**Course Scheme for Post Graduate Programme**

**in**

**Instrumentation and Control Engineering**

****

**Department of Electrical & Instrumentation Engineering**

**Sant Longowal Institute of Engineering & Technology**

**Longowal-148106**

**Phone: 01672-253119/253120 Fax: 01672-280057**

**Website:** [**www.sliet.ac.in**](http://www.sliet.ac.in)

**M.TECH. (CONTROL AND INSTRUMENTATION ENGINEERING)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Semester-I** | | | | | | | |
| **S. No.** | **Subject Code** | **Subject Name** | **L** | **T** | **P** | **Hrs.** | **Credits** |
| 1 | PCIE-811 | Instrumentation System Design | 3 | 0 | 0 | 3 | 3 |
| 2 | PCIE-812 | Non-Linear and Adaptive Control | 3 | 0 | 0 | 3 | 3 |
| 3 | PEIE-811 | Core Elective-1 | 3 | 0 | 0 | 3 | 3 |
| 4 | PEIE-812 | Core Elective-2 | 3 | 0 | 0 | 3 | 3 |
| 5 | CCIE-811 | Research Methodology and IPR | 2 | 0 | 0 | 2 | 2 |
| 6 | ACIE-811 | Audit Course-1 | 2 | 0 | 0 | 2 | 0 |
| 7 | PCIE-813 | Instrumentation System Design Lab | 0 | 0 | 4 | 4 | 2 |
| 8 | PCIE-814 | Modelling and Simulation Lab–I | 0 | 0 | 4 | 4 | 2 |
|  |  | **Total** | **16** | **0** | **8** | **24** | **18** |
|  | | | | | | | |
| **Semester-II (A)** | | | | | | | |
| **Sr. No.** | **Subject Code** | **Subject Name** | **L** | **T** | **P** | **Hrs.** | **Credits** |
| 1 | PCIE-821 | Industrial Process Control | 3 | 1 | 0 | 4 | 4 |
| 2 | PCIE-822 | Advanced Bio-Medical Instrumentation | 3 | 0 | 0 | 3 | 3 |
| 3 | PEIE-821 | Core Elective-3 | 3 | 0 | 0 | 3 | 3 |
| 4 | PEIE-822 | Core Elective-4 | 3 | 0 | 0 | 3 | 3 |
| 5 | ACIE-821 | Audit Course-2 | 2 | 0 | 0 | 2 | 0 |
| 6 | PCIE-823 | Advanced Bio-Medical Instrumentation Lab | 0 | 0 | 4 | 4 | 2 |
| 7 | PCIE-824 | Modelling and Simulation Lab–II | 0 | 0 | 4 | 4 | 2 |
| 8 | PCIE-825 | Seminar | 0 | 0 | 2 | 2 | 1 |
|  |  | **Total** | **14** | **1** | **10** | **25** | **18** |
|  | | | | | | | |
| **Semester-II (B)** | | | | | | | |
|  | Four weeks training in reputed industry/laboratory in Institutions of repute such as IITs, NITs, CSIR, DRDO, CSIO etc. | |  |  |  | 160 | S/US |
|  | | | | | | | |
| **Semester-III** | | | | | | | |
| **Sr. No.** | **Subject Code** | **Subject Name** | **L** | **T** | **P** | **Hrs.** | **Credits** |
| 1 | PEIE-911 | Core Elective-5 | 3 | 0 | 0 | 3 | 3 |
| 2 | OEIE-911 | Open Elective | 3 | 0 | 0 | 3 | 3 |
| 3 | PCIE-911 | Dissertation (Part-1) | 0 | 0 | 20 | 20 | 10 |
|  |  | **Total** | **6** | **0** | **20** | **26** | **16** |
|  | | | | | | | |
| **Semester-IV** | | | | | | | |
| **Subject Code** | | **Subject Name** | **L** | **T** | **P** | **Hrs.** | **Credits** |
| PCIE-921 | | Dissertation (Part-2) | 0 | 0 | 32 | 32 | 16 |
| **Total** | | | **0** | **0** | **32** | **32** | **16** |

**Total Credits: 68**

**LIST OF PROGRAM SPECIFIC/ CORE ELECTIVE COURSES**

|  |  |  |
| --- | --- | --- |
| **CORE ELECTIVE-1 (PEIE-811)** | | |
| **Sr. No.** | **Subject Code** | **Subject Name** |
| 1 | PEIE-811A | Data Communication |
| 2 | PEIE-811B | Microcontroller and Embedded Systems |
| 3 | PEIE-811C | Instrumentation for Environmental Engineering |
| 4 | PEIE-811D | Power Plant Instrumentation |
|  |  |  |
| **CORE ELECTIVE-2 (PEIE-812)** | | |
| **Sr. No.** | **Subject Code** | **Subject Name** |
| 1 | PEIE-812A | Random and Stochastic Processes |
| 2 | PEIE-812B | Energy Auditing and Management |
| 3 | PEIE-812C | Power System Stability and Control |
| 4 | PEIE-812D | Neuro Fuzzy Control |
|  |  |  |
| **CORE ELECTIVE-3 (PEIE 821)** | | |
| **Sr. No.** | **Subject Code** | **Subject Name** |
| 1 | PEIE 821A | Industrial Process Control |
| 2 | PEIE 821B | Telemetry and Remote Control |
| 3 | PEIE 821C | Multi Range Signal Processing |
| 4 | PEIE-821D | Industrial Electronics |
|  |  |  |
| **CORE ELECTIVE-4 (PEIE 822)** | | |
| **Sr. No.** | **Subject Code** | **Subject Name** |
| 1 | PEIE 822A | Optimal and Robust Control |
| 2 | PEIE 822B | Computational Electromagnetics |
| 3 | PEIE 822C | Control System Design |
| 4 | PEIE-822D | Intelligent Control |
|  |  |  |
| **CORE ELECTIVE-5 (PEIE 911)** | | |
| **Sr. No.** | **Subject Code** | **Subject Name** |
| 1 | PEIE 911A | Microprocessor Applications in Instrumentation |
| 2 | PEIE 911B | Robotics Engineering |
| 3 | PEIE 911C | Opto Electronics and Instrumentation |
| 4 | PEIE-911D | System Identification and Parameter Estimation |

|  |  |  |
| --- | --- | --- |
| **OPEN ELECTIVE COURSE (OEIE-911)** | | |
| **Sr. No.** | **Subject Code** | **Subject Name** |
| 1 | OEIE-911A | Microcontroller and Embedded Systems |
| 2 | OEIE-911B/ PEIE-812B | Energy Auditing and Management |
| 3 | OEIE-911C | Virtual Instrumentation and Data Acquisition |
| 4 | OEIE-911D | Industrial Safety |
| 5 | OEIE-911E | Soft Computing Techniques |
| 6 | OEIE-911F | Medical Image Processing |
| 7 | OEIE-911G | Solar and Wind Power Technologies |