



Curriculum and Syllabi

B.E. MECHATRONICS ENGINEERING

SEMESTERS I to VIII

Regulations 2025

Programme: B.E. MECHATRONICS ENGINEERING

2025 Regulations

(2025-29 Batch Onwards)

Curriculum for Semesters I to VIII

SEMESTER I

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/External Marks | Course Category |
|------------------------------|-------------|---|----------------|---|---|----|---------------|----|----|----|---------------------------------|---------|-------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| 1 | 25IP101 | Makerspace - Induction Program | - | - | - | - | - | - | - | - | - | 0 | - | - |
| Theory Cum Practical Courses | | | | | | | | | | | | | | |
| 2 | 25ES101 | Problem Solving Techniques using Python | 3 | 0 | 2 | 3 | 45 | 0 | 30 | 45 | 120 | 4 | 50/50 | ES |
| 3 | 25HS101 | English for Communication | 3 | 0 | 2 | 3 | 45 | 0 | 30 | 45 | 120 | 4 | 50/50 | HS |
| 4 | 25ES102 | Innovation and Design Thinking | 1 | 0 | 2 | 1 | 15 | 0 | 30 | 15 | 60 | 2 | 100/0 | ES |
| Theory Courses | | | | | | | | | | | | | | |
| 5 | 25MA101 | Matrices and Calculus | 3 | 1 | 0 | 4 | 45 | 15 | 0 | 60 | 120 | 4 | 40/60 | BS |
| 6 | 25PH101 | Applied Engineering Physics | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | BS |
| 7 | 25ES103 | Engineering Graphics | 2 | 1 | 0 | 3 | 30 | 15 | 0 | 45 | 90 | 3 | 40/60 | ES |
| 8 | 25AC101 | Heritage of Tamils | 1 | 0 | 0 | 1 | 15 | 0 | 0 | 15 | 30 | 1 | 100/0 | AC |
| Practical Course | | | | | | | | | | | | | | |
| 9 | 25ES104 | Engineering Practices Laboratory | 0 | 0 | 4 | 0 | 0 | 0 | 60 | 0 | 60 | 2 | 60/40 | ES |

SEMESTER II

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/External Marks | Course Category |
|------------------------------|-------------|--|----------------|---|---|----|---------------|----|----|----|---------------------------------|---------|-------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| Theory Cum Practical Courses | | | | | | | | | | | | | | |
| 1 | 25ES201 | Product Design and Development | 1 | 0 | 2 | 1 | 15 | 0 | 30 | 15 | 60 | 2 | 100/0 | ES |
| 2 | 25ES205 | Electronic Devices and Circuits | 3 | 0 | 2 | 3 | 45 | 0 | 30 | 45 | 120 | 4 | 50/50 | ES |
| 3 | 25ME201 | Conventional and Digital Manufacturing | 1 | 0 | 4 | 1 | 15 | 0 | 60 | 15 | 90 | 3 | 50/50 | PC |
| Theory Courses | | | | | | | | | | | | | | |
| 4 | 25MA201 | Numerical Techniques | 3 | 1 | 0 | 4 | 45 | 15 | 0 | 60 | 120 | 4 | 40/60 | BS |
| 5 | 25ES202 | Engineering | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | ES |

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/External Marks | Course Category |
|--------|-------------|------------------------|----------------|---|---|----|---------------|---|---|----|---------------------------------|---------|-------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| | | Mechanics | | | | | | | | | | | | |
| 6 | 25CH201 | Engineering Chemistry | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | BS |
| 7 | 25HS201 | Universal Human Values | 2 | 0 | 0 | 2 | 30 | 0 | 0 | 30 | 60 | 2 | 40/60 | HS |
| 8 | 25HS202 | Business Communication | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | HS |
| 9 | 25AC201 | Tamils and Technology | 1 | 0 | 0 | 1 | 15 | 0 | 0 | 15 | 30 | 1 | 100/0 | AC |
| 10 | | Foreign Language | 2 | 0 | 0 | 2 | 30 | 0 | 0 | 30 | 60 | 2 | 100/0 | HS |
| 11 | | Value Added Course | 1 | 0 | 0 | 1 | 15 | 0 | 0 | 15 | 30 | 1 | 100/0 | VAC* |

