GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Engineering (Part Time)
Subject Code: 2940608
Semester –IV
Subject Name: INFRASTRUCTURE FOR SMART CITIES

Type of course: Open Elective-II

Prerequisite: NIL

Rationale:

1. To develop a basic understanding about various types of Infrastructure and Smart city.
2. To enable the students to apply the basic need and planning concept to solve various Infrastructure problems.

Teaching and Examination Scheme:

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

Content:

Sr. No.	Content	Total Hrs
1	**Fundamental of smart city & Infrastructure:** Introduction of Smart City, Concept of smart city, Objective for smart cities, History of Smart city world and India. Need to develop smart city, Challenges of managing infrastructure in India and world, various types of Infrastructure systems, Infrastructures need assessment	08
2	**Planning and development of Smart city Infrastructure :** Energy and ecology, solar energy for smart city, Housing, sustainable green building, safety, security, disaster management, economy, cyber security, Project management.	08
3	**Intelligent transport systems** Smart vehicles and fuels, GIS, GPS, Navigation system, traffic safety management, mobility services, E-ticketing	10
4	**Management of water resources and related infrastructure** Storage and conveyance system of water, sustainable water and sanitation, sewerage system, flood management, conservation system	08
5	**Infrastructure Management system & Policy for Smart city** Integrated infrastructure management systems for smart city, Infrastructure management	08

	system applications for existing smart city. Worldwide policies for smart city Government of India - policy for smart city, Mission statement & guidelines, Smart cities in India, Case studies of smart city.	

Suggested Specification table with Marks (Theory): (For PDDC only)

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
10%	45%	30%	5%	5%	5%

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. Smart City on Future Life - Scientific Planning and Construction by Xianyi Li
2. The Age of Intelligent Cities: Smart Environments and Innovation-for-all Strategies (Regions and Cities) by Nicos Komninos
3. Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia by Anthony Townsend
4. Grig N.S., Infrastructure engineering and management, Wiley-Interseience, 1988
5. Hudson W.R., Haas R., Uddin W., Infrastructure Management, McGraw-Hill, 1997
6. Giffinger, Rudolf; Christian Fertner; Hans Kramar; Robert Kalasek; Nataša Pichler-Milanovic; Evert Meijers (2007). "Smart cities – Ranking of European medium-sized cities". Smart Cities. Vienna: Centre of Regional Science
7. Mission statement &guidelines on Smart City Scheme". Government of India - Ministry of Urban Development http://smartcities.gov.in/upload/uploadfiles/files/Smart City Guidelines(1).pdf

Course Outcomes: At the end of the course, Student will be able to;

Sr. No.	CO statement	Weightage
CO-1	Understand the necessity of infrastructural development for smart cities.	20 %
CO-2	Identify components of infrastructure and Prepare infrastructure plan for smart city.	25%
CO-3	Understand smart transport system for smart cities and its application	20%
CO-4	Study of water resources systems for smart city and its application.	20%
CO-5	Understand National and Global policies to implement for smart city development.	15%

List of Tutorials/Activities:

1. Differentiate smart city with other city.
2. Projects on Site Selection for major infrastructure.
3. Site visit of Smart city and Prepare report on Case study of smart city
4. List out various smart transport system for smart cities.
5. Prepare breakdown structure for different units of the smart city.
6. Prepare report on Case study of smart city

List of Open Source Software/learning website:

1. Smart city government of India. http://smartcities.gov.in
2. Reconceptualising Smart Cities: A Reference Framework for India https://www.niti.gov.in/writereaddata/files/document_publication/CSTEP%20Report%20Smart%20Cities%20Framework.pdf
3. Draft Concept Note on Smart City Scheme". Government of India - Ministry of Urban Development -martcitiesoftomorrow.com/wp-content/uploads/2014/09/CONCEPT_NOTE_3.12.2014__REVISED_AND_LATEST_.pdf