

PIUI 8005	Township Planning for Smart City	L	T	P	C
Version 1.0		3	0	0	3
Pre-requisites/Exposure	Graduate and Finance concepts				
Co-requisites	Good Command in MS Word and MS Powerpoint				

Course Objectives

It is expected that the students, after going through this course, will have developed a good knowledge of the issues involved as well as policies aimed at improving urban infrastructure in India. They would also be equipped with necessary skills in developing sustainable approaches and strategies for efficient provision and management of urban infrastructure.

Course Outcomes

On completion of this course, the students will be able to

CO1: Understand the issues & challenges in the Smart City

CO2: To develop skills required for planning & formulation of Contracts and Agreements in Smart City

CO3: To analyse and integrate the processes for Contract execution and control in Smart City

Catalog Description

The Township Planning for Smart City course provides an understanding of the Smart City in the country and as well as abroad including infrastructure and services, institutional structures, financing, management systems, and regulation of urban development and infrastructure provision. Emphasis is placed on analyzing the key management issues, approaches, and strategies.

Course Content

Unit I: 9 lecture hours

Urbanization and Growth of Cities, Planning for the City Development , History of Urban or Town Planning, Discussion on UDFI Guidelines

Unit II: 9 lecture hours

Elements of City Plan, Planning Law & Legislations, Development of the Master Plan, JnNURM, Types of City Development Plan

Unit III: 9 lecture hours

Introduction to GIS, Application of GIS, Introduction to ARCGis, GIS for Water Management, GIS for Smart Grid, GIS for Soft Infrastructure

Unit IV: 9 lecture hours

Concepts, Definitions & Overviews, Smart Cities in the World, PPP in Smart City, Business Models for Smart City, Smart Grid, Solar roof top planning, Rain water Harvest, Transportation

Text Books and Journals

1. Urban Planning by M.P. Rao
2. Mackinsey report on Urbanization.
3. HANDBOOK ON SERVICE LEVEL BENCHMARKING
4. Lectures from MIT and IITs

5. Smart Cities by A.M. Townsend

Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination Examination Scheme:

Components	Presentation/Assignment/Projects etc	ESE
Weightage (%)	50	50

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)


Mapping between COs and POs		
	Course Outcomes (COs)	Mapped Programme Outcomes
CO1	Analyzing the issues & challenges in the Smart City	PO 1,2, ,4,7,8,9,10, 11,12,13, 14
CO2	To develop skills required for planning & formulation of Contracts and Agreements in Smart City	PO 1,2, 3, 7,8,9,10, 11,14
CO3	To integrate the processes for Contract execution and control in Smart City	PO 1,2, 3, 8,9,10, 11, 12,13,14

CourseOutcomes	CO 1	CO 2	CO 3
PO 1	3	3	3
PO 2	3	2	3
PO 3	3	3	3
PO 4	3	2	3
PO 5	2	3	2
PO 6	2	3	2
PO 7	2	2	3
PO 8	3	2	3
PSO 9	2	2	2
PSO 10	2	2	2
PSO 11	2	2	2
PSO 12	2	2	2
PSO 13	2	2	2
PSO 14	2	2	2

Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14
PIUI 8005	Township Planning for Smart City	3	3	3	3	2	2	2	3	2	2	2	2	2	2
		Students will demonstrate strong conceptual knowledge and execution in soft and hard infrastructure planning, development, management, financing, regulation and governance.	Students will demonstrate effective understanding of infrastructure planning and development, utility & energy management, urban transportation including metro rail, e-vehicle with charging and other modes of urban surface transportation, water supply and sewerage, smart city planning and effective financing urban infrastructure.	Students will demonstrate analytical skills to understand issues with remedial solutions relating to urban infrastructure. of soft and hard infrastructure	Students will exhibit the ability to integrate planning, construction & development, operation & management, financing, regulation and governance of urban infrastructure projects and facilities.	Students will exhibit the ability to integrate technical, economic, social and regulatory frameworks for urban infrastructure sector planning and resource management.	Students will exhibit deployable skills pertinent to urban hard and soft infrastructure sector and smart city development and management.	Students will be able to develop and evaluate alternate managerial choices and identify optimal solutions.	Students will demonstrate effective application capabilities of their conceptual understanding to infrastructure planning, development and management.	Students will be able to exhibit effective decision-making skills, employing analytical and critical thinking ability for planning, development and management of soft and hard infrastructure.	Students will demonstrate effective oral and written communication skills in the professional context.	Students will be able to work effectively in teams and demonstrate team-working capabilities.	Students will exhibit leadership and networking skills.	Students will demonstrate sensitivity towards ethical and moral issues and have ability to address them in the context of urban planning, development and management including cost effective financing and good governance.	Students will demonstrate employability traits in line with the needs of changing hard and soft urban infrastructure sector.

