

# GUJARAT TECHNOLOGICAL UNIVERSITY

## B.E. SEMESTER : VIII

### AUTOMOBILE ENGINEERING

Subject Name: **SPECIAL PURPOSE VEHICLES**

Sr. No.	Course Contents	Total Hrs
1.	<b>Classification of Special Purpose Vehicles:</b> based on applications, wheel types & truck type.	5
2.	<b>Study of working principles &amp; design considerations:</b> of different systems involved like power system, transmission, final drive, lubrication, electrical, braking, steering, pneumatic & hydraulic control circuits.	10
3.	<b>Constructional &amp; working features:</b> of different types of earth moving machinery such as Tippers, shovels, loaders, Excavators, Dumpers, Dozers, Fork Lift truck, Road rollers.	10
4.	Study of instrumentation applied to special purpose vehicles/machines.	6
5.	<b>Farm Tractor:</b> Layout, Load distribution, Engine, Transmission & Drive line, Steering, Braking system, Wheels & Tyres, Hydraulic system, Auxiliary Systems, Draw bar, PTO Shaft. Different types of Implements, accessories and attachments. Tractor trolley.	10
6.	<b>Mobile Cranes :</b> Basic characteristics of truck cranes, stability & design features, control systems & safety devices.	4
7.	Tracked Vehicles, Articulated Vehicles, Multi-axle Vehicles, fifth wheel mechanism. Semi trailer & Prime mover brakes & electrical systems. Dead Axles.	9
8.	Special Purpose Electric Vehicles, Solar Vehicles and Hybrid Vehicles. Types, architecture and parameters of design considerations.	6

#### Text Books:

1. “Construction Equipment Operation & Maintenance” by Y. Pokras and M. Tushnyakov, MIR, Moscow.
2. “Truck Cranes”, by A. Astskhov, MIR, Moscow.
3. “Motor Graders” by E.G. Poninson, MIR, Moscow.
4. “Material Handling Equipment” by N. Rudenko, MIR. Publishers.
5. “Electric Vehicles” by Sheldon, R.Shacket, Domus Books, New York.

#### Reference Books:

1. Hand book of Earth Moving Machinery - Central Water & Power Commission (Govt. of India).