

**Course Code :** ME 785

**Course Title :** Automotive maintenance & Repair

**Credit Hours :** 3

### **Course Description**

Overview of automotive technology, careers, tools, diagnostic equipment, Basic automotive systems, Basic automotive systems, Comprehensive guide to the service and repair of contemporary, Engine subsystems diagnostic and service procedures, Air conditioning system diagnosis and service procedures, Wheel alignment system diagnosis and service procedures, Steering system diagnosis and service procedures, Brake system diagnosis and service procedures, Engine sensors and Engine actuators, Electronics service systems and spare parts, and Flat rate system and job card cycle.

### **Course Objectives**

The student should be able to:

- Understand the basics and advanced principles of engine performance.
- Use modern diagnosis devices
- Analyze the electrical and electronic systems in vehicles.
- Become familiar with the engine test and equipments.

### **Course Topics**

Week no. 1: Overview of automotive technology, careers, tools, diagnostic equipment

Week no. 2: Basic automotive systems

Week no. 3: Predictive and protective maintenance, reliability maintenance

Week no. 4: Predictive and protective maintenance, reliability maintenance

Week no. 5: Comprehensive guide to the service and repair of contemporary automobiles

Week no. 6: Comprehensive guide to the service and repair of contemporary automobiles

Week no. 7: Engine subsystems diagnostic and service procedures / 7<sup>th</sup> week evaluation.

Week no. 8: Air conditioning system diagnosis and service procedures

Week no. 9: Wheel alignment system diagnosis and service procedures

Week no. 10: Steering system diagnosis and service procedures

Week no. 11: Brake system diagnosis and service procedures

Week no. 12: Engine sensors / 12<sup>th</sup> week evaluation

Week no. 13: Engine actuators

Week no. 14: Electronics service systems and spare parts

Week no. 15: Flat rate system and job card cycle

Week no. 16: Final Examination

### **References**

- Robert Bosch GmbH, Automotive Electrics; Automotive Electronics, 4th ed., Automotive Technology, Germany, 2004
- Heisler, H, Advanced Engine Technology, Butterworth-Heinemann, UK, 2001
- Heisler, H, Advanced Vehicle Technology, 2nd ed., Butterworth-Heinemann, UK, 2001
- Robert Bosch GmbH, Diesel-Engine Management, Automotive Technology, Germany, 2004.
- Robert Bosch GmbH, Gasoline-Engine Management, Automotive Technology, Germany, 2004.
- Stone, R and Ball, J, K, Automotive Engineering Fundamentals, SAE, USA, 2004
- Erjavec, J, Automotive technology, 3rd Ed., Delmar Thomson, USA, 2000.
- Robert Bosch GmbH, Automotive handbook, 6th edition, Germany, 2004.