineering 4 Year Course)**

**EFFECTIVE FROM ACADEMIC SESSION 2022-2023**

**Year: II Semester: Spring**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S. No.** | **Course Code** | **Course Name** | **Credits** | **Contact Hrs/Wk.** | | | **Exam Hrs.** | **Weightage (in%)** | |
| **L** | **T/S** | **P** | **CIE** | **ESE** |
| **A** |  | **University Core** |  |  |  |  |  |  |  |
| **1** | EM 202 | Employability Skills-III | 1 |  | 2 |  |  |  | 100 |
| **2** | PC 202 | Proficiency and Co-Curricular Activities-IV | 2 |  |  |  |  | 100 |  |
| **B** |  | **Program Core** |  |  |  |  |  |  |  |
| 1 | EE 202 | Electronic Measurement & Instrumentation | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| 2 | EE 204 | Electrical Machine- II | 4 | 3 | 1 | 0 | 3 | 40 | 60 |
| 3 | EE 206 | Power Electronics | 4 | 3 | 1 | 0 | 3 | 40 | 60 |
| 4 | EE 208 | Signals & Systems | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| 5 | EE 210 | Digital Electronics | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| 6 | EE 232 | Electrical Machine- II Lab | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| 7 | EE 234 | Power Electronics Lab | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| 8 | EE 226 | Digital Electronics Lab | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| 9 | EE 228 | Measurement Lab | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| **D** |  | **University/Open Elective** |  |  |  |  |  |  |  |
|  |  | Opt from the list of University Electives |  |  |  |  |  |  |  |
|  |  | **Total** | **24** | **12** | **7** | **8** |  |  |  |

**NOTE: The University Electives are apart from minimum credits required for award of degree.**

***Industrial training for 45 days after 4th Semester Exams is compulsory.***

**L= Lecture T=Tutorial CIE=Continuous Internal Evaluation**

**S= Seminar P= Practical ESE= End Semester Examination**

**Members of BoS, EE Convener, BoS Engg.**

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**GYAN VIHAR SCHOOL OF ENGINEERING AND TECHNOLOGY**

**DEPARTMENT OF ELECTRICAL ENGINEERING**

**Teaching and Examination Scheme for B.Tech./Dual Degree (Electrical Engineering 4 Year Course)**

**EFFECTIVE FROM ACADEMIC SESSION 2022-2023**

**Year: III Semester: Autumn**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S. No.** | **Course Code** | **Course Name** | **Credits** | **Contact Hrs/Wk.** | | | **Exam Hrs.** | **Weightage (in%)** | |
| **L** | **T/S** | **P** | **CIE** | **ESE** |
| **A** | **University Core** | | | | | | | | |
| **1** | EM 301 | Employability Skills-IV | 1 |  | 2 |  |  |  | 100 |
| **2** | PC 301 | Proficiency and Co-Curricular Activities-V | 2 |  |  |  |  | 100 |  |
| **B** | **Program Core** | | | | | | | | |
| 1 | EE 301 | Electrical Materials | 2 | 2 | 0 | 0 | 3 | 40 | 60 |
| 2 | EE 303 | Power System -I | 4 | 3 | 1 | 0 | 3 | 40 | 60 |
| 3 | EE 305 | Control System | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| 4 | EE 307 | Microprocessor | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| 5 | EE 309 | Electrical Machine Design | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| 6 | EE 331 | Power System - I Lab | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| 7 | EE 333 | Control System Lab | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| 8 | EE 335 | Microprocessor Lab | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| 9 | EE 337 | System Programming Lab | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| 10 | EE 339 | Industrial Training | 4 | 0 | 0 | 0 | 3 | 60 | 40 |
| **C** | **Program elective (any one)** | | | | | | | | |
| **1** | EE 315 | Electromagnetic Wave | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| **2** | EE 313  EE 339 | Machine Learning  Machine Learning Lab | 2  1 | 2  0 | 0  0 | 0  2 | 3  3 | 40  60 | 60  40 |
| **3** | EE 319 | Modern Power Electronics | 3 | 3 |  |  | 3 | 40 | 60 |
| **4** | EE 311 | Restructured Power Systems | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| **5** | EC 317 | Principle of communication systems | 3 | 3 | 0 | 0 | 3 | 40 | 60 |
| **D** |  | **University/Open Elective** | | | | | | | |
|  |  | Consumer Affairs |  |  |  |  |  |  |  |
|  |  | **Total** | **29** | **13** | **6** | **8** |  |  |  |