*Value Added Course is Optional

SEMESTER III

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/External Marks | Course Category |
|------------------------------|-------------|---|----------------|---|---|----|---------------|----|----|----|---------------------------------|---------|-------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| Theory Cum Practical Courses | | | | | | | | | | | | | | |
| 1 | 25MT301 | Digital Electronics | 1 | 0 | 4 | 1 | 15 | 0 | 60 | 15 | 90 | 3 | 50/50 | PC |
| 2 | 25MT302 | Electrical Drives and Controls | 3 | 0 | 2 | 3 | 45 | 0 | 30 | 45 | 120 | 4 | 50/50 | PC |
| Theory Courses | | | | | | | | | | | | | | |
| 3 | 25MA301 | Transform Techniques and Partial Differential Equations | 3 | 1 | 0 | 4 | 45 | 15 | 0 | 60 | 120 | 4 | 40/60 | BS |
| 4 | 25MT303 | Mechanics of Fluids and Solids | 3 | 1 | 0 | 4 | 45 | 15 | 0 | 60 | 120 | 4 | 40/60 | PC |
| 5 | 25MT304 | Thermal Systems Engineering | 3 | 1 | 0 | 4 | 45 | 15 | 0 | 60 | 120 | 4 | 40/60 | PC |
| 6 | 25EEC304 | Aptitude and Soft Skills - I | 1 | 0 | 0 | 1 | 15 | 0 | 0 | 15 | 30 | 1 | 100/0 | EEC |
| Practical Courses | | | | | | | | | | | | | | |
| 7 | 25ME305 | Machine Drawing with GD&T | 0 | 0 | 4 | 0 | 0 | 0 | 60 | 0 | 60 | 2 | 60/40 | PC |
| 8 | 25EEC305 | Industrial Training - I | - | - | - | - | - | - | - | - | 2 Weeks | 1 | 100/0 | EEC |

SEMESTER IV

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/External Marks | Course Category |
|------------------------------|-------------|------------------------------------|----------------|---|---|----|---------------|---|----|----|---------------------------------|---------|-------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| Theory Cum Practical Courses | | | | | | | | | | | | | | |
| 1 | 25MT401 | Microprocessor and Microcontroller | 3 | 0 | 2 | 3 | 45 | 0 | 30 | 45 | 120 | 4 | 50/50 | PC |
| 2 | 25MT402 | Robotic Vision Systems | 3 | 0 | 2 | 3 | 45 | 0 | 30 | 45 | 120 | 4 | 50/50 | PC |
| 3 | 25ME401 | Theory of | 1 | 0 | 4 | 1 | 15 | 0 | 60 | 15 | 90 | 3 | 50/50 | PC |

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/External Marks | Course Category |
|-------------------|-------------|--------------------------------------|----------------|---|---|----|---------------|----|----|----|---------------------------------|---------|-------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| | | Machines | | | | | | | | | | | | |
| Theory Courses | | | | | | | | | | | | | | |
| 4 | 25MA302 | Probability and Statistics | 3 | 1 | 0 | 4 | 45 | 15 | 0 | 60 | 120 | 4 | 40/60 | BS |
| 5 | | Open Elective I | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 6 | 25EEC401 | Aptitude and Soft Skills - II | 1 | 0 | 0 | 1 | 15 | 0 | 0 | 15 | 30 | 1 | 100/0 | EEC |
| 7 | 25MC405 | Disaster Management and Preparedness | 3 | 0 | 0 | 0 | 45 | 0 | 0 | 0 | 45 | 0 | 100/0 | MC |
| Practical Courses | | | | | | | | | | | | | | |
| 8 | 25ME405 | Computer Aided Modelling Laboratory | 0 | 0 | 4 | 0 | 0 | 0 | 60 | 0 | 60 | 2 | 60/40 | PC |

