

VTU- SYLLABUS 2022-23 M ARCH (URBAN DESIGN) CBCS-OBE			
SEMESTER-I			
COURSE: URBAN DESIGN STUDIO-I			
Course Code:	22UDC11	CIE Marks	50
Teaching hours /Week (L:P:SDA)	2:8:0	SEE Marks	50
Total Hours of Pedagogy	10	Total Marks	100
Credits	10	Exam Hours	Viva Voce
<p>Course Learning Objectives: The goal of the studio-I shall be to understand that urban design at its core is a connective discipline. The objective shall be to understand, organize and synthesize in visual, tactile and measurable ways sustained improvements in the places that make up our urban living environment.</p>			
<p>Studio Outline</p> <p>The studio will incorporate interdisciplinary principles, processes and interactions that are fundamental to Urban Design. The studio tasks will include the following;</p> <ol style="list-style-type: none"> 1. Documenting, analyzing and understanding textures and places that make an urban area. 2. Understanding the nature of interrelation between in formal and formal issues connected with intervention into urban fabric. 3. To identify and learn basic urban design tools. 4. To implement the same in a project of single use or multiuse built structure connected with place making and inclusive. <p>Project I will consist of documenting , analyzing and evolving proposals for urban components like streets, public open spaces, public gathering places, precincts of historically important buildings in the city. The focus will be on understanding the concepts of “Fabric, Texture and Weave”.</p> <p>Project II will focus on the goals and objectives of “intervention to improve”. The project will identify a specific area in an identified city to understand the process of documenting the true picture of the area and creating scenarios which will clearly demonstrate the needs of intervention to improve. The project will end with the design of multi or single use built forms.</p>			
Teaching Learning Process	Lecture sessions, Site visits, Student presentations, Group discussions and presentation, Periodic Reviews, Workshops are part of the Teaching Learning Process		

Assessment Details (Both CIE and SEE)

Assessment Details (both CIE and SEE) The weight age of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation: Continuous Internal Evaluation will be based on Internal Reviews, External Reviews and Final studio report and individual project Submission/VIVA VOCE

Semester End Examination: Viva-voce: The viva voce shall be conducted for a duration of 20 minutes (per student) for the subjects listed under viva voce for all the semesters

Suggested learning Resources

1. A Place In The Shade: The New Landscape & Other Essays Paperback, Charles Correa , Penguin Books; 2010
2. Cities for People, Jan Gehl, Island Press; 2010
3. Design of Cities, Edmund N Bacon, Penguin Books; 1976
4. Essentials of Urban Design, Mark Sheppard CSIRO Publishing; 2015
5. Fundamentals of Sustainable Urban Design, Avi Friedman, Springer Nature Switzerland AG; 2021
6. Great Streets, Allan B. Jacobs, The MIT Press; 1995
7. Public Places Urban Spaces: The Dimensions of Urban Design, Matthew Carmona, Tim Heath, TanerOc, Steve Tiesdell, Architectural Press; 2010
8. The Kinetic City & Other Essays, Rahul Mehrotra, ArchiTangle GmbH; 2021
9. Urban Design Reader, Matthew Carmona, Steve Tiesdell, Architectural Press;2007
10. Urban Design: The Composition Of Complexity by Ron Kasprisin, Routledge; 2019

Web links and Video Lectures (e-Resources)

1. Urban Design, Center for Design Excellence,
<http://www.urbandesign.org/home.html>
2. Project for Public Spaces
<https://www.pps.org/>
3. Urban Design Lab
<https://urbandesignlab.in/resources/udl-digital-resources/>
4. Urban Design Group
<https://www.udg.org.uk/about/what-is-urban-design>
5. Urban Environment Management
<https://www.gdrc.org/uem/planning/urban-planning.html>
6. Planetizen
<https://www.planetizen.com/>
7. Space Syntax
<https://spacesyntax.com/>