1=weakly mapped
2= moderately mapped
3=strongly mapped

Model Question Paper

Name: Enrolment No:			
<p style="text-align: center;">Course: PIUI 8005-Township Planning for Smart City</p> <p>Programme: MBA UISC Semester: Odd</p> <p>Time: 03 hrs. Max. Marks:100</p> <p>Instructions: Section A (each carrying 2 marks); Attempt all questions from Section B (each carrying 5 marks). Any Two Questions from Section C (carrying 15 marks). Case Study Section D (30 Marks)</p>			
Section A (10 X 2) Short Notes			
1	Glasgow.	[2]	CO1
2	Vienna.	[2]	CO3
3	Amsterdam.	[2]	CO2
4	Solar Roof top.	[2]	CO2
5	Barcelona.	[2]	CO3
6	Kolkata metro.	[2]	CO1
7	Biomethanation..	[2]	CO2
8	Jeju Smart Grid	[2]	CO1
9	City Scale Cloud Infrastructure.	[2]	CO3
10	Digital Mapping	[2]	CO2
SECTION B (Attempt all Questions)			
11	Explain some technologies and managerial perspectives while preparing Smart Transportation System..	[5]	CO3
12	Explain rain Water Harvesting.	[5]	CO2
13.	Discuss some methods in Urban Waste Management which can make the projects feasible.	[5]	CO1
	How can we improve E-Governance system with Help of GIS?	[5]	CO1
SECTION C (Attempt any Two Questions)			
14.	What model should we use while creating Smart City? PPP or EPC ? Explain.	[15]	CO1

15.	How will you calculate the payback period for an individual household while integrating solar roof top panels into the grid system?	[15]	CO3
16	What model should we use while creating Smart City? PPP or EPC ? Explain.	[15]	CO2
SECTION D			
	<p><u>Dublin city adopts smart approach on road to economic recovery</u></p> <p>Ireland's capital is one of the oldest in Europe, and the city council wants to maintain the city's historic fabric. The Georgian parts of Dublin are protected under policy introduced in the 1980s and 90s that prevent new roads being built in some of the most historic areas. However, with congestion becoming an increasing problem, another solution has been sought.</p> <p>Brendan O'Brien, head of technical services at Dublin city council, explains: "We have had to find a way of doing things more efficiently." The city council has been working to improve the transport network without any major re-development. Instead, it has been collecting and analysing data, in partnership with IBM, to tackle congestion. This is being done as part of a push towards making Dublin a "smarter city".</p> <p>Journey information is released and updated by Dublin city council every minute. Residents can go online and find the quickest route to their destination. The term "smart city" is synonymous with cities that use information and communication technologies to be more efficient in their use of resources. However, O'Brien calls it a "buzzword", joking that it implies other cities are stupid.</p> <p>Ireland's capital has become IBM's smarter city testbed. Research is being conducted in Ireland on how problems like congestion can be tackled through joining up existing databases. This is part of IBM's larger Smarter Planet programme, which explores broader environmental concerns. The work involves applying analytics to huge amounts of data to solve pressing problems.</p> <p>In Dublin, information comes from an array of sources including road sensors and GPS updates from the city's 1,000 buses. A digital map of the city is being built, overlaid with the real-time positions of the city's buses.</p> <p>O'Brien says the city council is a long way off the smart city ideal of using technology to improve all the city's services. However, as well as working on traffic issues, IBM is also looking into water and energy use and smarter social care.</p>	[30]	CO3

He adds that the relationship with IBM is not commercial but purely research based: IBM wants to create a model of collaboration with the city so the company can use the city's data to develop the smart city approach. In return, Dublin gets the latest ideas and results of the thinking. Much of the work in Dublin is about trying to understand how the next generation of computer technology could exploit both the data made available by cities and data generated by mobile devices.

"What we are doing in Dublin is particularly innovative because we are starting to look at all sources of data – through work with IBM," says O'Brien. "It's not just bus and traffic data but fusing it all together. That is the big plan."

Martin Brynskov, an academic co-ordinator of AU Smart [Cities](#), says collaborations like this one are likely to become increasingly common: "It is difficult for government to build systems [on their own] – either you have to partner up to build these infrastructures or the alternative is not to do it. But this is, in a way, to slow down a bit."

He is sceptical about the very obvious, strong alliance with IBM. "If you were a small business looking to collaborate with the council you might think; 'where on this stage do I fit?'"

Lisa Amini, director of IBM Research Ireland, says the research lab was not put in place to solve all Dublin's problems. "It is there to do research in this context and to use data," she says. "What we learn we share with Dublin city council."

She says other areas could learn from Dublin's approach and the fact the city has made a leap of faith. "We couldn't tell them, 'this is how much you will save' or 'this is how this will benefit you', but they were willing to take a risk and say, 'I know we can do better'."

The vision of a smart city is perhaps held back by fears that we could end up living in a "Big Brother" state, but O'Brien believes that this won't happen because the council is not interested in personal data. "Big Brother presupposes the people collecting information are interested in you," he says.

For local authorities to make good use of data, O'Brien says staff will need new skills. Councils need to buy in at the top level and deploy enough resources to put energy into a smart city approach, he adds.

Last year, 30 urban areas across the UK competed for £24m to become smart cities. [Glasgow won the grant](#), and the city council has used the money to invest in "super

<p>intelligent" CCTV cameras that can be used to raise alarm when unattended bags are detected, and apps that can help visitors find the quickest routes.</p> <p>David Gann, chair in technology and innovation management at Imperial College London, says that the smart city approach "should result in better experience for citizens and visitors, better business environment for first and higher quality of life for all".</p> <p>For this to happen, local government has a role to play, including making "visible targets" for areas in which cities need to improve.</p> <p>Gann admits that there are risks. "Digital systems are vulnerable to cyber-crime and the more integrated they are, the more an attack could shut down essential services."</p> <p>However, O'Brien believes that looking for alternatives is important in a time of recession: "With economic recession, all the big civil infrastructure problems got shelved and there will be a time lag between economy recovery and seeing funding again," he says. "There will be a transportation deficit over the next few years, and knowing we don't have anything in the pipeline.</p> <ol style="list-style-type: none">1. How is economic recession effecting the Europe's Smart City Program ? (4)2. Explain the role of IBM. (10)3. How will you create a Digital Map for your own city? (6)4. Can City council of Dehradun follow the above footsteps to convert itself into a Smart City. Give reasons for the support of your answer. (10)		
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