SEMESTER V

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/External Marks | Course Category |
|------------------------------|-------------|---------------------------------------|----------------|---|---|----|---------------|----|----|----|---------------------------------|---------|-------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| Theory Cum Practical Courses | | | | | | | | | | | | | | |
| 1 | 25MT501 | Embedded Systems and IoT | 1 | 0 | 4 | 1 | 15 | 0 | 60 | 15 | 90 | 3 | 50/50 | PC |
| 2 | 25MT502 | Mechanical Instrumentation | 3 | 0 | 2 | 3 | 45 | 0 | 30 | 45 | 120 | 4 | 50/50 | PC |
| Theory Courses | | | | | | | | | | | | | | |
| 3 | 25ME503 | Design of Machine Elements | 3 | 1 | 0 | 4 | 45 | 15 | 0 | 60 | 120 | 4 | 40/60 | PC |
| 4 | | Professional Elective I | | | | | | | | | 90 | 3 | 40/60 | PE |
| 5 | | Open Elective II | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 6 | | Open Elective III | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 7 | 25MC501 | Industrial Safety | 3 | 0 | 0 | 0 | 45 | 0 | 0 | 0 | 45 | 0 | 100/0 | MC |
| Practical Course | | | | | | | | | | | | | | |
| 8 | 25MT503 | Modeling and Simulation using MAT LAB | 0 | 0 | 4 | 0 | 0 | 0 | 60 | 0 | 60 | 2 | 60/40 | PC |
| 9 | 25EEC501 | Industrial Training - II | - | - | - | - | - | - | - | - | 2 Weeks | 1 | 100/0 | EEC |
| For Honours Degree | | | | | | | | | | | | | | |
| 1 | | Honours Elective I | | | | | | | | | 90 | 3 | 40/60 | |
| 2 | | Honours Elective II | | | | | | | | | 90 | 3 | 40/60 | |
| For Minor Degree | | | | | | | | | | | | | | |
| 1 | | Minor Elective I | | | | | | | | | 90 | 3 | | |
| 2 | | Minor Elective II | | | | | | | | | 90 | 3 | | |

SEMESTER VI

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/External Marks | Course Category |
|-----------------------------|-------------|----------------------------------|----------------|---|---|----|---------------|---|----|----|---------------------------------|---------|-------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| Theory Cum Practical Course | | | | | | | | | | | | | | |
| 1 | 25MT601 | PLC and Automation | 1 | 0 | 4 | 1 | 15 | 0 | 60 | 15 | 90 | 3 | 50/50 | PC |
| Theory Courses | | | | | | | | | | | | | | |
| 2 | 25MT602 | Micro Electro Mechanical Systems | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PC |
| 3 | 25MT603 | CNC Technology | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PC |
| 4 | | Professional Elective II | | | | | | | | | 90 | 3 | 40/60 | PE |
| 5 | | Professional Elective III | | | | | | | | | 90 | 3 | 40/60 | PE |
| 6 | | Open Elective IV | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| Practical Course | | | | | | | | | | | | | | |
| 7 | 25MTP601 | Mini Project | 0 | 0 | 4 | 0 | 0 | 0 | 60 | 0 | 60 | 2 | 60/40 | EEC |
| For Honours Degree | | | | | | | | | | | | | | |
| 1 | | Honours Elective III | | | | | | | | | 90 | 3 | 40/60 | |
| 2 | | Honours Elective IV | | | | | | | | | 90 | 3 | 40/60 | |
| For Minor Degree | | | | | | | | | | | | | | |
| 1 | | Minor Elective III | | | | | | | | | 90 | 3 | | |
| 2 | | Minor Elective IV | | | | | | | | | 90 | 3 | | |

SEMESTER VII

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/External Marks | Course Category |
|-----------------------------|-------------|---|----------------|---|---|----|---------------|---|----|----|---------------------------------|---------|-------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| Theory Cum Practical Course | | | | | | | | | | | | | | |
| 1 | 25ES702 | Fluid Power Systems and Industrial Automation | 1 | 0 | 4 | 1 | 15 | 0 | 60 | 15 | 90 | 3 | 50/50 | ES |
| Theory Course | | | | | | | | | | | | | | |
| 2 | 25ES703 | Mechatronics System Design | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | ES |
| 3 | 25HS707 | Professional Ethics in Engineering | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | HS |
| 4 | | Professional Elective IV | | | | | | | | | 90 | 3 | 40/60 | PE |
| 5 | | Professional Elective V | | | | | | | | | 90 | 3 | 40/60 | PE |
| Practical Course | | | | | | | | | | | | | | |
| 6 | 25MTP701 | Project Work - I | 0 | 0 | 4 | 0 | 0 | 0 | 60 | 0 | 60 | 2 | 100/0 | EEC |
| For Honours Degree | | | | | | | | | | | | | | |
| 1 | | Honours Elective V | | | | | | | | | 90 | 3 | 40/60 | |
| 2 | | Honours | | | | | | | | | 90 | 3 | 40/60 | |