**NOTE: The University Electives are apart from minimum credits required for award of degree.**

**L= Lecture T=Tutorial CIE=Continuous Internal Evaluation**

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**GYAN VIHAR SCHOOL OF ENGINEERING AND TECHNOLOGY**

**DEPARTMENT OF ELECTRICAL ENGINEERING**

**Teaching and Examination Scheme for B.Tech./Dual Degree (Electrical Engineering 4 Year Course)**

**EFFECTIVE FROM ACADEMIC SESSION 2022-2023**

**Year : III Semester: Spring**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S. No.** | **Course Code** | **Course Name** | **Credits** | **Contact Hrs/Wk.** | | | | | **Exam Hrs.** | **Weightage (in%)** | |
| **L** | | **T/S** | | **P** | **CIE** | **ESE** |
| **A** | **University core** | | | | | | | | | | |
| **1** | HS 302 | Employability skills V | 1 |  | | 2 | |  |  |  | 100 |
| **2** | PC 302 | Proficiency and Co-Curricular Activities-VI | 2 |  | |  | |  |  | 100 |  |
| **B** | **Program Core** | | | | | | | | | | |
| **1** | EE 316 | Electrical and Hybrid Vehicles. | 3 | 2 | | 1 | | 0 | 3 | 40 | 60 |
| **2** | EE 304 | Power System - II | 4 | 3 | | 1 | | 0 | 3 | 40 | 60 |
| **3** | EE 306 | Power System Protection | 3 | 2 | | 1 | |  | 3 | 40 | 60 |
| **4** | EE 308 | Electrical Energy Conversion and Auditing | 4 | 3 | | 1 | | 0 | 3 | 40 | 60 |
| **5** | EE 310 | Electric Drives | 4 | 3 | | 1 | | 0 | 3 | 40 | 60 |
| **6** | EE 332 | Power System - II Lab | 1 | 0 | 0 | | 2 | | 3 | 60 | 40 |
| **7** | EE 334 | Electric Drives Lab | 1 | 0 | 0 | | 2 | | 3 | 60 | 40 |
| **8** | EE336 | Power System Protection Lab | 1 | 0 | | 0 | | 2 | 3 | 60 | 40 |
| **9** | EE 338 | Modelling and simulation lab | 1 | 0 | | 0 | | 2 | 3 | 60 | 40 |
| **C** | **Program elective (any one)** | | | | | | | | | | |
| **1** | EE 312 | Power System Planning. | 3 | 2 | | 1 | | 0 | 3 | 40 | 60 |
| 2 | EE 314 | Digital Signal Processing. | 3 | 2 | | 1 | | 0 | 3 | 40 | 60 |
| **3** | EC 316 | Fundamentals of Digital Communication | 3 | 3 | |  | |  | 3 | 40 | 60 |
| **4** | EE 302 | Computer Architecture | 3 | 2 | | 1 | | 0 | 3 | 40 | 60 |
| **D** | **University/Open elective** | | | | | | | | | | |
|  |  | Disaster Management | 0 |  | |  | |  |  |  |  |
|  |  | Opt from the list of University Electives |  |  | |  | |  |  |  |  |
|  |  | **Total** | **28** | **15** | | **8** | | **8** |  |  |  |

