

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

Program Code: **28** **M.Tech. (Systems & Control)**
 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. | MAN-561 | Mathematics | PCC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 2. | EEN-580 | Advanced Linear Control Systems | PCC | 4 | 3 | 1 | 2/2 | 3 | - | 20 | 20 | 20 | 40 | - |
| 3. | EEN-581 | Intelligent Control Techniques | PCC | 4 | 3 | 0 | 2 | 3 | - | 15 | 25 | 20 | 40 | - |
| 4. | EEN-582 | Advanced System Engineering | PCC | 4 | 3 | 0 | 2 | 3 | - | 15 | 25 | 20 | 40 | - |
| 5. | EEN-xxx | Program Elective Course-I | PEC | 4 | - | - | - | - | - | - | - | - | - | - |
| | | Total | | 20 | 12 | 2 | 5 | - | - | - | - | - | - | - |
| Semester-II (Spring) | | | | | | | | | | | | | | |
| 1. | EEN-583 | Non Linear and Robust Control | PCC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 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 | 1 | 0 | - | - | - | - | - | - | - |

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

Program Code: **28** **M.Tech. (Systems & Control)**
 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 –II (contd. From III semester) | DIS | 18 | - | - | - | - | - | - | - | - | 100 | - |
| | | Total | | 18 | | | | | | | | | | |

| Summary | | | | |
|------------------------------------|-----------|-----------|-----------|-----------|
| Semester | 1 | 2 | 3 | 4 |
| Semester-wise Total Credits | 20 | 18 | 12 | 18 |
| Total Credits | 68 | | | |

Program Elective Courses (S&C)

| 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-680 | Machine Learning | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 2. | EEN-681 | Wide Area System Monitoring Control | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 3. | EEN-682 | Advanced Digital System Design | PEC | 4 | 3 | 0 | 2 | 3 | - | 15 | 25 | 20 | 40 | - |
| 4. | EEN-683 | Introduction to Robotics | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 5. | EEN-684 | System Reliability | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 6. | EEN-685 | Stochastic Systems | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 7. | EEN-686 | Optimal Control | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 8. | EEN-687 | Operations Research | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 9. | EEN-688 | Interval Control Systems | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 10. | EEN-689 | Modeling and Simulation | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 11. | EEN-690 | Advanced Computer Controlled Systems | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 12. | EEN-691 | Data Structures | PEC | 4 | 3 | 0 | 2 | 3 | - | 15 | 25 | 20 | 40 | - |
| 13. | EEN-692 | Graph Theory and Applications | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 14. | EEN-693 | Advanced Microprocessor and Applications | PEC | 4 | 3 | 0 | 2 | 3 | - | 15 | 25 | 20 | 40 | - |
| 15. | EEN-694 | Advances in Model Order Reduction Techniques | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 16. | EEN-561 | Power System Operation and Control | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 17. | EEN-667 | Power System Reliability | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 18. | EEN-669 | Power System Dynamics | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |

| | | | | | | | | | | | | | | |
|-----|---------|---|-----|---|---|---|---|---|---|----|----|----|----|---|
| 19. | EEN-521 | Digital Signal and Image Processing | PEC | 4 | 3 | 0 | 2 | 3 | - | 15 | 25 | 20 | 40 | - |
| 20. | EEN-620 | Process Instrumentation and Control | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 21. | EEN-624 | Telemetry and SCADA | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |
| 22. | EEN-626 | Advances in Signal and Image Processing | PEC | 4 | 3 | 1 | 0 | 3 | - | 25 | - | 25 | 50 | - |