

**DEPARTMENT OF ELECTRICAL ENGINEERING
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE**

Program Code: **26** **M.Tech. (Instrumentation & Signal Processing)**
 Department: **EE** **Department of Electrical Engineering**
 Year: **I**

| Teaching Scheme | | | | | Contact Hours/Week | | | Exam Duration | | Relative Weight (%) | | | | |
|-----------------------------|--------------|--|--------------|---------|--------------------|---|---|---------------|-----------|---------------------|-----|-----|-----|-----|
| S. No. | Subject Code | Course Title | Subject Area | Credits | L | T | P | Theory | Practical | CWS | PRS | MTE | ETE | PRE |
| Semester- I (Autumn) | | | | | | | | | | | | | | |
| 1. | EEN-520 | Advanced Industrial and Electronic Instrumentation | PCC | 4 | 3 | 0 | 2 | 3 | - | 15 | 25 | 20 | 40 | - |
| 2. | EEN-521 | Digital Signal and Image Processing | PCC | 4 | 3 | 0 | 2 | 3 | - | 15 | 25 | 20 | 40 | - |
| 3. | EEN-522 | Biomedical Instrumentation | PCC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 4. | EEN-523 | Instrumentation laboratory | PCC | 2 | 0 | 0 | 4 | - | - | - | 100 | - | - | - |
| 5. | EEN-xxx | Program Elective Course-I | PEC | 4 | - | - | - | - | - | - | - | - | - | - |
| | | Total | | 18 | 9 | 1 | 8 | - | - | - | - | - | - | - |
| Semester-II (Spring) | | | | | | | | | | | | | | |
| 1. | EEN-524 | Intelligent Sensors and Instrumentation | PCC | 4 | 3 | 0 | 2 | 3 | - | 15 | 25 | 20 | 40 | - |
| 2. | EEN-700 | Seminar | SEM | 2 | - | - | - | - | - | - | - | - | 100 | - |
| 3. | EEN-xxx | Program Elective Course-II | PEC | 4 | - | - | - | - | - | - | - | - | - | - |
| 4. | EEN-xxx | Program Elective Course-III | PEC | 4 | - | - | - | - | - | - | - | - | - | - |
| 5. | EEN-xxx | Program Elective Course-IV | PEC | 4 | - | - | - | - | - | - | - | - | - | - |
| | | Total | | 18 | 3 | 0 | 2 | - | - | - | - | - | - | - |

**DEPARTMENT OF ELECTRICAL ENGINEERING
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE**

Program Code: **26** **M.Tech. (Instrumentation & Signal Processing)**
 Department: **EE** **Department of Electrical Engineering**
 Year: **II**

| Teaching Scheme | | | | | Contact Hours/Week | | | Exam Duration | | Relative Weight (%) | | | | |
|--|--------------|---|--------------|---------|--------------------|---|---|---------------|-----------|---------------------|-----|-----|-----|-----|
| S. No. | Subject Code | Course Title | Subject Area | Credits | L | T | P | Theory | Practical | CWS | PRS | MTE | ETE | PRE |
| Semester- I (Autumn) | | | | | | | | | | | | | | |
| 1. | EEN-701A | Dissertation Stage-I (to be continued next semester) | DIS | 12 | - | - | - | - | - | - | - | - | 100 | - |
| | | Total | | 12 | | | | | | | | | | |
| Note: Students can take 1 or 2 audit courses as advised by the supervisor, if required. | | | | | | | | | | | | | | |
| Semester-II (Spring) | | | | | | | | | | | | | | |
| 1. | EEN-701B | Dissertation Stage-II (contd. From III semester) | DIS | 18 | - | - | - | - | - | - | - | - | 100 | - |
| | | Total | | 18 | | | | | | | | | | |

| Summary | | | | |
|------------------------------------|-----------|-----------|-----------|-----------|
| Semester | 1 | 2 | 3 | 4 |
| Semester-wise Total Credits | 18 | 18 | 12 | 18 |
| Total Credits | 66 | | | |

Program Elective Courses (I&SP)

| Teaching Scheme | | | | | Contact Hours/Week | | | Exam Duration | | Relative Weight (%) | | | | |
|-----------------|--------------|--|--------------|---------|--------------------|---|---|---------------|-----------|---------------------|-----|-----|-----|-----|
| S. No. | Subject Code | Course Title | Subject Area | Credits | L | T | P | Theory | Practical | CWS | PRS | MTE | ETE | PRE |
| 1. | EEN-620 | Process Instrumentation and Control | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 2. | EEN-621 | Noise and Interference in Instrumentation | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 3. | EEN-622 | Power System Instrumentation | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 4. | EEN-623 | Measurement Errors and Statistical Analysis | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 5. | EEN-624 | Telemetry and SCADA | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 6. | EEN-625 | Virtual Instrumentation | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 7. | EEN-626 | Advances in Signal and Image Processing | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 8. | EEN-627 | Ultrasonic and Laser Instrumentation | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 9. | EEN-628 | Medical Imaging | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 10. | EEN-629 | Bioelectric Signals and Processing | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 11. | EEN-630 | Computer Applications in Medical Engineering | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 12. | EEN-631 | Microprocessor Based Medical Instruments | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 13. | EEN-632 | Hospital Informatics and safety Measures | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 14. | EEN-633 | Clinical Engineering | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 15. | EEN-668 | Digital Protection of Power Systems | PEC | 4 | 3 | 0 | 2 | 3 | - | 15 | 25 | 20 | 40 | - |
| 16. | EEN-682 | Advanced Digital System Design | PEC | 4 | 3 | 0 | 2 | 3 | - | 15 | 25 | 20 | 40 | - |
| 17. | EEN-690 | Advanced Computer Controlled Systems | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |