

Lesson Plan

Name Of Faculty : Ranjeet Singh

Discipline : Agriculture Engg.

Semester : 5th

Subject : Farm Machinery & Implements-II

Lesson Plan Duration : 15 week

Work load (lecture/practical) per week (in hours): Lecture: 05; Practical 04

Week	Theory	Practical	
	Topic (including assignment/test)	Practical Day	Topic
1st	Sources of surface water resources, irrigation, necessity of irrigation and advantages and disadvantages of irrigation.	1st Week	Installation, operation and maintenance of sprinkler irrigation system.
2nd	Types of irrigation viz. artificial (flow, lift etc.) and natural. Sources and quality of irrigation water.	2nd Week	Installation, operation and maintenance of sprinkler irrigation system.
3rd	Evaporation, pan evaporimeter. Transpiration, evapotranspiration or consumptive use, seasonal consumptive use, peak period consumptive use. Estimation of evapotranspiration from evaporation data and climatological data(introduction only). 2.2 Water infiltration and infiltration rate. Crop water requirement, net and gross irrigation requirement. Irrigation frequency, estimation and irrigation scheduling.	3rd Week	Installation and operation of centrifugal pump.
4th	Duty and Delta; factors affecting duty and methods of improving duty. 2.4 Irrigation efficiencies- water conveyance, application, storage, distribution, water use, project, operational and economic efficiency	4th Week	Installation and operation of centrifugal pump.
5th	1 Introduction to surface, subsurface, sprinkler and drip irrigation systems. 3.2 Surface methods of irrigation viz. border, check basin and furrow irrigation, their basic details, characteristics, types and their adaptability	5th Week	Dismantling of centrifugal pump, study of constructional feature of its component and its
6th	Sprinkler irrigation-its adaptability and limitations, types ,components, operation and maintenance of sprinkler systems. Layout and various design parameters of sprinkler irrigation system. 3.4 Drip irrigation- its adaptability and limitations, types, components, operation and maintenance of drip irrigation systems. Layout and various design parameters of drip irrigation system.	6th Week	Dismantling of centrifugal pump, study of constructional feature of its component and its

7th	1 Introduction to various power operated, water lifting devices. 4.2 Classification of pumps-positive displacement (reciprocating and rotary), variable displacement. 4.3 Pumps and Terminology, Centrifugal pumps (volute and diffuser type, single stage and multistage type), Types of impellers of centrifugal pump	7th Week	Installation, operation & maintenance of submersible pump. Identifying/locating the faults/troubles and remedies.
8th	Installation, operation and maintenance of centrifugal pumps. 4.4 Submersible pump and vertical turbine pumps; their common troubles and remedies. 4.5 Criteria and procedures for selection of irrigation pumps, power requirements and efficiency	8th Week	Installation, operation & maintenance of submersible pump. Identifying/locating the faults/troubles and remedies.
9th	Types of water bearing formations (confined, unconfined aquifer etc.) aquifer characteristics influencing yield of wells. Determination of aquifer constant, specific capacity of wells.	9th Week	Measurement of water flow in the open field channels.
	Different terms related to well hydraulic such as water tables, isobath, isobar lines , draw down. Recharge of ground water.	10th Week	Measurement of water flow in the open field channels.
10th	Types of wells, open wells, their design parameters and construction of an open well, tube wells.	11th Week	To survey market and field for the availability, adaptability and selection of various types
11th	Canals and their classification (brief description only), seepage from canals and field channels. Canal lining-various types. Their advantages and disadvantages.	12th Week	To survey market and field for the availability, adaptability and selection of various types of pumps and irrigation
12th	Introduction to various water conveyance structures and their functions. Open channels, their types, layout and design parameters.	13th Week	Study tours to irrigation equipment industries: pumps, sprinkler and drip etc.
13th	Subsurface systems of water conveyance, their components. Units of water measurement, direct and indirect methods of water measurement. Measurement of water in pipes and open ch	14th Week	Revision
14th	Pollution with poor quality irrigation water and excessive use of fertilizer and agro- chemicals	15th Week	Revision