

<b>BCSE316L</b>	<b>Design of Smart Cities</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
		<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>
<b>Pre-requisite</b>	<b>NIL</b>	<b>Syllabus version</b>			
		1.0			
<b>Course Objectives:</b>					
<ol style="list-style-type: none"> <li>1. To understand the basic concepts of smart cities and their energy sustainability in urban planning.</li> <li>2. To analyze the security, privacy, and ethics in smart cities planning and development.</li> <li>3. To perform process control and project management in smart cities.</li> </ol>					
<b>Course Outcome:</b>					
At the end of this course, student will be able to:					
<ol style="list-style-type: none"> <li>1. Ascertain and describe the basic concepts of smart and sustainable cities.</li> <li>2. Comprehend the knowledge of urban planning and sustainability in smart cities.</li> <li>3. Analyze the security issues and challenges of smart cities and their advancements.</li> <li>4. Incorporate project management, planning, and stack holders in the design and development of smart cities.</li> <li>5. Investigate the various ICT and data analytics to connect government, urban planners, universities, city developers, and communities.</li> </ol>					
<b>Module:1</b>	<b>Smart City</b>				<b>6 hours</b>
Smart City - Complexities of Smart Cities - Urban Network - Sensor Network - Role of Urban Networks - Trends in Urban Development - Community Resource Sensing.					
<b>Module:2</b>	<b>Urban Planning</b>				<b>6 hours</b>
Urban Planning - Databases - Principles of Urban Planning - Data Organization - Role of Planning in Smart Cities - Case Studies.					
<b>Module:3</b>	<b>Energy Sustainability in Smart Cities</b>				<b>6 hours</b>
Energy - Decision Making - Energy as a catalyst for Sustainable Transformation - Cohesion and efficiency of smart cities.					
<b>Module:4</b>	<b>Security, Privacy and Ethics in Smart Cities</b>				<b>6 hours</b>
Security challenges in smart cities - Security threats in smart cities - IoT related safety measures for a safer smart city.					
<b>Module:5</b>	<b>Smart Cities Planning and Development</b>				<b>6 hours</b>
City Planning - Understanding Smart Cities - Dimensions of Smart Cities - Global standards and performance benchmark of smart cities - Financing smart cities development - Governance of smart cities.					
<b>Module:6</b>	<b>Process Control and Stabilization</b>				<b>7 hours</b>
Structural concept - Specific applications - Structural health monitoring - Process control and stabilization - Internet of Vehicle (IoV) Importance - Applications - Security issues - Perspectives on Intelligent Transport Systems (ITS) - ITS Highway safety perspective - Environmental aspects of ITS.					
<b>Module:7</b>	<b>Project Management in Smart Cities</b>				<b>6 hours</b>
Case studies on project management of smart cities: web application and mobile based implementation.					
<b>Module:8</b>	<b>Contemporary Issues</b>				<b>2 hours</b>
<b>Total Lecture hours:</b>					<b>45 hours</b>

<b>Text Book(s)</b>			
1.	Carol L. Stimmel, <i>Building Smart Cities Analytics, ICT, Design Thinking</i> , 2016, 1 <sup>st</sup> edition, CRC Press, Taylor and Francis, UK		
<b>Reference Books</b>			
1.	Andrea Vesco and Francesco Ferrero, <i>Handbook of research on social, economic, and environmental sustainability in the development of smart cities</i> , 2015, 1 <sup>st</sup> edition, Information Science Reference, IGI Global, USA		
2.	La Scala, Massimo, et al., eds. <i>From smart grids to smart cities: new challenges in optimizing energy grids</i> . 2021, Vol. 2. John Wiley & Sons, USA		
3.	Angelakis, Vangelis, et al., eds. <i>Designing, developing, and facilitating smart cities: urban design to IoT solutions</i> . 2016, Springer, USA		
Mode of Evaluation: CAT / Assignment / Quiz / FAT / Project / Seminar			
Recommended by Board of Studies		04-03-2022	
Approved by Academic Council		No. 65	Date 17-03-2022