

**AT8501 AUTOMOTIVE TRANSMISSION**

DETAILED SYLLABUS

**OBJECTIVE:**

- To know about the various transmission and drive line units of automobiles.

**UNIT I CLUTCH AND GEAR BOX**

Requirement of transmission system, Different types of clutches, principle & Construction of Single plate coil spring and Diaphragm spring clutches., Need and Objectives of Gear box. Construction and operation of Sliding mesh, Constant mesh and Synchromesh gearboxes. – Determination of gear ratios for vehicles. Performance characteristics in different speeds. Problems on performance of automobile such as Resistance to motion, Tractive effort, Engine speed & Power and acceleration.

**UNIT II HYDRODYNAMIC TRANSMISSION**

Fluid coupling-Principle-Constructional details. Torque capacity. Performance characteristics. Reduction of drag torque in fluid coupling. Torque converter-Principle-constructional details, performance characteristics. Multistage torque converters and Polyphase torque converters.

**UNIT III EPICYCLIC GEARBOXES USED IN AUTOMATIC TRANSMISSION**

Principle of Planetary gear trains - Wilson Gear box, Cotal electromagnetic transmission-Hydraulic control system for Automatic Transmission.

**UNIT IV AUTOMATIC TRANSMISSION APPLICATIONS**

Need for automatic transmission, Four speed longitudinally mounted automatic transmission - Chevrolet "Turboglide" Transmission, Continuously Variable Transmission (CVT) – Types – Operations of a typical CVT.

**UNIT V HYDROSTATIC AND ELECTRIC DRIVE**

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. Electric drive-types- Principle of early and modified Ward Leonard Control system-Advantages & limitations.

**TEXT BOOKS:**

1. Heldt, P.M., "Torque converters", Chilton Book Co., 1962.
2. Newton and Steeds, "Motor vehicles", Illiffe Publishers, 1985.
3. Devaradjane. G., Kumaresan. M., "Automobile Engineering", AMK Publishers, 2013.

**REFERENCES:**

1. SAE Transactions 900550 & 930910.
2. Hydrostatic transmissions for vehicle applications, I Mech E Conference, 1981-88.
3. Crouse,W.H, Anglin,D.L.," Automotive Transmission and Power Trains construction", McGraw Hill, 1976.
4. Heinz Heisler, "Advance vehicle Technology", Butterworth-Heinemann, 2002