

**Course Code :** ME 783

**Course Title :** Automotive Systems Design

**Credit Hours :** 3

### **Course Description**

Basic overview over Direct current generator, generator regulators, generator and alternator testing and servicing, an advanced study over starting motor, starter service, storage batteries ,body electrical wiring, ignition switch and steering lock, wind shield wipers and washers, Engine management systems, Cruise control, Anti- Lock brake system (ABS), Electronic traction support (ETS), Acceleration ship regulation (ASR), Electronic stability programme (ESP), Adaptive damping system (ADS), Parking aids, and Vision enhancement systems and intelligent vehicle diagnostics.

### **Course Objectives**

To discuss in detail the theory and operation of the different equipment and systems covering both automotive electric and electronic applications

### **Course Topics**

- Week no. 1: Basic overview over Direct current generator, generator regulators, generator and alternator testing and servicing.
- Week no. 2: Basic overview over Direct current generator, generator regulators, generator and alternator testing and servicing.
- Week no. 3: an advanced study over starting motor, starter service,
- Week no. 4: storage batteries ,body electrical wiring, ignition switch and steering lock, wind shield wipers and washers,
- Week no. 5: Engine management systems,
- Week no. 6: Engine management systems,
- Week no. 7: Cruise control / 7<sup>th</sup> week evaluation.
- Week no. 8: Cruise control
- Week no. 9: Anti- Lock brake system (ABS)
- Week no. 10: Electronic traction support (ETS)
- Week no. 11: Acceleration ship regulation (ASR)
- Week no. 12: Electronic stability programme (ESP) / 12<sup>th</sup> week evaluation
- Week no. 13: Adaptive damping system (ADS)
- Week no. 14: Parking aids

Week no. 15: Vision enhancement systems and intelligent vehicle diagnostics

Week no. 16: Final Examination

### **References**

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.

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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.

Robert, N., Brady, "Electrical and Electronic Systems for Automobiles and Trucks", McGraw Hill Book Co., 1986

Crouse, William H., "Automotive Electronics and Electrical Equipment" McGraw Hill, New York, 1986

Kershaw, John F., "Automotive Control Systems: For Engine, Driveline and vehicle", Pearson Education, 2005.

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