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/ External Marks | Course Category |
|------------------|-------------|-------------------|----------------|---|---|----|---------------|---|---|----|---------------------------------|---------|--------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| | | Elective VI | | | | | | | | | | | | |
| For Minor Degree | | | | | | | | | | | | | | |
| 1 | | Minor Elective V | | | | | | | | | 90 | 3 | | |
| 2 | | Minor Elective VI | | | | | | | | | 90 | 3 | | |

SEMESTER VIII

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/ External Marks | Course Category |
|------------------|-------------|-------------------|----------------|---|----|----|---------------|---|-----|----|---------------------------------|---------|--------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| Practical Course | | | | | | | | | | | | | | |
| 1 | 25MTP801 | Project Work - II | 0 | 0 | 20 | 0 | 0 | 0 | 300 | 0 | 300 | 10 | 60/40 | EEC |

TOTAL NO. OF CREDITS: 164

FOREIGN LANGUAGE

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/External Marks | Course Category |
|----------------|-------------|--------------|----------------|---|---|----|---------------|---|---|----|---------------------------------|---------|-------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| Theory Courses | | | | | | | | | | | | | | |
| 1 | 25HS203 | German | 2 | 0 | 0 | 2 | 30 | 0 | 0 | 30 | 60 | 2 | 100/0 | HS |
| 2 | 25HS204 | Japanese | 2 | 0 | 0 | 2 | 30 | 0 | 0 | 30 | 60 | 2 | 100/0 | HS |

VALUE ADDED COURSE

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/External Marks | Course Category |
|----------------|-------------|--------------|----------------|---|---|----|---------------|---|---|----|---------------------------------|---------|-------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| Theory Courses | | | | | | | | | | | | | | |
| 1 | 25VAC01 | French | 1 | 0 | 0 | 1 | 15 | 0 | 0 | 15 | 30 | 1 | 100/0 | VAC |
| 2 | 25VAC02 | Hindi | 1 | 0 | 0 | 1 | 15 | 0 | 0 | 15 | 30 | 1 | 100/0 | VAC |

PROFESSIONAL ELECTIVE COURSES : VERTICALS

| VERTICAL I Industrial Automation | VERTICAL II Internet of Things | VERTICAL III Modern Robotics | VERTICAL IV Simulation and Modelling | VERTICAL V Electronics Architecture and Control in Aircrafts | VERTICAL VI Applied Mechatronics | VERTICAL VII Smart Mobility Systems | VERTICAL VIII Diversified Courses Group I | VERTICAL IX Diversified Courses Group II |
|---|---|---|---|---|---|--|--|---|
| Logic and Distributed Control System | Industrial IoT | Robot Manipulators and Grippers | Robotics Simulation and Virtual Reality | Aircraft Electronic Architecture | Virtual Instrumentation | Computer Aided Design and Prototyping | RF Transceivers Design | Total Quality Management |
| Programmable Automation | Sensor for IoT Application | Human-Robot Interaction | Digital Twin | Intelligent Control Engineering | Robotics for Manufacturing | Tool Design | Body Area Networks | Renewable Energy Sources |
| Robotics and Automation | Data Analytics for IoT | Bio-inspired Robotics | Predictive Maintenance using Data Analytics | Guidance, Navigation, and Control | Medical Robotics | Wireless Sensor Networks and IoT in Automation | VLSI Testing and Design for Testability | Fuzzy Logic Control |
| Artificial Intelligence in Automation | IoT Security | Soft Robotics | Systems Engineering and Optimization | Airborne Navigation and Communication Systems | Under Water Robotics | Electric Vehicle Design | Medical Imaging Systems | Operations Research |
| Smart Factory Automation | IoT and Edge Computing | Robotics Safety and Standards | Modeling and Simulation of Mechanical Systems | Design of UAV Systems | Mechatronics in Defense | Integrated Product Design and Development | Satellite Communication | Process Planning and Cost Estimation |
| Quadcopter Technology | Cloud Services Management | Surgical Robotics | Multi-Body Dynamics Simulation | Flight Dynamics of Small Aerial Vehicles | Space Technology | Design for Manufacturing and Assembly | CAD for VLSI Design | Advanced Digital Signal Processing |

