***Structure of MS in Electronic Engineering***

|  |  |  |
| --- | --- | --- |
| **Category or Area** | **Courses** | **Credit Hours** |
| Core Courses | 3 | 9 |
| Elective Courses | 5 | 15 |
| Thesis work | - | 6 |
| **Total Credit Hours** | **-** | **30** |

***Semester wise Course Breakdown***

|  |  |
| --- | --- |
| **First Semester** | Three (3) Core Courses |
| Second Semester | Three (3) Elective Courses |
| Third Semester | Two (2) Elective Courses |
| Fourth Semester Onwards | Thesis Work |

**LIST OF CORE COURSES FOR MS ELECTRONIC ENGINEERING**

|  |  |  |
| --- | --- | --- |
| **Course Code** | **Subject** | **Credit Hours** |
| **RES-504** | **Research Methodology** | **3+0** |
| **EE-6XX** | **Computational Methods** | **3+0** |
| **EE-6XX** | **Frontiers of ICT** | **3+0** |

**LIST OF ELECTIVE COURSES FOR MS ELECTRONIC ENGINEERING**

1. **AI and Robotics**
2. AI and Robotics
3. Reinforcement Learning
4. Deep Learning
5. Machine Learning
6. Advanced Robotics
7. Computer Vision
8. Stochastic Processes
9. Digital Image Processing
10. AI in Self-Driving Cars
11. Advanced Robotic Systems
12. Mathematics for Machine Learning
13. Neural Networks
14. Advanced Topics in Robotics
15. Mechatronics and Robotics
16. Unmanned Air Vehicles (UAVs)
17. **Nano Photonic Materials and Devices**
    * + 1. Advanced Opto-Electronics
        2. Opto-Electronics Devices
        3. MEMS Sensor Design
        4. Advanced Topics in Opto-Electronics
        5. Semiconductor Device Theory
        6. Semiconductor Device Physics
        7. Semiconductor Processing
        8. Photonics
        9. Nanotechnology
        10. Computational Mathematics
        11. Computational Electromagnetics
18. **Electronic System Design**
19. Electric Vehicles and Storage Technologies
20. Amplifier Design
21. RF and IF Amplifiers
22. Non-Linear Control Systems
23. Microprocessor System Design
24. Electronics Circuit Design
25. IC Design
26. Oscillators
27. Advanced Industrial Electronics
28. Advanced VLSI Design
29. Advanced Instrumentation Systems
30. Advanced Integrated Electronics
31. Advanced Topics in Embedded Systems
32. Advanced Digital Systems
33. **Industrial Electronics**
34. Advanced Computer Vision
35. Non-Linear Control Systems
36. Advanced Digital Control Systems
37. Advanced Analog Control Systems
38. Advanced Topics in Control Systems
39. Linear System Theory
40. Dynamics and Motion Control
41. Embedded Systems for Mechatronics
42. Advanced Modeling and Simulation in Mechatronics
43. Statistical Estimation
44. Mathematical Optimization
45. Advanced Mathematical Methods
46. Engineering Dynamics
47. Mechanics of Materials
48. Automated Manufacturing System
49. Electronic Textiles
50. Smart Medical Textiles
51. Advanced Topics in E-Textiles
52. Advanced Power Electronics
53. Electric Drives
54. Switched-Mode Convertors Analysis Design
55. Advanced Topics in Power Electronics
56. Renewable Energy Systems
57. Solar and Thermal Energy Systems
58. Power System Protection
59. Advanced Topics in Energy Systems
60. Engineering Management
61. Project Management
62. **Communications and Signal Processing**
63. Advanced Digital Communication Techniques
64. Advanced Digital Signal Processing
65. Geological Information Systems
66. Stochastic Processes
67. Advanced Topics in Signal Processing
68. Advanced Digital Communication
69. Antenna Design
70. Multiple Antenna Systems
71. Microwave Engineering
72. Satellite Communication
73. Broadband Communication Networks
74. Wireless Sensor Networks
75. Network Security
76. Internet of Things
77. Cluster and Cloud Computing
78. Advanced Wireless Communication

Note:

1. At least two (2) of the elective courses must be from one specialization stream
2. Subjects may be added to above list according to availably of faculty.