



# GUJARAT TECHNOLOGICAL UNIVERSITY

Minor Degree : Smart Cities

Subject Code: N114AF01

Semester – IV (w.e.f. AY 2024-25)

Subject Name: Fundamentals of Smart City Planning

**Prerequisite:** Understand process of planning and drafting a plan for smart city.

**Rationale:** To understand the concept of smart city and associated challenges, latest technologies used in intelligent building.

### 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	0	30	0	100

### Content:

Unit No	Course Content	No of Hours
1	<b>Introduction to Smart cities:</b> Introduction of Smart City, Concepts, Objectives and criteria, History of Smart city of the world and India. Need to develop smart city, principle stakeholders, and key trends in smart cities developments.	11
2	<b>Smart Cities Planning and Development:</b> Understanding smart cities, Dimension of smart cities, Global Standards and performance benchmarks, Practice codes, Smart city planning and development, Financing smart cities development, Governance of smart cities	12
3	<b>Smart City Elements:</b> Solar energy for smart city, Smart Housing, E-ticketing, cyber security, mobility services, project management, Smart vehicles and fuels, GIS, GPS, Navigation system	12
4	<b>Green building in smart cities:</b> Introduction to green buildings, Rating system, Energy saving system	10

### Suggested Specification table (Theory):

Distribution of Theory Marks (%)					
R Level	U Level	A Level	N Level	E Level	C Level
15 %	20 %	20 %	20 %	15 %	10 %



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

## Reference Books:

1. Jo Beall (1997); "A city for all: valuing differences and working with diversity"; Zed books limited, London (ISBN: 1-85649-477-2)
2. UN-Habitat; "Inclusive and sustainable urban planning: a guide for municipalities"; Volume Urban Development Planning (2007); United Nations Human Settlements Programme (ISBN: 978- 92-1-132024-4)
3. Arup Mitra; "Insights into inclusive growth, employment and wellbeing in India"; Springer (2013), New Delhi (ISBN: 978-81-322-0655-2)
4. William J. V. Neill (2004); "Urban Planning and cultural identity"; Routledge, London (ISBN: 0-415-19747-3)
5. John S. Pipkin, Mark E. La Gory, Judith R. Balu (Editors); "Remaking the city: Social science perspective on urban design"; State University of New York Press, Albany (ISBN: 0-87395-678-8)
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. "Draft Concept Note on Smart City Scheme". Government of India - Ministry of Urban Development ([http://indiansmartcities.in/downloads/CONCEPT\\_NOTE\\_-3.12.2014\\_REVISIED\\_AND\\_LATEST.pdf](http://indiansmartcities.in/downloads/CONCEPT_NOTE_-3.12.2014_REVISIED_AND_LATEST.pdf))

## Course Outcome:

No.	Course Outcomes	RBT Level*
1	Acquaint knowledge on smart cities planning and development	RM, UN
2	Develop work break down structure, scheduling and project management of smart cities	AP, AN, EL
3	Work out the most energy efficient technique	AP, CR
4	Understand technologies, infrastructure, and concept of planning and latest methodology.	UN, AN, EL
*	RM:Remember,UN:Understand,AP:Apply,AN:Analyze,EL:Evaluate,CR:Create	



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## List of Experiments:

- **Different smart materials associated with smart building.**
  - Identifying smart construction materials
  - Applications in smart buildings
  - Pros and Cons of smart materials over conventional materials
  - Preparing a detailed report on the above context
- **Technology involved in different construction of smart building.**
  - Smart construction techniques
  - Need of smart construction techniques
  - Prepare a detailed report on smart construction of smart building
- **GIS and GPS applications in context to smart cities**
  - Prepare a report on applications of GIS and GPS in smart city.