

# INDIAN INSTITUTE OF TECHNOLOGY PALAKKAD

## Proforma for proposing course

New

Course Code and Title	CE 4xxx: IRRIGATION ENGINEERING				
Programme	B.Tech	Year of Study	4	Semester	7
Course credit	3-0-0-3				
Course category	PME				
Prerequisite, if any	Hydraulic Engineering				
Consent of teacher, if required	Required				
Date of proposal	02 April 2019	Date of Senate Approval			
Proposing faculty	Dr. Athira				

### Course Content

S/N	Topic	Lecture (hours)	Tutorial (hours)	Lab (hours)
1	<b>Introduction:</b> Necessity of irrigation- scope of irrigation engineering, benefits and ill effects of irrigation, irrigation development in India, present status and future requirements of irrigation in India. Soil-water-plant relationship: Classification of soil water-soil properties influencing irrigation, soil moisture, plant-water relationships	7	0	0
2	<b>Water Requirement of Crops:</b> Crop seasons and Indian Agriculture, Crop Period, Duty and Delta of Crops, Evapotranspiration, Crop Water Requirement, Consumptive irrigation requirement, Net irrigation requirement, Irrigation Scheduling, Irrigation Efficiencies, Irrigation Systems, irrigation scheduling using AquaCrop or CROPWAT.	15	0	0
3	<b>Canal Irrigation:</b> Alignment- computation of canal capacity- losses in canal- design of canal in alluvial soil and non-alluvial soils- Kennedy's silt theory- Lacey's regime theory- balancing depth- use of Garrets diagrams and Lacey's Regime diagrams- lining of irrigation channels. Water logging: Causes and Measures: surface and sub-surface drains, land reclamation	10	0	0
4	<b>Canal Structures:</b> Diversion head works: Types- selection of the suitable site for the diversion head work, components of diversion head work- Causes of failure	10	0	0

	of structure on previous foundation; Cross drainage works: Types- selection of suitable type of cross drainage works- aqueduct and Syphon aqueduct; Canal regulation works: Canal fall- necessity and location- types of falls- Cross regulator and distributary head regulator, Silt control devices			
	TOTAL	42	0	0

### **Learning Outcomes:**

At the end of the course, the students should be able to do:

- Irrigation scheduling for different crops
- Plan and design channels and other irrigation structures required for irrigation and drainage

**Teaching Methodology** :

**Assessment Methods** :

### **Text books:**

Garg, S.K., Irrigation Engineering and Hydraulic Structures, Khanna Publishers, New Delhi, 2017. ISBN-13: 978-8174090478.

Punmia, B.C., and B.B. Pande, Irrigation and Water Power Engineering, Laxmi Publication Pvt. Ltd., New Delhi, 2009. ISBN-13: 978-8131807637.

### **References**

A.M. Micheal, Irrigation, Theory and Practice, Vikas Publishing House Pvt. Ltd. New Delhi, 2007. ISBN-13: 978-8125918677.

Sharma, S.K., Principles and Practice of Irrigation Engineering, S. Chand & Company Pvt. Ltd, New Delhi, 1987. ISBN-13: 978-8121901666.