

PAU4I104 AUTOMOTIVE TRANSMISSION SYSTEMS (3/0)

MODULE I

Mechanical Drive

9 Hours

Requirements of transmission system. Design aspects - Different types of clutch: Principle, construction, torque capacity and design aspects, Free Wheel. Determination of gear ratios for vehicles. Performance characteristics at different speeds. Different types of gear boxes – Sliding, Constant and Synchromesh gearbox. Problems on performance of automobile such as Resistance to motion, Tractive effort, Engine speed, Power and acceleration.

MODULE II

Hydrodynamic and Electric Drive

9

Fluid coupling-Principle of operation. Constructional details, Torque capacity. Performance characteristics, Reduction of drag torque. Torque converter: Principle of operation, constructional details and performance characteristics. Converter coupling - Principle of operation -Construction details - Torque capacity – Characteristic performance. Electric drive: Principle of early and modified Ward Leonard Control system. Advantages & limitations. Performance characteristics.

MODULE III

Hydrostatic Drive

9 Hours

Hydrostatic drive: Various types of hydrostatic systems – Principles of hydrostatic drive system, Advantages and limitations, Comparison of hydrostatic drive with hydrodynamic drive, construction and working of typical Janny hydrostatic drive.

MODULE IV

Automatic transmission and Application

9 Hours

Principle of working of epi-cyclic gear train, Need for automatic transmission, Four speed longitudinally mounted automatic transmission-Chevrolet “Turboglide” Transmission, Continuously Variable Transmission (CVT)–Types–Operations of a typical CVT, Ford-T-model gear box, Wilson Gear box, Cotal electromagnetic transmission,Hydraulic control system for automatic transmission .

REFERENCES

1. Heldt. P.M., Torque converters, Chilton Book Co., 1992.
2. Newton and Steeds, Motor vehicles, Life Publishers, 1985.
3. Judge A.W., Modern Transmission Systems, Chapman and Hall Ltd., 1990.
4. SAE Transactions 900550 & 930910.
5. Hydrostatic transmissions for vehicle applications, I Mech. E Conference, 1981-88.
6. Course. W.H., Anglin., D.L., Automotive Transmission and Power Trains construction, McGraw-Hill, 1976.