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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Bachelor of Technology (Computer Science & Engineering)** | | | | | | | | | | |
| **Credit-Based Scheme of Studies/Examination** | | | | | | | | | | |
| **Semester V (w.e.f. session 2020-2021 )** | | | | | | | | | | |
| **S. No.** | **Course Code** | **Subject** | **L:T:P** | **Hours/Week** | **Credits** | **Examination Schedule (Marks)** | | | | **Duration of Exam (Hrs)** |
|
| **Major Test** | **Minor Test** | **Practical** | **Total** |
| 1 | ES-301 | Microprocessor & Interfacing | 3:0:0 | 3 | 3 | 75 | 25 | 0 | 100 | 3 |
| 2 | PC-CS-301 | Database Management Systems | 3:0:0 | 3 | 3 | 75 | 25 | 0 | 100 | 3 |
| 3 | PC-CS-303 | Formal Language & Automata Theory | 3:0:0 | 3 | 3 | 75 | 25 | 0 | 100 | 3 |
| 4 | PC-CS-305 | Essential of Information Technology | 3:0:0 | 3 | 3 | 75 | 25 | 0 | 100 | 3 |
| 5 | PC-CS-307 | Computer Organization & Architecture | 2:0:0 | 2 | 2 | 75 | 25 | 0 | 100 | 3 |
| 6 | PEC | Elective-I | 3:0:0 | 3 | 3 | 75 | 25 | 0 | 100 | 3 |
| 7 | PC-CS-309L | Database Management Systems Lab | 0:0:4 | 4 | 2 | 0 | 40 | 60 | 100 | 3 |
| 8 | PC-CS-311L | Essential of Information Technology Lab | 0:0:4 | 4 | 2 | 0 | 40 | 60 | 100 | 3 |
| **Total** | | |  | **25** | **21** | **450** | **230** | **120** | **800** |  |
| 9 | MC-904 | Energy Resources & Management | 3:0:0 | 3 | 0 | 75 | 25 | 0 | 100 | 3 |
| 10 | SIM-301\* | Seminar on Summer Internship | 2:0:0 | 2 | 0 | 0 | 50 | 0 | 50 |  |

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| **PEC Elective-I** |
| Digital Data Communication: PE-CS-T301 |
| Parallel and Distributed Computing: PE-CS-T303 |
| Information Theory and Coding: PE-CS-T305 |
| Advanced Algorithms: PE-CS-T307 |

**\*Note:** SIM-301\* is a mandatory credit-less course in which the students will be evaluated for the Summer Internship undergone after 4th semester and students will be required to get passing marks to qualify.

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| **MC-904** | **ENERGY RESOURCES & MANAGEMENT** | | | | | | |
| **Lecture** | **Tutorial** | **Practical** | **Credit** | **Major Test** | **Minor Test** | **Total** | **Time** |
| **3** | **-** | **-** | **0** | **75** | **25** | **100** | **3** |
| **Purpose** | To make the students conversant with the basics concepts and conversion of various form of Energy | | | | | | |
| **COURSE OUTCOMES** | | | | | | | |
| **CO1** | An overview about Energy Resources, Conventional and Non-conventional sources | | | | | | |
| **CO2** | Understand the Layout and working of Conventional Power Plants | | | | | | |
| **CO3** | Understand the Layout and working of Non-Conventional Power Plants | | | | | | |
| **CO4** | To understand the Energy Management, Audit and tariffs, Role of Energy in Economic development and Energy Scenario in India | | | | | | |

**UNIT-I**

**Introduction**: Types of energy, Conversion of various forms of energy, Conventional and Non-conventional sources, Need for Non-Conventional Energy based power generation.

**UNIT-II**

**Conventional Energy sources:** Types ofConventional Energy sources, Selection of site**,** working of Thermal, Hydro, Nuclear and Diesel power plants and their schematic diagrams & their comparative advantages/ disadvantages.

**UNIT-III**

**Non-Conventional Energy sources:** Types ofNon-Conventional Energy sources , Basic principle, site selection of Solar energy power plant, photovoltaic technologies, PV Systems and their components, Wind energy power plant , Bio energy plants ,Geothermal energy plants and Tidal energy plants.

**UNIT-IV**

**Energy Management:** General Principles of Energy Management, Energy Management Strategy, Modern trends and developments towards Computerizations of Power System.

**Energy Audit:** Need, Types, Methodology and Approach.

**Energy Scenario**: Lay out of power system, Role of Energy in Economic development, energy demand, availability and consumption, Indian energy scenario, long term energy scenario, energy sector reforms in India, energy strategy for the future.

**References:**

1. Energy Studies-Wiley Dream Tech India.
2. Non-conventional energy resources- Shobhnath Singh, Pearson.
3. Electrical Power Systems : Soni, Gupta, Bhatnagar – Dhanpat Rai & Sons
4. NEDCAP: Non Conventional Energy Guide Lines
5. Non conventional energy sources : G.D. Roy
6. Non Conventional energy resources :B H Khan - McGraw Hill
7. Applied Solar Energy : Meinel A B - Addison Wesley Publications
8. Direct Energy Conversion George: Sutton -McGraw