**NOTE: The University**

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**GYAN VIHAR SCHOOL OF ENGINEERING AND TECHNOLOGY**

**DEPARTMENT OF ELECTRICAL ENGINEERING**

**Teaching and Examination Scheme for B.Tech./Dual Degree (Electrical Engineering 4 Year Course)**

**EFFECTIVE FROM ACADEMIC SESSION 2022-2023**

**Year : IV Semester: Autumn**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S. No.** | **Course Code** | **Course Name** | **Credits** | **Contact Hrs/Wk.** | | | **Exam Hrs.** | **Weightage (in%)** | |
| **L** | **T/S** | **P** | **CIE** | **ESE** |
| **A** |  | **University Core** |  |  |  |  |  |  |  |
| **1** | EM 401 | Employability Skills- VI | 1 |  | 2 |  |  |  | 100 |
| **2** | PC 401 | Proficiency and Co-Curricular Activities-VII | 2 |  |  |  |  |  | 100 |
| **B** |  | **Program Core** |  |  |  |  |  |  |  |
| **2** | EE 401 | Wind and Solar Energy Systems. | 3 | 2 | 1 | 0 | 3 | 60 | 40 |
| **3** | EE 435 | Industrial Training | 8 | 0 | 0 | 0 | 3 | 60 | 40 |
| **4** | EE 437 | Seminar | 4 | 0 | 0 | 2 | 3 | 60 | 40 |
| **C** |  | **Program Elective (any one theory)** |  |  |  |  |  |  |  |
| **1** | EE 403 | Power Quality and FACTS | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| **2** | MAP 401 | BASICS OF PLC  Programmable logic controller lab | 2 | 3 | 1 | 0 | 3 | 60 | 40 |
| MAP 451 | 1 | 0 | 0 | 2 | 3 | 40 | 60 |
| 3 | EE 405 | Control System Design. | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| 4 | EE 431 | Embedded Systems Lab | 2 | 0 | 0 | 4 | 3 | 60 | 40 |
| **D** |  | **University/Open Elective** |  |  |  |  |  |  |  |
|  |  | Innovation & Entrepreneurship | 0 |  |  |  |  |  |  |
|  |  | **Total** | **23** | **2** | **1** | **2** |  |  |  |

**NOTE: The University Electives are apart from minimum credits required for award of degree.**

**L= Lecture T=Tutorial CIE=Continuous Internal Evaluation**

**S= Seminar P= Practical ESE= End Semester Examination**

**Members of BoS, EE Convener, BoS Engg.**

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**GYAN VIHAR SCHOOL OF ENGINEERING AND TECHNOLOGY**

**DEPARTMENT OF ELECTRICAL ENGINEERING**

**Teaching and Examination Scheme for B.Tech./Dual Degree (Electrical Engineering 4 Year Course)**

**EFFECTIVE FROM ACADEMIC SESSION 2022 – 2023**

**Year : IV Semester: Spring**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S. No.** | **Course Code** | **Course Name** | **Credits** | **Contact Hrs/Wk.** | | | **Exam Hrs.** | **Weightage (in%)** | |
| **L** | **T/S** | **P** | **CIE** | **ESE** |
| **A** |  | **University Core** |  |  |  |  |  |  |  |
| **1** | EM 402 | Employability Skills- VII | 1 |  | 2 |  |  |  | 100 |
| **2** | HS 402 | Intellectual Property Rights | 2 | 2 | 0 | 0 | 3 | 40 | 60 |
| **B** |  | **Program Core** |  |  |  |  |  |  |  |
| **1** | EE 432 | Energy Systems Lab | 2 | 0 | 0 | 3 | 3 | 60 | 40 |
| **2** | EE 434 | Project | 15 | 0 | 0 | 3 | 3 | 60 | 40 |
| **C** |  | **Program Elective (any 1)** |  |  |  |  |  |  |  |
| **1** | EE 402 | HVDC Transmission System | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| **2** | EE 404 | Line-Commutated and Active PWM Rectifiers | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| **3** | EE 406 | Advanced Electric Drives | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| **D** |  | **University/Open Elective** |  |  |  |  |  |  |  |
|  |  | Opt from the list of University Electives |  |  |  |  |  |  |  |
|  |  | **Total** | **23** | **4** | **3** | **6** |  |  |  |