VERTICAL I : Industrial Automation

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/External Marks | Course Category |
|----------------|-------------|---------------------------------------|----------------|---|---|----|---------------|---|---|----|---------------------------------|---------|-------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| Theory Courses | | | | | | | | | | | | | | |
| 1 | 25PMT11 | Logic and Distributed Control System | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 2 | 25PMT12 | Programmable Automation | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 3 | 25PMT13 | Robotics and Automation | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 4 | 25PMT14 | Artificial Intelligence in Automation | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 5 | 25PMT15 | Smart Factory Automation | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 6 | 25PMT16 | Quadcopter Technology | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |

VERTICAL II : Internet of Things

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/External Marks | Course Category |
|----------------|-------------|----------------------------|----------------|---|---|----|---------------|----|---|----|---------------------------------|---------|-------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| Theory Courses | | | | | | | | | | | | | | |
| 1 | 25PMT21 | Industrial IoT | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 2 | 25PMT22 | Sensor for IoT Application | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 3 | 25PMT23 | Data Analytics for IoT | 2 | 1 | 0 | 3 | 30 | 15 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 4 | 25PMT24 | IoT Security | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 5 | 25PMT25 | IoT and Edge Computing | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 6 | 25PMT26 | Cloud Services Management | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |

VERTICAL III : Modern Robotics

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/External Marks | Course Category |
|----------------|-------------|---------------------------------|----------------|---|---|----|---------------|---|---|----|---------------------------------|---------|-------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| Theory Courses | | | | | | | | | | | | | | |
| 1 | 25PMT31 | Robot Manipulators and Grippers | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 2 | 25PMT32 | Human-Robot Interaction | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 3 | 25PMT33 | Bio-inspired Robotics | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 4 | 25PMT34 | Soft Robotics | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 5 | 25PMT35 | Robotics Safety and Standards | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 6 | 25PMT36 | Surgical Robotics | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |

VERTICAL IV : Simulation and Modelling

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/External Marks | Course Category |
|----------------|-------------|---|----------------|---|---|----|---------------|---|---|----|---------------------------------|---------|-------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| Theory Courses | | | | | | | | | | | | | | |
| 1 | 25PMT41 | Robotics Simulation and Virtual Reality | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 2 | 25PMT42 | Digital Twin | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 3 | 25PMT43 | Predictive Maintenance using Data Analytics | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 4 | 25PMT44 | Systems Engineering and Optimization | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 5 | 25PMT45 | Modeling and Simulation of Mechanical Systems | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 6 | 25PMT46 | Multi-Body Dynamics Simulation | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |

VERTICAL V : Electronics Architecture and Control in Aircraft

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/External Marks | Course Category |
|----------------|-------------|---|----------------|---|---|----|---------------|---|---|----|---------------------------------|---------|-------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| Theory Courses | | | | | | | | | | | | | | |
| 1 | 25PMT51 | Aircraft Electronic Architecture | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 2 | 25PMT52 | Intelligent Control Engineering | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 3 | 25PMT53 | Guidance, Navigation, and Control | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 4 | 25PMT54 | Airborne Navigation and Communication Systems | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 5 | 25PMT55 | Design of UAV Systems | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 6 | 25PMT56 | Flight Dynamics of Small Aerial Vehicles | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |

VERTICAL VI : Applied Mechatronics

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/External Marks | Course Category |
|----------------|-------------|-------------------------|----------------|---|---|----|---------------|---|---|----|---------------------------------|---------|-------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| Theory Courses | | | | | | | | | | | | | | |
| 1 | 25PMT61 | Virtual Instrumentation | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/External Marks | Course Category |
|--------|-------------|----------------------------|----------------|---|---|----|---------------|---|---|----|---------------------------------|---------|-------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| 2 | 25PMT62 | Robotics for Manufacturing | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 3 | 25PMT63 | Medical Robotics | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 4 | 25PMT64 | Under Water Robotics | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 5 | 25PMT65 | Mechatronics in Defense | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 6 | 25PMT66 | Space Technology | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |

