

Lesson Plan

Name of Faculty: Aman

Discipline: Agriculture Engg.

Semester: 5th

Subject: Farm Tractor

Lesson Plan Duration: 15 weeks

Work load (lecture/practical) per week (in hours): Lecture: 04, Practical 06

Week	Theory		Practical	
	Lecture Day	Topic (including assignment/ test)	Practical Day	Topic
1st	1	Sources of farm power and scope of mechanization.	1st Week	Familiarization with different makes, models and availability of tractors, main units and
	2	Tractor - classification and different type of tractors and systems.		
	3	Main assemblies of the tractors (Names only).		
	4	Familiarization with various controls on tractors and their functions.		
2nd	5	Familiarization with various gauges on tractors and their functions.	2nd Week	Familiarization with main units and control gauges of tractor.
	6	Functions and various components of power train.		
	7	Clutch; functions of clutch, type of clutch (single plate, dual plate and multi plate clutch).		
	8	Gear box; function and working of gear box,		
3rd	9	Types of gear boxes (sliding, constant mesh and synchromesh gears).	3rd Week	Familiarization with various tools used for dismantling and assembling of tractors
	10	Differential and differential lock; function and constructional details.		
	11	Final drive; reduction gear and rear axle.		
	12	Power-take off shaft and drive to the PTO shaft.		
4th	13	Revision of previous chapters.	4th Week	Prestarting checks, correct operating techniques and energy saving tips.
	14	Importance and function of brakes,		
	15	Various types of brakes viz. mechanical and hydraulic and their working.		
	16	Principle of hydraulic system.		
5th	17	Types of wheels rim and tyres used in tractors.	5th Week	Clutch- dismantling and study of clutch and its components and assembly.
	18	Function of tyres. Causes of tyre wear.		
	19	Need for changing the rear wheel, spacing of wheels and arrangement for the change.		
	20	Wheel ballasting and methods of ballasting.		
6th	21	Revision of previous chapter	6th Week	Transmission- study of gear box, differential and final drive.
	22	Principles and working of hydraulic system.		
	23	Various components and working of hydraulic system of tractor.		
	24	Position control, draft control and mix control.		
7th	25	Various components of hitching system of tractors viz. 3-point linkage, drawbar	7th Week	Brake and steering- dismantling and study of their components.
	26	Problems discussion		
	27	Functions and components of steering systems.		
	28	Types of steering gear boxes in different type of steering systems,		
8th	29	Power steering.	8th Week	Brake and steering- dismantling and study of their components.
	30	Working of different types of steering systems.		
	31	Familiarity with the concepts of toe-in, toe-out, camber angle, caster angle and king pin inclination.		
	32	Components of electrical systems.		
9th	33	Battery, starter switch, self-starter, motor, dynamo:	9th Week	Wheel equipment- care and maintenance, fitting of wheels and adjustment of track width.
	34	Their construction of electrical systems		
	35	Their functions and operation of electrical systems		
	36	Maintenance and care of the battery.		
10th	37	Revision of previous chapter	10th Week	Fitting of wheels and adjustment of track width.
	38	Daily maintenance, repair and overhauling of tractor.		
	39	Weekly maintenance, repair and overhauling of tractor.		
	40	Monthly maintenance, repair and overhauling of tractor.		
11th	41	Various factors affecting the right selection of a tractor.	11th Week	Operation of hydraulics system, draft position and mix control systems.
	42	Safety measures in the operation of tractor.		
	43	Cost analysis of use of tractors.		
	44	Traction- Traction efficiency.		
12th	45	Coefficient of traction.	12th Week	Periodical maintenance and services of tractors.
	46	Rolling resistance, slip and rim pull.		
	47	Tractor testing stations,		
	48	Test conditions and general requirements for testing a tractor.		
13th	49	Type of tests.	13th Week	Visits to tractor repair workshops/service centres for the demonstration of repair
	50	BIS and ISO standards		
	51	Revision of BIS and ISO standards.		
	52	Revision of 1st & 2nd Chapters		
14th	53	Revision of 3rd & 4th Chapters	14th Week	Checking of Practical
	54	Revision of 5th & 6th Chapters		
	55	Revision of 7th chapter		
	56	Revision of 8th chapter		
15th	57	Revision of 9th chapter	15th Week	Checking of Practical
	58	Problems discussion related to subject.		
	59	Problems discussion related to subject.		
	60	Problems discussion related to subject.		