**NOTE: The University Electives are apart from minimum credits required for award of degree.**

**L= Lecture T=Tutorial CIE=Continuous Internal Evaluation**

**S= Seminar P= Practical ESE= End Semester Examination**

**Members of BoS, EE Convener, BoS Engg.**

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**GYAN VIHAR SCHOOL OF ENGINEERING AND TECHNOLOGY**

**DEPARTMENT OF ELECTRICAL ENGINEERING**

**Teaching and Examination Scheme for M. Tech. FULL-TIME (Core) (Power System)**

**EFFECTIVE FROM ACADEMIC SESSION 2022-2023**

**Year I Semester – Autumn**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S. No.** | **Course Code** | **Course Name** | **Credits** | **Contact Hrs/Wk.** | | | **Exam Hrs.** | **Weightage (in%)** | |
| **L** | **T/S** | **P** | **CIE** | **ESE** |
| **A** |  | **University Core** |  |  |  |  |  |  |  |
| 1 | PC 501 | Proficiency in Co-curricular Activities-I | 2 |  |  |  |  |  | 100 |
| 2 | MA501 | Advanced Mathematics | 3 | 3 |  |  | 3 | 40 | 60 |
| 3 | HS 501 | Technical Writing for Engineering(Seminar) | 1 |  |  | 2 | 3 | 60 | 40 |
| 4 | EM 501 | Employability Skills | 1 |  | 2 |  |  |  |  |
| 5 | SM 501 | Review Seminar 1 | 2 |  |  | 3 |  | 60 | 40 |
| 6 | FD 102 | Foundation Course |  |  |  |  |  |  |  |
| **B** |  | **Program Core** |  |  |  |  |  |  |  |
| 1 | EE 501 | Advanced Power System Analysis | 3 | 3 |  |  | 3 | 40 | 60 |
| 2 | EE 551 | MATLAB Programming Lab | 2 |  |  | 3 | 3 | 60 | 40 |
| 3 | EE 505 | Advanced Power Electronics | 3 | 3 |  |  | 3 | 40 | 60 |
| 4 | EE 553 | Power System Design using PSCAD | 2 |  |  | 3 | 3 | 60 | 40 |
| **C** |  | **Program Elective (any 1)** |  |  |  |  |  |  |  |
| 1 | ME 527 | Energy Conservation Technologies | 3 | 3 |  |  | 3 | 40 | 60 |
| 2 | ME 521 | Modelling & Planning of Energy Systems | 3 | 3 |  |  | 3 | 40 | 60 |
| 3 | ME 523 | Wind Energy Utilization | 3 | 3 |  |  | 3 | 40 | 60 |
| 4 | ME 525 | Energy Management | 3 | 3 |  |  | 3 | 40 | 60 |
| **D** |  | **University/Open Elective** |  |  |  |  |  |  |  |
|  |  | Opt from the list of University Electives |  |  |  |  |  |  |  |
|  |  | **Total** | **22** | **12** | **2** | **11** |  |  |  |

**L= Lecture T=Tutorial CIE=Continuous Internal Evaluation**

**S= Seminar P= Practical ESE= End Semester Examination**

**Members of BoS, EE Convener, BoS Engg.**

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**GYAN VIHAR SCHOOL OF ENGINEERING AND TECHNOLOGY**

**DEPARTMENT OF ELECTRICAL ENGINEERING**

**Teaching and Examination Scheme for M. Tech. FULL-TIME (Core) (Power System)**

**EFFECTIVE FROM ACADEMIC SESSION 2022-2023**

**Year I Semester – Spring**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S. No.** | **Course Code** | **Course Name** | **Credits** | **Contact Hrs/Wk.** | | | **Exam Hrs.** | **Weightage (in%)** | |
| **L** | **T/S** | **P** | **CIE** | **ESE** |
| **A** |  | **University core** |  |  |  |  |  |  |  |
| 1 | PC 502 | Proficiency in Co-curricular Activities-II | 2 |  |  |  |  |  | 100 |
| 2 | EM 502 | Employability Skills | 1 |  | 2 |  |  |  |  |
| 3 | SM 502 | Review Seminar 2 | 2 |  |  | 3 | 3 | 60 | 40 |
| 4 | FD 104 | Foundation Course |  |  |  |  |  |  |  |
| **B** |  | **Program Core** |  |  |  |  |  |  |  |
| 1 | EE 502 | Advanced Power System Stability | 3 | 3 |  |  | 3 | 40 | 60 |
| 2 | EE 504 | HVDC Transmission | 3 | 3 |  |  | 3 | 40 | 60 |
| 3 | EE 508 | Advanced Power System | 3 | 3 |  |  | 3 | 40 | 60 |
| 4 | EE 552 | Power System Modelling and Simulation Lab | 2 |  |  | 3 | 3 | 60 | 40 |
| 5 | EE 554 | Power System Lab 2 | 2 |  |  |  |  |  |  |
| **C** |  | **Program elective (any 1)** |  |  |  |  |  |  |  |
| 1 | EE 512 | Smart Grid: Design & Applications | 3 | 3 |  |  | 3 | 40 | 60 |
| 2 | EE 506 | Power System Transients and Protection | 3 | 3 |  |  | 3 | 40 | 60 |
| 3 | EE 510 | Advanced Circuit Analysis and Design | 3 | 3 |  |  | 3 | 40 | 60 |
| **D** |  | **University/Open elective** |  |  |  |  |  |  |  |
|  |  | Opt from the list of University Electives |  |  |  |  |  |  |  |
|  |  | **Total** | **21** | **12** | **2** | **6** |  |  |  |

