Program : **Diploma in Civil Engineering**	
Course Code : **6012D**	Course Title: **Rural Technology**
Semester : **6**	Credits: **4**
Course Category: **Program Elective**	
Periods per week: **4 (L:3, T:1, P:0)**	Periods per semester:**60**

Course Objectives:

- To impart knowledge of the decentralized rural planning and development process.
- To make the students familiar with government schemes for rural development.
- To introduce the basics of rural infrastructure development
- To impart knowledge about the roleof GIS in Rural Development.

Course Prerequisites: Nil

Course Outcomes:

COn	Description	Duration (Hours)	Cognitive Level
CO1	Summarize the decentralized rural planning and development process	13	Understanding
CO2	Identify designs for affordable rural housing and discuss the specifications for rural roads	14	Understanding
CO3	Discuss about rural water supply, irrigation, sanitation, electrification, economy and rural technology	19	Understanding
CO4	Discuss the applications of GIS in Rural Development and Disaster Mitigation	12	Understanding
	Series Tests	2	

CO – PO Mapping:

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1					2		
CO2	2						
CO3			2				
CO4				2			

3-Strongly mapped, 2-Moderately mapped, 1-Weakly mapped

Course Outline:

Module Outcomes	Description	Duration (Hours)	Cognitive Level
CO1	**Summarize the decentralized rural planning and development process**		
M1.01	Identify areas as rural and urban	1	Understanding
M1.02	Understand functioning and relevance of Local self-governments	4	Understanding
M1.03	Explain sustainable rural development and basics of local development plan	4	Understanding
M1.04	Familiarize with policies and programmes for rural development	4	Understanding
Contents: Rural and Urban Areas - RURBAN clusters Local Self Governments - Introduction to Three Tier Panchayat System - Decentralized Planning - Role of LSGD Engineering Wing Rural Development - Sustainable Rural Development - Local Development Plan Policies and Programmes for Rural Development - (Integrated Rural Development Programme (IRDP), SAGY etc)			
CO2	**Identify designs for affordable rural housing and discuss the specifications for rural roads**		
M2.01	Familiarize with basics of rural infrastructure development	3	Understanding
M2.02	Identify sustainable materials and designs for affordable rural housing	4	Understanding
M2.03	Describe the features and specifications for Rural roads	4	Understanding
M2.04	Familiarize with government schemes for rural housing and rural roads	3	Understanding
	Series Test – I	1	
Contents Rural Infrastructure - Rural Infrastructure Development - Schemes Rural Housing - Sustainable Housing - Sustainable construction materials - Affordable Rural Housing Designs - Features, Schemes, PAHAL - Design Typology Rural Roads - Features - Types - MoRD Specifications-Schemes, Pradhan Mantri Gram SadakYojana (PMGSY) - Profile of rural road in flat area and hilly area			

CO3	**Discuss about rural water supply, irrigation, sanitation, electrification, economy and Rural technology**		
M3.01	Explain Community Water Supply and irrigation Schemes, water conservation strategies	6	Understanding
M3.02	Describe Rural Sanitation and Solid waste management	5	Understanding
M3.03	Summarize strategies for Rural Electrification	3	Understanding
M3.04	Familiarize with the basics of Rural Economy and Rural technology	5	Understanding

Contents:

Community Water Supply - Schemes - Innovative Next Generation Strategies - Swajal

Water conservation - Ground water Recharge - Rain water harvesting - Schemes

Watershed Management - Schemes - Integrated watershed management

Micro - irrigation - Schemes - PMKSY (Pradhan Mantri Krishi Sinchayee Yojana)

Rural Sanitation - Schemes - Swachh Bharat Mission-Affordable toilets - Eco friendly toilets

Rural Solid waste management strategy - Biogas plant - Gobar - dhan

Rural Electrification - Alternative sources of energy, Solar Energy Harvesting, Government Schemes

Rural Economy (Introduction only) - Village Markets and fairs, Micro/Mini Banks, Rural Economic Zones. Rural Technology - RuTAG (Rural Technology Action Group)

CO4	**Discuss the applications of GIS in Rural Development and Disaster Mitigation**		
M4.01	Discuss basics of GIS	3	Understanding
M4.02	Identify software for GIS	1	Understanding
M4.03	Understand role of GIS for Rural Development and Agriculture	3	Understanding
M4.04	Understand role of GIS in Disaster Management, Watershed Development and Spatial Planning	5	Understanding
	Series Test – II	1	

Contents:

Introduction to GIS-Raster and Vector Data - Software awareness- Geospatial Applications in Rural Development - Role of GIS in Agriculture, Disaster management, Watershed development, Local Development Plan.

Text / Reference:

T/R	Book Title/Author
T1	Panchayati Raj and Village Development, Vijandra Singh, Sarupand Sons, New Delhi
T2	Village Development Planning, Hridai Ram Yadav, Logos Press
R1	Construction of Rural Roads Training Module for Barefoot technician, ILO
R2	IRC SP: 20 Rural Roads Manual
R3	GIS Applications in Agriculture, Francis J. Pierce and David Clay, CRC Press, Boca Raton

Online Resources

Sl.No	Website Link
1	rurban.gov.in
2	https://plan.lsgkerala.gov.in/planning.aspx
3	http://nirdpr.org.in/
4	https://sustainabledevelopment.un.org/topics/ruraldevelopment/decisions
5	https://www.sird.kerala.gov.in/index.php
6	https://pmgsy.nic.in/chapter-i-introduction-2
7	https://www.pmgsy.nic.in/sites/default/files/pdf/QAHVolI.pdf
8	https://rural.nic.in/sites/default/files/2.2.1Roads_English.pdf
9	http://celsgd.kerala.gov.in/old_site/pdf/LSGD%20Manual/MANUAL_Part1.pdf
10	https://www.india.gov.in/my-government/schemes
11	https://www.in.undp.org/content/india/en/home/library/poverty/pahal.html
12	http://townplanning.kerala.gov.in/town/wp-content/uploads/2018/12/handbook-eng.pdf
13	https://swachhbharatmission.gov.in/