

5th Semester	RAG5D003	Tractor Design and Testing	L-T-P 3-0-0	3 CREDITS
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Module I (10 hours)

Design considerations for tractors; Procedure for design and development of agricultural tractor; Parameters for balanced design of tractor for stability; Weight distribution; Basic concept of traction, traction members; Traction principle and theory; Rolling resistance and other terminologies;

Module II (10 hours)

Hydraulic lift, TPL hitch system; Design of clutch: Single disc, multi disc clutches, Cone clutches; Rolling friction and anti-friction bearings; Design of Ackerman steering; Tractor hydraulic steering;

Module III (10 hours)

Selection and design principles of cylinders; Design principles piston and piston rings; Crank shaft and piston pins; Design of governors; Design of turbochargers

Module IV (10 hours)

Design factors considered for tractor seat; Work space design considerations; Various tests on tractors and test codes; Power test, power curves; PTO power test; Drawbar power test; Hydraulic power test; Brake test; Miscellaneous test, air cleaner oil pullover test

Text Books

1. Barger, E.L., Liledahl, J.B., Carleton, W.M. and Mckibben, E.G. (1978). Tractor and their power units. Wiley Eastern pvt. Ltd, New York.
2. Kanafoshi, C.Z. and Karwawshi, T. (1976). Agricultural Machines, Theory and Construction (Vol. 1 and 2). USDA, Poland.

Reference Books

1. Kurtz, G.L., Thompson and Claer, P. (1984). Design of Agricultural Machinery. John Wiley & Sons, New York.
2. Radhey Lal and Datta, A.C. (1978). Problems in Agricultural Engineering. Sathya Prakashan, Allahabad.
3. Testing and evaluation of agricultural machinery and equipment Principles and practices by D.W. Smith B.G. Sims D.H. O'Neill, FAO AGRICULTURAL SERVICES BULLETIN 110