**L= Lecture T=Tutorial CIE=Continuous Internal Evaluation**

**S= Seminar P= Practical ESE= End Semester Examination**

**Members of BoS, EE Convener, BoS Engg.**

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**GYAN VIHAR SCHOOL OF ENGINEERING AND TECHNOLOGY**

**DEPARTMENT OF ELECTRICAL ENGINEERING**

**Teaching and Examination Scheme for M. Tech. FULL-TIME (Core) (Power System)**

**EFFECTIVE FROM ACADEMIC SESSION 2022-2023**

**Year II Semester – Autumn**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S. No.** | **Course Code** | **Course Name** | **Credits** | **Contact Hrs/Wk.** | | | **Exam Hrs.** | **Weightage (in%)** | |
| **L** | **T/S** | **P** | **CIE** | **ESE** |
| **A** |  | **University core** |  |  |  |  |  |  |  |
| 1 | PC 601 | Proficiency in Co-curricular Activities-III | 2 |  |  |  |  |  | 100 |
| **B** |  | **Program Core** |  |  |  |  |  |  |  |
| 1 | EE 601 | Power System Planning and Reliability | 3 | 3 |  |  | 3 | 40 | 60 |
| 2 | EE 653 | Advanced Computer Based Power System Design Lab | 2 |  |  | 3 | 3 | 60 | 40 |
| 3 | DI 601 | Pre-dissertation/ Minor Project | 5 |  |  | 6 | 3 | 60 | 40 |
| 4 | PE 601 | Industrial Training | 4 |  |  | 6 | 3 | 60 | 40 |
| **C** |  | **Program elective (any 1)** |  |  |  |  |  |  |  |
| 1 | EE 609 | Restructured Power Systems | 3 | 3 |  |  | 3 | 40 | 60 |
| 2 | EE 605 | Advanced Theory and Analysis of AC Machines | 3 | 3 |  |  | 3 | 40 | 60 |
| 3 | EE 607 | Excitation of Synchronous Machines & Control | 3 | 3 |  |  | 3 | 40 | 60 |
| 4 | EE 611 | Solar Radiation & Energy Conversion | 3 | 3 |  |  | 3 | 40 | 60 |
| 5 | EE 613 | Smart Grid: Technology & Applications | 3 | 3 |  |  | 3 | 40 | 60 |
| 6 | EE 603 | Operation and Control of Power System (moved to elective) | 3 | 3 |  |  | 3 | 40 | 60 |
| **D** |  | **University/Open elective** |  |  |  |  |  |  |  |
|  |  | Opt from the list of University Electives |  |  |  |  |  |  |  |
|  |  | **Total** | **19** | **6** | **0** | **15** |  |  |  |

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**L= Lecture T=Tutorial CIE=Continuous Internal Evaluation**

**S= Seminar P= Practical ESE= End Semester Examination**

**Members of BoS, EE Convener, BoS Engg.**

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**GYAN VIHAR SCHOOL OF ENGINEERING AND TECHNOLOGY**

**DEPARTMENT OF ELECTRICAL ENGINEERING**

**Teaching and Examination Scheme for M. Tech. FULL-TIME (Core) (Power System)**

**EFFECTIVE FROM ACADEMIC SESSION 2022-2023**

**Year II Semester – Spring**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S. No.** | **Course Code** | **Course Name** | **Credits** | **Contact Hrs/Wk.** | | | **Exam Hrs.** | **Weightage (in%)** | |
| **L** | **T/S** | **P** | **CIE** | **ESE** |
| **A** |  | **Practical & Sessional** | | | | | | | |
| 1 | DI 602 | Industry Major Project/Dissertation | 18 |  |  | 3 |  | 60 | 40 |
|  |  |  |  |  |  |  |  |  |  |
|  |  | **Total** | **18** |  |  | **3** |  |  |  |
|  |  | **Total Teaching Load** | **3** |  |  |  |  |  |  |

