

4th Semester	RAU4D002	Off Road Vehicle	L-T-P 3-0-0	3 CREDITS
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MODULE- I (7 hrs)

Classification and Requirements of Off-Road Vehicles

Construction layout, capacity and applications of off-road vehicle - prime mover, chassis and transmission, multi axle vehicles.

MODULE- II (9 hrs)

Earth Moving and Constructional Machines

Dumpers - safety features, safe warning system for dumper, design aspects on dumper body, articulated dumpers, loaders - single bucket, multi bucket and rotary types - bulldozers, kinematics for loader and bulldozers with operational linkages, excavators, backhoe loaders, scrapers, motor graders, power shawl, bush cutters, bush cutters, stumpers, rippers.

MODULE- III (9 hrs)

Vehicle for Industrial Applications

Constructional and working details of jib crane, concrete ready mixers, compactors - vibratory compactors, forklift, utility vehicles, and man - lift, scissors, lift trucks, material handlers, and power generators.

MODULE -IV (10 hrs)

Farm Equipment's, Military and Combat Vehicles

Tractors, classification - working attachments, power take off, special implements, paddy harvester, sugarcane harvester, feller bunchers, special features and constructional details of military tankers, AVLB gun carriers and transport vehicles.

MODULE- V (10 hrs)

Vehicle Systems, Features

Brake system and actuation – OCDB and dry disc caliper brakes. Body hoist and bucket operational hydraulics. Hydro-pneumatic suspension cylinders. Power steering system. Articulated steering assembly - power and capacity of earth moving machines.

Books:

- Abrosimov.K. Bran Berg.A And Katayer.K., "Road Making Machinery", Mir Publishers, Moscow, 1971.
- Nakra C.P., "Farm Machines and Equipments" Dhanparai Publishing Company Pvt. Ltd.
- Wong.J.T., "Theory of Ground Vehicles", John Wiley & Sons, New York, 1987.
- Bart H Vanderveen, "Tanks and Transport Vehicles", Frederic Warne And Co Ltd., London.
- Ia.S. Ageikin, "Off the Road Wheeled and Combined Traction Devices: Theory and Calculation", Ashgate Publishing Co. Ltd. 1988.
- Schulz Erich.J, "Diesel Equipment I & II", McGraw Hill Company, London, 1982. Robert L Peurifoy, "Construction, Planning, Equipment and Methods" Tata McGraw Hill Publishing Company Ltd.
- SAE Handbook Vol. Iii., Society of Automotive Engineers, 1997