



GUJARAT TECHNOLOGICAL UNIVERSITY

Minor Degree: Next Generation Smart Village

Subject Code: N114AD01

Semester – IV (w.e.f. AY 2024-25)

Subject Name: Fundamentals of Smart Village

Type of course: Minor Degree

Prerequisite: Basic of Science and Engineering

Rationale: The subject helps to build concept of Smart village and explore various requirements to develop a Smart Village

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
				ESE (E)	PA (M)	ESE (V)	PA (I)	
3	0	2	4	70	00	30	00	100

Content:

Sr. No.	Content	Total Hrs
1	Introduction: Rural Settlement, Smart Village Concept, MDGs (United Nations, 2015a), Idealised Model of Next Generation Smart Village	03
2	Socio-Economic Development: Education and Skill Development, Occupation and Earning, Business/ Agriculture, Ecotourism, Economics, Self Help Groups	05
3	Agriculture: Agriculture and Yields, Rural Commodities, Sustainability	05
4	Housing: Safe, Affordable, Sustainable homes, Available materials and labours, Vernacular form of architecture, Methods of Adobe Construction, building earthquake resistant houses, Earthquake resistant Non-engineered Construction	05
5	Energy: Sustainable generation & use, Electricity supply and consumption, Conventional & Non-conventional practices, affordable and alternative sources of energy	04
6	Waste Management & Sanitation: Waste Management, Energy Generation, Manures, Clean Drinking water, Sanitation Facilities	04
7	Transportation: Transportation facility & connectivity, Income Generation, Accessibility, safe and affordable, well-maintained road grids network	04
8	Health: Health and Well-being, PHC and other Medical facilities, Awareness	04
9	Environment:	03



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	Conservation and Enhancement of Natural Resources, Role of Environment in Rural Development	
10	Government Schemes & Policy for Rural Development: Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), Deendayal Antyodaya Yojana – National Rural Livelihoods Mission (DAY-NRLM), Deen Dayal Upadhyay – Gramin Kaushalya Yojana (DDU-GKY), Pradhan Mantri Awaas Yojana – Gramin (PMAY-G), Pradhan Mantri Gram Sadak Yojana (PMGSY), Shyama Prasad Mukherjee National RuRBAN Mission and National Social Assistance Programme (NSAP) Amrit Mahotsav, MGNREGA, PMAY-G, PMGSY, SAGY, SwachhGram, Gram Swaraj Abhiyan, etc.	03
11	Governance: E-Governance, Structure of governance and strategies, Planning and Implementation, Civic Engagement, Security & Safety	02

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
10%	25%	25%	20%	10%	10%

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Reference Books:

1. Planning, Housing and Infrastructure for Smart Villages By Hemanta Doloi, Ray Green, Sally Donovan, Routledge Publication
2. Affordable Housing for Smart Villages By Hemanta Doloi, Sally Donovan
3. Smart Villages: Bridging the Global Urban-Rural Divide, V. I. Lakshmanan, Arun Chockalingam, V. Kumar Murty, S. Kalyanasundaram, Springer International Publishing
4. India's Changing Villages By S.C. Dube, Routledge Publication

Web Material Links:

1. https://www.iitk.ac.in/nicee/wcee/article/WCEE2012_3279.pdf
2. https://www.nicee.org/IAEE_English.php

Course Outcomes:



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Sr. No.	CO statement	Marks % weightage
CO-1	Students will be able to understand concept and requirement of Smart Village	10%
CO-2	Students will be able to explore possibilities for scope of socio-economic development of village	25%
CO-3	Students will recognize the various infrastructure demands for smart village development	45%
CO-4	Students will learn about influence of Environment in Rural Development	10%
CO-5	Students will learn about Government Schemes & Policy for Rural Development	05%
CO-6	Students will know about E-Governance Concept and its implementation for Rural Development	05%

Indicative list of Experiments/ Assignments:

1. Enlisting requirements of Smart Village
2. Inventory related to Socio-Economy Development
3. Inventory related to Agriculture Land and Crop Yields
4. Building Materials and Labour availability Study, building typology-engineered, non-engineered
5. Inventory related to Conventional & Non-conventional sources of energy
6. Inventory related to rural infrastructure and gap analysis
7. Study related to implementation of various govt. scheme
8. Any other relevant activities
9. **REPORT (PART-1):** Designing Measurement sheets/ survey forms/ Questionnaires' forms for various types of survey