VERTICAL VII : Smart Mobility Systems

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/External Marks | Course Category |
|----------------|-------------|--|----------------|---|---|----|---------------|---|---|----|---------------------------------|---------|-------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| Theory Courses | | | | | | | | | | | | | | |
| 1 | 25PMT71 | Computer Aided Design and Prototyping | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 2 | 25PMT72 | Tool Design | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 3 | 25PMT73 | Wireless Sensor Networks and IoT in Automation | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 4 | 25PMT74 | Electric Vehicle Design | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 5 | 25PMT75 | Integrated Product Design and Development | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 6 | 25PME21 | Design for Manufacturing and Assembly | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |

VERTICAL VIII : Diversified Courses Group I

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/External Marks | Course Category |
|----------------|-------------|---|----------------|---|---|----|---------------|---|---|----|---------------------------------|---------|-------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| Theory Courses | | | | | | | | | | | | | | |
| 1 | 25PMT81 | RF Transceivers Design | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 2 | 25PMT82 | Body Area Networks | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 3 | 25PEC14 | VLSI Testing and Design for Testability | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 4 | 25PMT83 | Medical Imaging Systems | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 5 | 25PME84 | Satellite Communication | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 6 | 25PME85 | CAD for VLSI Design | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |

VERTICAL IX : Diversified Courses Group II

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/ External Marks | Course Category |
|----------------|-------------|--------------------------------------|----------------|---|---|----|---------------|---|---|----|---------------------------------|---------|--------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| Theory Courses | | | | | | | | | | | | | | |
| 1 | 25PMT91 | Total Quality Management | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 2 | 25PME92 | Renewable Energy Sources | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 3 | 25PMT93 | Fuzzy Logic Control | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 4 | 25PME94 | Operations Research | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 5 | 25PME95 | Process Planning and Cost Estimation | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |
| 6 | 25PMT94 | Advanced Digital Signal Processing | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | PE |

OPEN ELECTIVES

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/ External Marks | Course Category |
|----------------|-------------|---|----------------|---|---|----|---------------|---|---|----|---------------------------------|---------|--------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| Theory Courses | | | | | | | | | | | | | | |
| 1 | 25OHS11 | Foundation Skills in Integrated Product Development | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 2 | 25OHS12 | Human Rights | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 3 | 25OHS13 | Intellectual Property Rights | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 4 | 25OHS14 | Sustainable Management | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 5 | 25OHS15 | Supply Chain Management | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 6 | 25OAG11 | Bioenergy and Waste Utilization | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 7 | 25OAG12 | Agribusiness and Entrepreneurship | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 8 | 25OAG13 | Precision Agriculture and Smart Farming | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 9 | 25OAG14 | GIS and Remote Sensing Applications | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 10 | 25OAG15 | Renewable Energy in Agriculture | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 11 | 25OAG16 | Post-Harvest Engineering | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 12 | 25OIT11 | UI & UX Design | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 13 | 25OIT12 | High Performance Computing | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 14 | 25OCY11 | Information Security | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 15 | 25OCY12 | Cyber Physical Systems | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 16 | 25OCY13 | Information Retrieval System | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 17 | 25OAI11 | Intelligent Healthcare Solutions | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 18 | 25OCS12 | Cloud Web Services | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 19 | 25OCS13 | Blockchain Technologies | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 20 | 25OCS14 | Data Mining | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 21 | 25OML12 | AI for Precision Agriculture | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 22 | 25OBT11 | Microbiology | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 23 | 25OBT12 | Nano Biotechnology | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 24 | 25OBT13 | Immuno Technology | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 25 | 25OBT14 | Genomics and Proteomics | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 26 | 25OBT15 | Basic Industrial Biotechnology | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 27 | 25OEC11 | Wireless | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/ External Marks | Course Category |
|--------|-------------|---|----------------|---|---|----|---------------|---|---|----|---------------------------------|---------|--------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| | | Communication | | | | | | | | | | | | |
| 28 | 25OEC12 | Internet of Things and Applications | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 29 | 25OEC13 | Embedded Systems | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 30 | 25OEC14 | Introduction to Quantum Communication | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 31 | 25OEC15 | Introduction to Quantum Sensing | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 32 | 25OEC16 | Engineering Foundations of Quantum Technologies | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 33 | 25OEC17 | Solid State Physics for Quantum Technologies | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 34 | 25OEC18 | Quantum Optics | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |

