Course Description & Objective:
To acquaint and equip with the latest design procedures of farm power and machinery systems.

Course outcomes:
At the end of the course, the student would be
1. Able to design the agricultural machines for tillage, planting/ sowing, threshing and combine harvesting etc.
2. Able to testing of agricultural machines for tillage, planting/ sowing, threshing and combine harvesting etc.
3. Mastering the methods and processes of design.
4. Having fundamental knowledge of theories of agricultural machinery and equipment.
5. Having knowledge and transfer of new technologies in the field of design and construction of agricultural machines and equipment.
6. Monitoring and implementation of new and contemporary solutions

UNIT I
Modern trends, principles, procedures, fundamentals and economic considerations for design and development of farm machinery systems. Design considerations, procedure and their applications in agricultural machines. Reliability criteria in design and its application.

UNIT II
Mechanics of tractor chassis, Forces acting upon tillage implement, Mechanics of tillage

UNIT III

UNIT IV
Tractor – Implement matching and operation, Tractor Implement performance

UNIT V
Safety devices for tractors & farm implements. Cabs & HVAC designs- designs of ROPS and FOPS, safety locations of PTO

Practical:
Statement and formulation of design problems of
1. Mould board ploughs
2. Disc ploughs
3. Harrows
4. Cultivators
5. Rotary tiller
6. Seed drills and planters
7. Transplanters and fertilizer applicators
8. Harvesters  
9. Threshers  
10. Forage handling equipment

Suggested Readings