

IAOE 322
Automobile Control Systems

(02 credits – 50 marks)

Course Outcomes:

On completion of the Course, students should be able to

1.	Define the key terms in Automotive Control System
2.	State various criteria's in components selection
3.	Explain steering system, braking system and suspension system
4.	Acquaint with the latest technologies

Course Content:

Module –I: Components Selection

(04 Hrs)

Tyre selection, air resistance, rolling resistance, requirement of engine power, transmission system layout

Module –II: Steering systems

(07 Hrs)

Front axle types, constructional details, front wheel geometry, Condition for True rolling, skidding, steering linkages for conventional & independent suspensions, turning radius, wheel wobble and shimmy, power and power assisted steering

Module –III: Braking system

(06 Hrs)

Types of brakes, brake-actuating mechanisms, factors affecting brake performance, power & power assisted brakes, Brake system design, Recent developments in transmission & braking system

Module –IV: Suspension systems

(07 Hrs)

Rigid and independent Suspension, Types of Independent suspension system-McPherson strut, wishbone type, Semi-elliptical Leaf spring, coil spring , torsion bar arrangement, Construction and working of Air Suspension System, Construction and working of- Shock absorbers - Telescopic and Gas filled, Anti roll bar or stabilizer bar.

Module –V: Tutorials, assignments and presentation based on Module I to IV

References:

1. The Automotive Chassis – Engineering Principle – Jornsens Reimpell, Helmut Stoll, Jurgen Betzler, (2001), 2nd Edition ISBN-9780080527734
2. Automotive Chassis – Design & Calculation – P. Lukin, G. Gasparyants, V. Rodionov, MIR Publishing, Moscow (2005)
3. Automotive Chassis – P. M. Heldt, Chilton Co. NK, 2012, ISBN-13:9781258374150, ISBN-13: 9781258386382
4. Mechanics for Road Vehicles – W. Steed, Illiffe Books Ltd., London (1960), ASIN: B0000CKKGV
5. Automotive Mechanics, Crouse, Anglin, Tata McGraw - Hill Career Education ISBN 10: 0028009436 ISBN 13: 9780028009438
6. Machine Design, P.Kannaiah, Scitech, (2010) ISBN 10: 8183711510 / ISBN 13: 9788183711517
7. Auto design, R. B Gupta, Satya Prakashan, ISBN: 8176840106 ISBN-13: 9788176840101