Name of the Faculty : Sanjay Poonia
Semester & Discipline : 3 rd Semester
Subject : Farm Irrigation Engineering
Lesson plan duration : 14 week
Work load (Lecture / Practical) per week (in hours) : L : 04 and P : 03

Week	Lecture day	TOPIC	Day	Practical
1	1	Sources of surface water resources, Introduction of irrigation	1	Installation, operation and maintenance of sprinkler irrigation system.
	2	Necessity of irrigation and advantages and disadvantages of irrigation		
	3	Types of irrigation viz. artificial (flow, lift etc.) and natural		
	4	Sources and quality of irrigation water		
2	5	Irrigation Water Requirement and Efficiencies	2	Installation and operation of centrifugal pump.
	6	Evaporation, pan evaporimeter.		
	7	Transpiration, evapotranspiration or consumptive use, seasonal consumptive use, peak period consumptive use		
	8	Estimation of evapotranspiration from evaporation data and climatological data(introduction only)		
3	9	Water infiltration and infiltration rate.	3	Dismantling of centrifugal pump, study of constructional feature of its component and its assembly.
	10	Crop water requirement, net and gross irrigation requirement		
	11	Irrigation frequency, estimation and irrigation scheduling		
4	12	Duty and Delta; factors affecting duty and methods of improving duty		
	13	Irrigation efficiencies- water conveyance, application, storage, distribution, water use, project, operational and economic efficiency		
	14	Water Application Methods		
5	15	Introduction to surface irrigation system		
	16	Intro of subsurface irrigation system		
	17	Sprinkler irrigation system		
	18	Drip irrigation system		
	1 st Sessionals			
6	19	Surface methods of irrigation like border irrigation, their basic details, characteristics, types and their adaptability	4	Installation, operation & maintenance of submersible pump. Identifying/locating the faults/troubles and remedies.
	20	Surface methods of irrigation , check basin irrigation, their basic details, characteristics, types and their adaptability		
	21	Surface methods of irrigation, furrow irrigation, their basic details, characteristics, types and their adaptability		
	22	Surface methods of irrigation viz. border, check basin and furrow irrigation, their basic details, characteristics, types and their adaptability		
7	23	Sprinkler irrigation-its adaptability and limitations, types ,components, operation and maintenance of sprinkler systems. Layout and various design parameters of sprinkler irrigation system	5	Measurement of water flow in the open field channels.
	24	Drip irrigation- its adaptability and limitations, types, components, operation and maintenance of drip irrigation systems. Layout and various design parameters of drip irrigation system		
	25	Water Lifting Devices		
	26	Introduction to various power operated water lifting devices		
8	27	Classification of pumps-positive displacement reciprocating, variable displacement	6	To survey market and field for the availability, adaptability and selection of various types of pumps and irrigation systems in the region.
	28	Classification of pumps-positive displacement rotary, variable displacement		
	29	Pumps and Terminology, Centrifugal pumps (volute and diffuser type, single stage and multistage type)		
	30	Types of impellers of centrifugal pump.		
9	31	Installation, operation and maintenance of centrifugal pumps		
	32	Submersible pump ; their common troubles and remedies		
	33	Vertical turbine pumps ; their common troubles and remedies		
	34	Criteria and procedures for selection of irrigation pumps, power requirements and efficiency		
	2 nd Sessionals			
10	35	Well Hydraulics, Open Wells and Tube Wells	7	Study tours to irrigation equipment industries: pumps, sprinkler and drip etc.
	36	Types of water bearing formations (confined, unconfined aquifer etc.)		
	37	Aquifer characteristics influencing yield of wells.		
	38	Determination of aquifer constant, specific capacity of wells		
11	39	Different terms related to well hydraulic such as water tables, isobath, isobar lines , draw down.		
	40	Recharge of ground water.		
	41	Types of wells, open wells, their design parameters and construction of an open well		
	42	Types of tube wells , their design parameters and construction of an tube wells		
12	43	Conveyance and Measurement of irrigation water		
	44	Canals and their classification (brief description only)		
	45	Seepage from canals and field channels		
	46	Canal lining-various types. Their advantages and disadvantages		
	3 rd Sessionals			
13	47	Introduction to various water conveyance structures and their functions		
	48	Open channels, their types, layout and design parameters		
	49	Subsurface systems of water conveyance, their components		
	50	Units of water measurement, direct and indirect methods of water measurement		
14	51	Measurement of water in pipes and open channels		
	52	Environment Issues		
	53	Pollution with poor quality irrigation water and excessive use of fertilizer and agro-chemicals		
	54	Revision		