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AENGG-211

Farm Machinery and Power

2(1+1)

Theory

Status of Farm Power in India, Sources of Farm Power , I.C. engines, Working principles of I C engines, Comparison of two stroke and four stroke cycle engines , Study of different components of I.C. engine, I.C. engine terminology and numerical, Familiarization with different systems of I.C. engines: Air cleaning, cooling, lubrication, fuel supply and hydraulic control system of a tractor, Familiarization with Power transmission system : clutch, gear box, differential and final drive of a tractor, Tractor types, Cost analysis of tractor power, Estimation of field capacity and power requirements of implements Familiarization with primary and secondary tillage implement, Implement for intercultural operations, Familiarization with sowing and planting equipment, Familiarization with Plant Protection equipment, Familiarization with harvesting and threshing equipment.

Practical

Study of different components of I.C. engine. To study air cleaning and cooling system of engine, Familiarization with clutch, transmission, differential and final drive of a tractor, Familiarization with lubrication and fuel supply system of engine, Familiarization with brake, steering, hydraulic control system of engine, tractor driving, Familiarization with operation of power tiller, Familiarization with different types of primary and secondary tillage implements: Mould board plough, Disc plough and disc harrow. Familiarization with seed metering mechanism and calibration of seed drill, Familiarization with different types of sprayers and dusters Familiarization with different inter-culture implement, Familiarization with harvesting and threshing equipments and machinery.

Lecture schedule: Theory

S.No.	Topic	No. of lectures
1.	Sources of farm power and its status in India and Rajasthan.	1
2.	I.C. engines, working principles of I C engines, comparison of two stroke and four stroke cycle engines	1
3.	Study of different components of I.C. engine, I.C. engine terminology and numerical.	2
4.	Air supply and exhaust system- Pre cleaners, oil soaked element type and oil bath type air cleaners; Fuel supply system	1

5.	Lubricating system- splash system and forced feed system; Cooling systemthermosiphon system and forced circulation system	1
6.	Transmission system- clutch, gear box, differential, final drive, P.T.O. shaft and hydraulic control system	1
7.	Tractor types, Estimation of operational cost of a tractor	1
8.	Familiarization with primary and secondary tillage implement	2
9.	Numerical on field capacity and power requirement of implements	2
10.	Familiarization with implement for intercultural operations	1
11	Familiarization with sowing and planting equipment,	1
12	Familiarization with Plant Protection equipment	1
13	Familiarization with harvesting and threshing equipment	1

Lecture schedule: Practical

S.No.	Topic	No. of lectures
1	Study of different components of I.C. engine.	1
2	To study air cleaning and fuel supply system of engine,	1
3	Study of cooling and lubricating system.	1
4	Study of transmission system-clutch, gear box, differential, final drive and P.T.O.	1
5	Familiarization with brake, steering, hydraulic control system of engine,	1
6	Tractor driving	2
7	Daily and periodic maintenance of tractor	1
8	Study of power tiller and garden tractor	1
9	Study of primary and secondary tillage implements: mould board plough, disc plough	1
10	Study of secondary tillage implements- cultivators, harrows and hoes	1
11	Study of seed metering mechanism and calibration of seed drill and numerical	2
12	Study of different types of sprayers and dusters	1
13	Study of reaper and thresher	2

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***Elective course **Non-gradual course**