7th Semester	RAG7D004	Farm Machinery Design and Production	L-T-P 3-0-0	3 Credits

Module I (8 hrs)

Introduction to design parameters of agricultural machines,Introduction to design procedure, Characteristics of farm machinery design, Research and development aspects of farm machinery, Design of standard power transmission components used in agricultural machines, Design of mechanical and hydraulic units, Introduction to safety in power transmission.

Module II (8 hrs)

Application of design principles to the systems of selected farm machines such as design of disc plough, mould board plough, cultivator, reaper, thresher, digger, Working with numerical involving farm machinery design.

Module III (8 hrs)

Material in farm Machinery Design - Critical appraisal in production of Agricultural Machinery; Advances in material used for agricultural machinery; Tool selection - Cutting tools including CNC tools andfinishing tools; Heat treatment - Principle of Heat Treatment, Carbon iron phase diagram, Heat Treatment of steels including pack carburizing, shot pining process etc.

Module IV (8 hrs)

Limits, Fits and Tolerances; Jigs and Fixtures;Industrial lay-out planning;Quality production management; Reliability.

Module V (8 hrs)

Economics of process selection; Familiarization with Project Fomulation and one project formulation; Familiarization with Project Report, Preparation of project report on any two items.

Books

1. Sharma P C and D K Aggarwal. Machine Design. S K Kataria & Sons, New Delhi.
2. Sharma, D N and Mukesh, S. Farm Machinery Design. Jain Brothers, New Delhi.
3. Narula V. Manufacturing processes. S K Kataria & Sons, New Delhi
4. Richey, C.B. Agricultural Engineering Handbook.
5. Adinath M and AB Gupta. Manufacturing Technology.
6. Singh S. Mechanical Engineer's Handbook. Khanna Publications, New Delhi.

Digital Learning Resources:

https://web.altair.com/designing-agricultural-machinery-with-edem-resources

https://www.scielo.br/j/eagri/a/mngqmtdRzkDw4qWnsh5mHHx/?lang=en