**L= Lecture T=Tutorial CIE=Continuous Internal Evaluation**

**S= Seminar P= Practical ESE= End Semester Examination**

**Members of BoS, EE Convener, BoS Engg.**

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**GYAN VIHAR SCHOOL OF ENGINEERING AND TECHNOLOGY**

**DEPARTMENT OF ELECTRICAL ENGINEERING**

**Effective from the academic session 2022-2023**

**List of Offered Courses**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| **Course Code** | **Course Name** | | | **Credits** | **Contact Hrs/Wk.** | | | **Exam Hrs.** | **Weightage (in%)** | |
| **L** | **T/S** | **P** | **CIE** | **ESE** |
| **ELECTRICAL ENGINEERING** | | | | | | | | | | |
| EE 201 | Electrical Circuit Analysis | | | 4 | 3 | 1 | 0 | 3 | 40 | 60 |
| EE 203 | Analog Electronics | | | 3 | 3 | 0 | 0 | 3 | 40 | 60 |
| EE 205 | Electrical Machines-I | | | 4 | 3 | 1 | 0 | 3 | 40 | 60 |
| EE 207 | Electromagnetic Field | | | 2 | 2 | 0 | 0 | 3 | 40 | 60 |
| EE 209 | Power Generation Process | | | 3 | 3 | 0 | 0 | 3 | 40 | 60 |
| EE 231 | Analog Electronics Lab | | | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| EE 233 | Electrical Machine-I  Lab | | | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| EE 235 | Electrical circuit  design Lab | | | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| EE 202 | Electronic Measurement & Instrumentation | | | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| EE 204 | Electrical Machine- II | | | 4 | 3 | 1 | 0 | 3 | 40 | 60 |
| EE 206 | Power Electronics | | | 4 | 3 | 1 | 0 | 3 | 40 | 60 |
| EE 208 | Signals & Systems | | | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| EE 210 | Digital Electronics | | | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| EE 232 | Electrical Machine- II Lab | | | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| EE 234 | Power Electronics Lab | | | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| EE 226 | Digital Electronics Lab | | | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| EE 228 | Measurement Lab | | | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| EE 301 | Electrical Materials | | | 2 | 2 | 0 | 0 | 3 | 40 | 60 |
| EE 303 | Power System -I | | | 4 | 3 | 1 | 0 | 3 | 40 | 60 |
| EE 305 | Control System | | | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| EE 307 | Microprocessor | | | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| EE 309 | Electrical Machine Design | | | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| EE 313 | Machine Learning | | | 3 | 2 | 1 | 0 | 3 | 60 | 40 |
| EE 331 | Power System - I Lab | | | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| EE 333 | Control System Lab | | | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| EE 335 | Microprocessor Lab | | | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| EE 337 | System Programming Lab | | | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| EE 339 | Machine Learning lab | | | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| EE 311 | Restructured Power System. | | | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| EE 315 | Electromagnetic Wave | | | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| EE 317 | Digital Control System | | | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| EE 302 | Computer Architecture | | | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| EE 304 | Power System - II | | | 4 | 3 | 1 | 0 | 3 | 40 | 60 |
| EE 306 | Power System Protection | | | 3 | 2 | 1 |  | 3 | 40 | 60 |
| EE 308 | Electrical Energy Conversion and Auditing | | | 4 | 3 | 1 | 0 | 3 | 40 | 60 |
| EE 319 | Modern Power Electronics | | | 3 | 3 |  |  | 3 | 40 | 60 |  |
| EE 310 | Electric Drives | | | 4 | 3 | 1 | 0 | 3 | 40 | 60 |
| EC 317 | Principle of communication systems | | | 3 | 3 | 0 | 0 | 3 | 40 | 60 |
| EE 332 | Power System - II Lab | | | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
|  |  | | |  |  |  |  |  |  |  |
| EE 334 | Electric Drives Lab | | | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| EE336 | Power System Protection Lab | | | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| EE 338 | Modelling and simulation lab | | | 1 | 0 | 0 | 2 | 3 | 60 | 40 |
| EE 312 | Power System Planning. | | | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| EE 314 | Digital Signal Processing. | | | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| EE 316 | Electrical and Hybrid Vehicles. | | | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| EE 431 | Embedded Systems Lab | | | 2 | 0 | 0 | 4 | 3 | 60 | 40 |
| EE 433 | Advance control system lab | | | 2 | 0 | 0 | 4 | 3 | 60 | 40 |
|  |  | | |  |  |  |  |  |  |  |
|  |  | | |  |  |  |  |  |  |  |
| EE 401 | Wind and Solar Energy Systems. | | | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| EE 403 | Power Quality and FACTS | | | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| EE 405 | Control System Design. | | | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| EE 432 | Energy Systems Lab | | | 2 | 0 | 0 | 3 | 3 | 60 | 40 |