VERTICALS FOR MINOR DEGREE (In addition to all the verticals of other programmes)

| VERTICAL I Fintech and Block Chain | VERTICAL II Entrepreneurship | VERTICAL III Public Administration | VERTICAL IV Business Data Analytics | VERTICAL V Environment and Sustainability | VERTICAL VI Quantum Technologies |
|---|--|---|--|--|---|
| Finance for Managers | Foundations of Entrepreneurship | Principles of Public Administration | Statistics for Management | Sustainable Infrastructure Development | Foundations of Quantum Computing: Physics, Engineering, and Mathematics Computing |
| Fundamentals of Investment | Team Building and Leadership Management for Business | Public Finance and Budgeting | Business Analytics and Decision-Making | Sustainable Agriculture and Environmental Management | Survey of Quantum Technologies and Applications |
| Banking, Financial Services and Insurance | Creativity and Innovation in Entrepreneurship | Public Personnel Administration | Human Resource Analytics | Sustainable Bio Materials | Foundations of Quantum Technologies |
| Introduction to Blockchain and its Applications | Principles of Marketing Management for Business | Administrative Law and Governance | Marketing and Social Media Web Analytics | Materials for Energy Sustainability | Basic Laboratory Course for Quantum Technologies |
| Fintech Personal Finance and Payments | Human Resource Management for Entrepreneurs | Indian Administrative System | Operation and Supply Chain Analytics | Waste Management and Circular Economy | Introduction to Quantum Computation |
| Introduction to Fintech | Financing New Business Ventures | Public Policy Administration | Financial Analytics | Environmental Quality Monitoring and Analysis | Introduction to Quantum Materials |
| | | Comparative Public Administration and Development Studies | | Integrated Energy Planning for Sustainable Development | |
| | | | | Energy Efficiency for Sustainable Development | |

VERTICAL I : Fintech and Block Chain

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/ External Marks | Course Category |
|----------------|-------------|---|----------------|---|---|----|---------------|---|---|----|---------------------------------|---------|--------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| Theory Courses | | | | | | | | | | | | | | |
| 1 | 25OMI11 | Finance for Managers | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 2 | 25OMI12 | Fundamentals of Investment | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 3 | 25OMI13 | Banking, Financial Services and Insurance | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 4 | 25OMI14 | Introduction to Blockchain and its Applications | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 5 | 25OMI15 | Fintech Personal Finance and Payments | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 6 | 25OMI16 | Introduction to Fintech | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |

VERTICAL II : Entrepreneurship

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/ External Marks | Course Category |
|----------------|-------------|--|----------------|---|---|----|---------------|---|---|----|---------------------------------|---------|--------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| Theory Courses | | | | | | | | | | | | | | |
| 1 | 25OMI21 | Foundations of Entrepreneurship | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 2 | 25OMI22 | Team Building and Leadership Management for Business | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 3 | 25OMI23 | Creativity and Innovation in Entrepreneurship | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 4 | 25OMI24 | Principles of Marketing Management for Business | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 5 | 25OMI25 | Human Resource Management for Entrepreneurs | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 6 | 25OMI26 | Financing New Business Ventures | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |

VERTICAL III : Public Administration

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/ External Marks | Course Category |
|----------------|-------------|-------------------------------------|----------------|---|---|----|---------------|---|---|----|---------------------------------|---------|--------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| Theory Courses | | | | | | | | | | | | | | |
| 1 | 25OMI31 | Principles of Public Administration | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 2 | 25OMI32 | Public Finance and Budgeting | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/External Marks | Course Category |
|--------|-------------|---|----------------|---|---|----|---------------|---|---|----|---------------------------------|---------|-------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| 3 | 250MI33 | Public Personnel Administration | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 4 | 250MI34 | Administrative Law and Governance | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 5 | 250MI35 | Indian Administrative System | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 6 | 250MI36 | Public Policy Administration | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 7 | 250MI37 | Comparative Public Administration and Development Studies | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |

