| | | | | | | CWS | PRS | MTE | ETE | PRE |
|---|---|---|---|---|---|---|---|---|---|---|
| **L** | **T** | **P** | **Credit** | **Area** | | **CWS** | **PRS** | **MTE** | **ETE** | **PRE** |
| 3 | 0/1 | 2/0 | 4 | DEC | | 15/25 | 25/- | 20/25 | 40/50 | - |

**AE-410: Modern Vehicle Technology**

**Objectives:** To familiarize the students with modern vehicles, trends in power plants, new techniques of reduction of noise and pollution; vehicle automated tracks.

| | **AE-410: Modern Vehicle Technology** | **Contact Hours** |
|---|---|---|
| **Unit-1** | Trends in Power Plants : Hybrid Vehicles - Stratified Charged/ Learn Burn Engines - Hydrogen Engines - Battery Vehicles– Electric Propulsion With Cables - Magnetic Track Vehicles | 8 |
| **Unit-2** | Suspension Brakes and Safety: Air Suspension – Closed Loop Suspension - Antiskid Braking System, Retarders, Regenerative Braking Safety Cage - Air Bags - Crash Resistance- Passenger Comfort | 6 |
| **Unit-3** | Noise and Pollution: Reduction of Noise - Internal & External Pollution Control Through Alternate Fuels/Power Plants – Catalytic Converters and Filters for Particulate Emission | 6 |
| **Unit-4** | Vehicle Operation and Control: Computer Control for Pollution and Noise Control and for Fuel Economy -Transducers and Actuators - Information Technology for Receiving Proper Information and Operation of the Vehicle Like Optimum Speed and Direction | 8 |
| **Unit-5** | Vehicle Automated Tracks: Preparation and Maintenance of Proper Road Network - National Highway Network with Automated Roads and Vehicles | 8 |
| **Unit-6** | Satellite Control of Vehicle Operation for Safe and Fast Travel | 6 |
| | **Total** | 42 |

| **Reference Books:** | |
|---|---|
| 1 | Noise and Vibration control engineering : principles and applications / Istvan L.Ver, Leo Leroy Beranek John Wiley & Sons, 2006//0471449423, 9780471449423 |
| 2 | Automotive Handbook/Robert Bosch, Robert Bosch GmbH./SAE, 1993/0837603307, 9780837603308 |

**Course Outcomes**

| CO1 | To understand Trends in Power Plants |
|-----|--------------------------------------|
| CO2 | To understand vehicle automated tracks and safety |
| CO3 | To discuss suspension brakes and safety |
| CO4 | To explain Noise and Pollution through different means. |
| CO5 | To describe preparation and Maintenance of proper road network |
| CO6 | To knowledge of  satellite control of vehicle operation for safe and fast travel |

**CO-PO/PSOMatrix**

|     | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| CO1 | 3 | 3 | 3 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | 1 |
| CO2 | 3 | 3 | 2 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 1 |
| CO3 | 3 | 3 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 3 | 2 |
| CO4 | 3 | 3 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 3 | 2 |
| CO5 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 2 |