|  |  | | |  |  |  |  |  |  |  |
| EE 402 | HVDC Transmission System | | | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| EE 404 | Line-Commutated and Active PWM Rectifiers | | | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| EE 406 | Advanced Electric Drives | | | 3 | 2 | 1 | 0 | 3 | 40 | 60 |
| EE 501 | Advanced Power System Analysis | | | 3 | 3 |  |  | 3 | 40 | 60 |
| EE 502 | Advanced Power System Stability | | | 3 | 3 |  |  | 3 | 40 | 60 |
| EE 503 | Advanced Power Electronics | | | 3 | 3 |  |  | 3 | 40 | 60 |
| EE 504 | HVDC Transmission | | | 3 | 3 |  |  | 3 | 40 | 60 |
| EE 505 | Advanced Power Electronics | | | 3 | 3 |  |  | 3 | 40 | 60 |
| EE 506 | Power System Transients and Protection | | | 3 | 3 |  |  | 3 | 40 | 60 |
| EE 508 | Advance Power System | | | 3 | 3 |  |  | 3 | 40 | 60 |
| EE 510 | Advanced Circuit Analysis and Design | | | 3 | 3 |  |  | 3 | 40 | 60 |
| EE 512 | Smart Grid: Design & Applications | | | 3 | 3 |  |  | 3 | 40 | 60 |
| EE 551 | MATLAB Programming Lab | | | 2 |  |  |  | 3 | 60 | 40 |
| EE 552 | Power System Modeling and Simulation Lab | | | 2 |  |  |  | 3 | 60 | 40 |
| EE 553 | Power System Design Using PSCAD | | | 2 |  |  |  | 3 | 60 | 40 |
| EE 554 | Power System Lab 2 | | | 2 |  |  |  | 3 | 60 | 40 |
| EE 601 | Power System Planning and Reliability | | | 3 | 3 |  |  | 3 | 40 | 60 |
| EE 603 | Operation And Control of Power System | | | 3 | 3 |  |  | 3 | 40 | 60 |
| EE 605 | Advance Theory and Analysis of AC Machine | | | 3 | 3 |  |  | 3 | 40 | 60 |
| EE607 | Excitation of Synchronous Machine and Their Control | | | 3 | 3 |  |  | 3 | 40 | 60 |
| EE 609 | Restructured Power Systems | | | 3 | 3 |  |  | 3 | 40 | 60 |
| EE 611 | Solar Radiation & Energy Conversion | | | 3 | 3 |  |  | 3 | 40 | 60 |
| EE 653 | Advanced Computer based Power System Design Lab | | | 2 |  |  | 3 | 3 | 60 | 40 |
| **BOSCH REXROTH GROUP** | | | | | | | | | | |
| EECP (T) | Basic PLC | | | 3 | 3 |  |  | 3 | 40 | 60 |
| EECP (L) | Basic PLC Lab | | | 1 |  |  | 2 | 3 | 60 | 40 |
| EECAP (L) | Advanced PLC Lab | | | 2 |  |  | 3 | 3 | 60 | 40 |
| EECAP (T) | Advanced PLC & Basics of SCADA | | | 3 | 3 |  |  | 3 | 40 | 60 |
| **PROJECT** | | | | | | | | | | |
| EE 339 | Industrial Training | | | 4 | 0 | 0 | 0 | 3 | 60 | 40 |
| EE 435 | Industrial Training | | | 8 | 0 | 0 | 0 | 3 | 60 | 40 |
| EE 434 | Project | | | 15 | 0 | 0 | 3 | 3 | 60 | 40 |
| **DISSERTATION** | | | | | | | | | | |
| DI 601 | Pre Dissertation/ Minor Project | | | 5 |  |  |  |  |  |  |
| D1 602 | M.Tech Dissertation / Thesis | | | 16 |  |  |  | 3 | 60 | 40 |
| **SEMINAR** | | | | | | | | | | |
| EE 437 | | Seminar | | 4 | 0 | 0 | 2 | 3 | 60 | 40 |
| SM 501 | | Review Seminar 1 | | 2 |  |  | 3 | 3 | 60 | 40 |
| SM 502 | | Review Seminar 2 | | 2 |  |  | 3 | 3 | 60 | 40 |
| EE 651 | | M.Tech Seminar | | 2 |  |  | 3 | 3 | 60 | 40 |
| **DISCIPLINE** | | | | | | | | | | |
| PC 201 | Proficiency and Co-Curricular Activities – III | | | 2 |  |  |  |  | 100 |  |
| PC 202 | Proficiency and Co-Curricular Activities – IV | | | 2 |  |  |  |  | 100 |  |
| PC 301 | Proficiency and Co-Curricular Activities – V | | | 2 |  |  |  |  | 100 |  |
| PC 302 | Proficiency and Co-Curricular Activities – VI | | | 2 |  |  |  |  | 100 |  |
| PC 401 | Proficiency and Co-Curricular Activities – VII | | | 2 |  |  |  |  | 100 |  |
| PC 501 | Proficiency and Co-Curricular Activities – I | | | 2 |  |  |  |  | 100 |  |
| PC 502 | Proficiency and Co-Curricular Activities – II | | | 2 |  |  |  |  | 100 |  |
| PC 601 | Proficiency and Co-Curricular Activities – III | | | 2 |  |  |  |  | 100 |  |
| **BUSSINESS MANAGEMENT** | | | | | | | | | | |
| BM 402 | | Entrepreneurship and Management | | 3 | 3 |  |  | 3 | 40 | 60 |
| **COMPUTER ENGINEERING** | | | | | | | | | | |
| CP 607 | AI Applications to Power Systems | | | 3 | 3 |  |  | 3 | 40 | 60 |
| **MATHEMATICS** | | | | | | | | | | |
| MA502 | | | Simulation and Modelling | 3 | 3 |  |  | 3 | 40 | 60 |
| MA 501 | | | Advanced Mathematics | 3 | 3 |  |  | 3 | 40 | 60 |
| **MECHANICAL ENGINEERING** | | | | | | | | | | |
| ME 521 | | | Modelling & Planning of Energy Systems | 3 | 3 |  |  | 3 | 40 | 60 |
| ME 523 | | | Wind Energy Utilization | 3 | 3 |  |  | 3 | 40 | 60 |
| ME 525 | | | Energy Management | 3 | 3 |  |  | 3 | 40 | 60 |
| ME 527 | | | Energy Conservation Technologies | 3 | 3 |  |  | 3 | 40 | 60 |
| MAP 401 | | | BASIC OF PLC | 4 | 3 | 1 | 1 | 3 | 40 | 60 |
|  | | |  |  |  |  |  |  |  |  |
| **SOFT SKILLS** | | | | | | | | | | |
| HS 501 | Soft Skills Training I | | | 3 | 3 |  |  | 3 | 40 | 60 |
| HS-502 | Soft Skills Training II | | | 3 | 3 |  |  | 3 | 40 | 60 |
| HS 503 | Technical Writing for Engineering | | | 1 |  |  | 2 | 3 | 60 | 40 |
| HS-601 | Soft Skills Training III | | | 3 | 3 |  |  | 3 | 40 | 60 |

