PAU4I102 AUTOMOTIVE CHASSIS (3/0)

Module I

Frames, front axle and steering systems: - *10 hours*

Types of Chassis layout, with reference to Power Plant location and drive, typesof frames, unitised frame body construction ,Loads acting on frame, Constructional details and materials for frames, Testing of frames.

Types of Front Axles, Front Wheel Geometry,namely, Castor, Camber, King Pin Inclination and Toe–in, Condition for True Rolling Motion of Wheels , Ackerman's and Davis Steering System,

constructional details of Steering Linkages and layouts, Different Types of Steering gear boxes, Reversible and Irreversible Steering, Power–Assisted Steering,Steering of crawler tractor

Module II

Driveline: - *8 hours*

Effect of driving thrust and torque reaction, Hotchkiss drive, torque tube drive, radius rod , Propeller Shaft, Universal Joint, Constant Velocity Universal Joint, Front Wheel drive, different types of Final drive, Worm and worm wheel, Straight bevel gear, Sprial bevel gear and hypoid gear final drives, Double reduction and twin speed final drives, Multi–axled vehicles, Differential principle and operation, Construction details of differential unit ,Differential housings, Non–Slip differential, Differential locks, Final drive of Crawler Tractors.

Module III

Rear Axles: - *8 hours*

Construction of Rear Axles, Types of Loads acting on Rear axles, Full –Floating, Three–Quarter Floating and Semi–Floating rear axles, Rear axle Housings , Construction and different types of axle housings, Multi axles vehicles. Construction details of multi drive axle vehicles, Types of Tyres and their constructional details

Module IV

Suspension System and Braking System: - *10hours*

Need of suspension system, types of suspension, construction details and characteristics of suspension springs such as leaf springs. Coil springs and torsion bar springs. Independent suspension system. Introduction to rubber and pneumatic suspension system, Shock absorbers-telescopic type shock absorber.

Classification of brakes- drum and disc brakes. Theory of braking , mechanical , hydraulic, pneumatic breaking system. Master cylinder, tandom master cylinder and wheel power and power assisted brakes. Anti-locking braking systems. Servo brake. Power and power assisted brakes-different types of retarders like eddy current and hydraulic retarder. Anti lock braking systems. Regenerative braking system

Text Books

1. **K. K. Ramalingam**, "Automotive Engineering ". Scitech Publication Pvt Ltd, 2005.
2. **Kirpal Singh,** "Automobile Engineering" vol1 and vol2.Standard Publishers, 2003.
3. **N.K. Giri,** "Automotive Mechanics" Khanna Publishers, New Delhi, 2005

References

3. John Heizler, "Automotive Mechanics", East West Press, 1999.
4. Jack E RJavee, "Automotive Technology", Thomson Asia Pvt Ltd, 3rd Edition, 2004.