

GANPAT UNIVERSITY									
FACULTY OF AGRICULTURE, ALLIED SCIENCES AND TECHNOLOGY									
Programme	B.Sc. (Hons.)				Branch/Spec.	Agriculture			
Semester	IV				Version	1.1.1.0			
Effective from Academic Year		2026-27			Effective for the Batch admitted in			July 2025	
Course Code	IVA05FMP		Course Name		Farm Machinery and Power				
Teaching Scheme					Examination Scheme (Marks)				
(Per week)	Lecture (DT)		Practical (Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	1	0	1	0	2	Theory	40	40	80
Hours	1	0	2	0	3	Practical	20	00	20
Pre-requisites									
Not Applicable									
Course Outcomes									
On successful completion of the course, the students will be able to:									
CO1	To describe and explain the status and sources of farm power in India, and explain the working principles, components, terminology and performance of I.C. engines, including comparison of two-stroke and four-stroke cycle engines.								
CO2	To explain and apply knowledge of tractor systems including air cleaning, cooling, lubrication, fuel supply, hydraulic control and power transmission systems such as clutch, gearbox, differential and final drive.								
CO3	To analyse tractor types, perform cost analysis of tractor power and implements, and apply criteria for selection of tractors and farm machinery for different agricultural operations.								
CO4	To identify, operate and analyse tillage, sowing, planting, plant protection, harvesting and threshing equipment, and calibrate seed drills with solved numerical examples.								
Theory Syllabus									
Unit	Content								Hrs.
1	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 solved problems.								3
2	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;								4
3	Tractor types; Cost analysis of tractor power and attached implement; Criteria for selection of tractor and machine implements. Familiarization with Primary and Secondary Tillage implement; Implement for hill agriculture; implement for intercultural operations								4
4	Familiarization with sowing and planting equipment; calibration of a seed drill and solved examples; Familiarization with Plant Protection equipment; Familiarization with harvesting and threshing equipment.								4
Practical Content									
<ol style="list-style-type: none"> 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 Learning of tractor driving Familiarization with operation of power tiller; Implements for hill agriculture Familiarization with different types of primary and secondary tillage implements: mould plough, disc plough and disc harrow Familiarization with seed-cum-fertilizer drills their seed metering mechanism and calibration, planters and trans planter Familiarization with different types of sprayers and dusters Familiarization with different inter-cultivation equipment Familiarization with harvesting and threshing machinery Calculation of power requirement for different implements 									
Text Books									

Note: Version 1.0.0.0 (First Digit= New syllabus/Revision in Full Syllabus, Second Digit=Revision in Teaching Scheme, Third Digit=Revision in Exam Scheme, Forth Digit= Content Revision)

L=Lecture, TU=Tutorial, P= Practical/Lab., TW= Term work, DT= Direct Teaching, Lab.= Laboratory work
CE= Continuous Evaluation, SEE= Semester End Examination

1	Jain, S.C. and C.R. Rai-Farm Tractor and maintenance and repair. Standard Publishers, 1705-B, Naisarak. Delhi
Reference Books	
1	Surendra Singh- Farm machinery –Principles and applications, ICAR, New Delhi
2	Jagdiswar Sahay – Elements of Agricultural Engineering

	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	2	2	2	1	2	1	3	3	2	2	2	2
CO2	2	1	2	1	1	1	1	1	1	1	1	1
CO3	2	1	2	1	1	1	1	2	2	1	1	1
CO4	1	2	2	1	2	1	1	1	1	2	1	2

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