**LIST OF OFFERED UNIVERSITY ELECTIVE COURSES**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course Code** | **Course Name** | **Credits** | **Contact Hrs/Wk.** | | | **Exam Hrs.** | **Weightage (in%)** | |
| **L** | **T/S** | **P** | **CIE** | **ESE** |
|  |  |  |  |  |
| EECP (T) | Basic PLC | 3 | 3 |  |  | 3 | 40 | 60 |
| EECP (L) | Basic PLC Lab | 1 |  |  | 2 | 3 | 60 | 40 |
| EECAP (L) | Advanced PLC Lab | 2 |  |  | 3 | 3 | 60 | 40 |
| EECAP (T) | Advanced PLC & Basics of SCADA | 3 | 3 |  |  | 3 | 40 | 60 |
| EE 214 | Electrical Machines | 3 | 3 |  |  | 3 | 60 | 40 |
| EE 264 | Electrical Machine Lab | 1 |  |  | 2 | 3 | 60 | 40 |
|  | Disaster Management | 2 |  |  |  |  |  |  |
|  | Swatch Bharat Abhiyan | 2 |  |  |  |  |  |  |
|  | Innovation and Entrepreneurship | 3 |  |  |  |  |  |  |
|  | Consumer Affairs | 2 |  |  |  |  |  |  |

**Note: The University Elective Courses are to be offered both semesters (Autumn and Spring).**

**EMPLOYABILITY SKILLS**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course Code** | **Course Name** | **Credits** | **Contact Hrs/Wk.** | | | **Exam Hrs.** | **Weightage (in%)** | |
| **L** | **T/S** | **P** | **CIE** | **ESE** |
|  |  |  |  |  |
| EM 501 | Employability Skills | 1 |  | 2 |  | 3 | 40 | 60 |
| EM 502 | Employability Skills | 1 |  | 2 |  | 3 | 60 | 40 |