INSTITUTE OF AERONAUTICAL ENGINEERING
(Autonomous)
Dundigal - 500 043, Hyderabad, Telangana

COURSE CONTENT

SMART CITIES								
VIII Semester: CE								
Course Code	**Category**	**Hours / Week**			**Credits**	**Maximum Marks**		
		L	**T**	**P**	**C**	**CIA**	**SEE**	**Total**
ACED63	**Open Elective**	3	0	0	3	40	60	100
Contact Classes: 48	**Total Tutorials: Nil**	**Total Practical Classes: Nil**				**Total Classes: 48**		
Prerequisite: Nil								

I. COURSE OVERVIEW:
This course is designed to be an introductory course in your city journey to provide smart services for it is citizens, there is no specific type of course enrollee, you can be an urban planner, you can be an engineer, you can be a developer who is building smart city services, you can be a real estate master planner. This course is a great asset for anyone who would be living, designing or developing the smart cities of the future.

II. COURSE OBJECTIVES:
The student will try to learn:

I. The concept of smart city and associated challenges that underpins it.
II. The latest technologies used in intelligent building.
III. The process of planning and drafting for smart city and benchmarking their performance.
IV. The importance and need of different smart system solve various Infrastructure problems.

III. COURSE OUTCOMES:
At the end of the course students should be able to:

CO 1 Explain potential applications of the materials within the context of the management of smart urban transportation systems as well as smart urban energy systems.

CO 2 Demonstrate state-of-the-art strategies for effectively managing the transition from legacy infrastructures to smart urban systems.

CO 3 Discuss the necessity of infrastructural development for smart cities.

CO 4 Identify components of infrastructure and Prepare infrastructure plan for smart city. Study of water resources systems for smart city and its application.

CO 5 Outline the different smart transport system for smart cities and its application.

CO 6 Infer the National and Global policies to implement for smart city development.

IV. COURSE CONTENT:

MODULE - I: FUNDAMENTAL OF SMART CITY & INFRASTRUCTURE (10)
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.

MODULE -II: PLANNING AND DEVELOPMENT OF SMART CITY INFRASTRUCTURE (9)
Energy and ecology, solar energy for smart city, Housing, sustainable green building, safety, security, disaster management, economy, cyber security, Project management.

MODULE - III: INTELLIGENT TRANSPORT SYSTEMS (10)
Intelligent Transport Systems use smart vehicles with advanced fuels, GIS, and GPS for accurate tracking and mapping. Navigation and traffic safety systems optimize routes and enhance road safety.
Mobility services and e-ticketing enable convenient, efficient, and integrated transportation.

MODULE-IV: MANAGEMENT OF WATER RESOURCES AND RELATED INFRASTRUCTURE (9)
Storage and conveyance system of water, sustainable water and sanitation, sewerage system, flood management, conservation system

MODULE -V: INFRASTRUCTURE MANAGEMENT SYSTEM & POLICY FOR SMART CITY (9)
Integrated infrastructure management systems for smart city, Infrastructure management, system applications for existing smart city, Worldwide policies for smart city, Worldwide policies for smart city.

V. TEXT BOOKS:

1. Pipkin, John S., Mark E. La Gory, and Judith R. Balu, editors. "*Remaking the City: Social Science Perspective on Urban Design"*. State University of New York Press, 1983.
2. Xianyi Li, "*Smart City on Future Life - Scientific Planning and Construction*", Posts and Telecom Press, McGraw Hill Education. 2nd Edition, 2008.
3. Allen G.Noble, (Eds), "*Regional Development and Planning for the 21st Century"*, New Priorities and New Philosophies", Aldershot, USA, 1988.

VI. REFERENCE BOOKS:

1. Mitra, Arup. "*Insights into Inclusive Growth, Employment and Wellbeing in India"*. Springer, 2013.
2. Beall, Jo, editor. "*A City for All: Valuing Differences and Working with Diversity"*. Zed Books, 1997.

VII. ELECTRONICS RESOURCES:

1. https://archive.nptel.ac.in/courses/124/107/124107158/
2. https://www.udemy.com/course/smart-cities/
3. https://www.coursera.org/learn/smart-cities

VIII. MATERIAL ONLINE:

1. Course template
2. Tutorial question bank
3. Tech-talk topics
4. Open-ended experiments
5. Definition and terminology
6. Assignments
7. Model question paper - 1
8. Model question paper - 2
9. Lecture notes
10. Power point presentations
11. E-learning readiness videos (ELRV)