

1152AU111

MODERN VEHICLE TECHNOLOGY**L T P C****3 0 0 3****1. Preamble**

This course gives a wide knowledge to the student about recent development in vehicle technology.

2. Pre requisite

1151AU107 I.C Engines

3. Links to other Courses

- Two and three wheeler
- Electric hybrid vehicle

4. Course Educational Objectives

Students undergoing this course are expected to

- To develop the recent trending knowledge in the Automobile field.
- To develop the skills of the students in recent safety precaution principles.

5. Course Outcomes:

Upon the successful completion of the course, learners will be able to

CO Nos.	Course Outcomes	Level of learning domain (Based on revised Bloom's)
C01	Know the recent developments in Alternate power generation for a vehicle.	K2
C02	Familiarize with advanced suspension, Braking, and Safety systems in automobile.	K2
C03	Know efficient Noise and pollution control techniques in automobiles	K2
C04	Know the Various Vehicle operation and control systems.	K3
C05	Know the Vehicle automated tracks.	K2

6. Correlation of COs with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	H	H	M	L	M	L					L		H	L
CO2	H	H	M	L	M	L					L		M	H
CO3	H	H	M	L	M	L					L		M	L
CO4	H	H	M	L	M	L					L		M	L
CO5	H	H	M	L	M	L					L		M	L

H- High; M-Medium; L-Low

7. Course Content

UNIT – I DRIVER INFORMATION SYSTEMS L-9

Introduction, Driver Support Systems – Driver Information, Driver Perception, Driver Convenience, Driver Monitoring. Vehicle Support Systems – General Vehicle Control, Collision Avoidance, Vehicle Status Monitoring.

UNIT – II DRIVER ASSISTANCE SYSTEMS L-9

Global Positioning Systems, Geographical Information Systems, Navigation Systems, Automotive Vision System, Road Recognition, Driver Assistance Systems - Connected Vehicles, Autonomous Vehicles

UNIT – III SAFETY SYSTEMS L-9

Active and Passive Safety Systems, Airbags, Seat Belt Tightening System, Collision Warning Systems, Child Lock, Anti Lock Braking Systems, Traction Control, Electronic Stability Programme. Crash Worthiness of Vehicle, Vehicle Crash Testing, Testing With Dummies. Security Systems - Anti Theft Technologies, Smart Card System, Number Plate Coding.

UNIT – IV COMFORT SYSTEMS L-9

Active Suspension Systems, Requirement and Characteristics, Different Types, Power Steering, Collapsible and Tilttable Steering Column, Power Windows, Biometric Systems. Adaptive Control Systems: Adaptive Cruise Control, Adaptive Noise Control, Anti Spin Regulation.

UNIT – V ELECTRONIC ENGINE MANAGEMENT L-9

Single Point and Multipoint Injection System, Working of Electronic Fuel Injector, Different Types of Electronic Fuel Injection Systems Like L, K, KE, LU, LH and Motronic, ME & MH Systems, Cylinder Cut-Off Technology.

Total: 45 Periods

8. Text Book

1. K.K. Ramalingam, “Automobile Engineering”, Scitech Publications Pvt. Ltd., 2005
2. Crouse/Anglin “Automotive Mechanics”
3. T. Kenneth Garrett, Kenneth Newton and William Steeds, “The Motor Vehicle” 13th Edition, Butterworth-Heinemann Limited, London, 2005.
4. “Automotive technology “ H.Hertz

9. References

1. Beranek. L.L. Noise Reduction, McGraw-Hill Book Co., Inc, Newyork, 1993
2. Bosch Hand Book, 3rd Edition, SAE,1993