VERTICAL IV : Business Data Analytics

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/External Marks | Course Category |
|----------------|-------------|--|----------------|---|---|----|---------------|---|---|----|---------------------------------|---------|-------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| Theory Courses | | | | | | | | | | | | | | |
| 1 | 250MI41 | Statistics for Management | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 2 | 250MI42 | Business Analytics and Decision-Making | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 3 | 250MI43 | Human Resource Analytics | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 4 | 250MI44 | Marketing and Social Media Web Analytics | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 5 | 250MI45 | Operation and Supply Chain Analytics | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 6 | 250MI46 | Financial Analytics | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |

VERTICAL V : Environment and Sustainability

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/External Marks | Course Category |
|----------------|-------------|--|----------------|---|---|----|---------------|---|---|----|---------------------------------|---------|-------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| Theory Courses | | | | | | | | | | | | | | |
| 1 | 250MI51 | Sustainable Infrastructure Development | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 2 | 250MI52 | Sustainable Agriculture and Environmental Management | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 3 | 250MI53 | Sustainable Bio Materials | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 4 | 250MI54 | Materials for Energy Sustainability | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/ External Marks | Course Category |
|--------|-------------|--|----------------|---|---|----|---------------|---|---|----|---------------------------------|---------|--------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| 5 | 25OMI55 | Waste Management and Circular Economy | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 6 | 25OMI56 | Environmental Quality Monitoring and Analysis | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 7 | 25OMI57 | Integrated Energy Planning for Sustainable Development | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 8 | 25OMI58 | Energy Efficiency for Sustainable Development | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |

VERTICAL VI : Quantum Technologies

| S. No. | Course Code | Course Title | Hours per week | | | | Hours per sem | | | | Total no. of Hours per semester | Credits | Internal/ External Marks | Course Category |
|------------------|-------------|---|----------------|---|---|----|---------------|---|----|----|---------------------------------|---------|--------------------------|-----------------|
| | | | L | T | P | SL | L | T | P | SL | | | | |
| Theory Courses | | | | | | | | | | | | | | |
| 1 | 25OMI61 | Foundations of Quantum Computing: Physics, Engineering, and Mathematics Computing | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 2 | 25OMI62 | Survey of Quantum Technologies and Applications | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 3 | 25OMI63 | Foundations of Quantum Technologies | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| Practical Course | | | | | | | | | | | | | | |
| 4 | 25OMI64 | Basic Laboratory Course for Quantum Technologies | 2 | 0 | 2 | 2 | 30 | 0 | 30 | 30 | 90 | 3 | 50/50 | OE |
| Theory Courses | | | | | | | | | | | | | | |
| 5 | 25OMI65 | Introduction to Quantum Computation | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |
| 6 | 25OMI66 | Introduction to Quantum Materials | 3 | 0 | 0 | 3 | 45 | 0 | 0 | 45 | 90 | 3 | 40/60 | OE |

SUMMARY

| S.No. | COURSE CATEGORY | CREDITS AS PER SEMESTER | | | | | | | | TOTAL CREDITS |
|---------------|-----------------|-------------------------|----|-----|----|----|----|-----|------|---------------|
| | | I | II | III | IV | V | VI | VII | VIII | |
| 1 | HS | 4 | 7 | | | | | 3 | | 14 |
| 2 | BS | 7 | 7 | 4 | 4 | | | | | 22 |
| 3 | ES | 11 | 9 | | | | | 6 | | 26 |
| 4 | PC | | 3 | 17 | 13 | 13 | 9 | | | 55 |
| 5 | PE | | | | | 3 | 6 | 6 | | 15 |
| 6 | OE | | | | 3 | 6 | 3 | | | 12 |
| 7 | EEC | | | 2 | 1 | 1 | 2 | 2 | 10 | 18 |
| 8 | AC | 1 | 1 | | | | | | | 2 |
| 9 | MC | | | | ✓ | ✓ | | | | |
| TOTAL CREDITS | | 23 | 27 | 23 | 21 | 23 | 20 | 17 | 10 | 164 |