Skill Development Activities suggested

1. Urban design related place reading and representation techniques
2. Mapping the observation and inferring inferences and conclusion
3. Skills that enable analysis and identify the Urban design issues
4. Ability to come with Urban design strategy and Design project

Course outcome(Course skill set)

At the end of the course the student will be able to:

SI No	Description	Blooms level
CO1	Able to identify urban components that influence urban area(study commonality)network and systems	IV
CO2	Means of engage with the place, people, method of data collection/documentation of the practices that influences urban environment.	V
CO3	Able to Identify issues/conflicts that influence urban area	V
CO4	Able to generate UD strategies	VI
CO5	Urban Design intervention within the study area	VI

Program outcome of this course

SI No	Description	POs
1	Ability to read the urban components	1,2,9
2	Ability to engage, interact and document the place	2,3,7
3	Able to generate strategies to address the UD issues	2,3,7,8
4	Ability to demonstrate urban design solution	3,5,6

Mapping of CO s and PO s

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	3	2	2	-	-	2	2	2	1
CO2	3	3	2	2	-	-	2	2	2	2
CO3	2	3	3	1	-	1	2	2	3	2
CO4	2	2	3	2	3	2	2	2	1	1
CO5	1	2	2	2	3	2	2	2	-	2
Average	2.2	2.6	2.4	1.8	1.2	1	2.0	2.0	1.6	1.6

Graduate attributes

Know ledge	Analyti cal skills	Applicati on of research	Applicatio n of latest technology and tools	Generate design/s olution	Ethics	Societa l concer n	Environ mental concer n	Collabo rative aptitud e	Opportunity for continued learning
PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10

Mapping correlation	Low	Medium	High	No
	1	2	3	--

COURSE: URBAN DESIGN PRINCIPLES AND TECHNIQUES			
Course code:	22UDC12	CIE Marks	100
Teaching hours /Week (L:P:SDA)	2:1:2	SEE Marks	---
Total Hours of Pedagogy	4	Total Marks	100
Credits	4	Exam Hours	---
Course Learning Objectives:			
The objective of the course is to introduce students to the methods of reading and understanding the physical fabric of a city.			
Studio Outline			
-To introduce Urban Design theories, principles and techniques based on literature and case studies and applying them to a known context and analyze the outcome. -Lecture sessions held to understand these theories, principles and implement them through exercises.			
Teaching Learning Process			
Lecture sessions, Site visits, student presentations, group discussion and timely reviews are part of the process.			
Assessment Details (Both CIE and SEE)			
Assessment Details(CIE) The weightage of continuous evaluation is 100 % divided into multiple phases/progressive stages. The minimum passing marks is 50%.			
Continuous Internal Evaluation will be based on Internal reviews and final individual portfolio submission.			
Suggested learning resources:			
<ol style="list-style-type: none"> 1. Books: Broadbent, Geoffrey. Emerging Concepts of urban Design 2. Bacon, Edmund, N. Design of Cities. 3. Gosling, David & Maitland, Barry, Concepts of Urban design. 4. Morris, Anthony, J.E. History of Urban Form. 5. Kostof, Spiro, The City Assembled: The Elements of Urban Form Through History. 6. Kostof, Spiro, City Shaped: Urban Patterns and Meanings Through History 			
Web links and Video Lectures(e-Resources)			
https://semanurcan.wordpress.com/2019/10/27/the-city-image-and-its-elements-by-kevin-lynch/ https://www.writingcities.com/2015/11/10/gordon-cullens-townscape/			
Skill development activities suggested			
<ol style="list-style-type: none"> 1. Skills to read and analyze maps and translate through writing. 2. Learning the process of public outreach for data collection. 3. Analytical abilities to evaluate urban design challenges. 			

Course outcome (course skill set)

Towards the end of semester, students will be able to:

Description	Blooms Level
CO1 : Identify components of Urban Design	II
CO2: To introduce urban principles and techniques by referencing to established ideologies of renowned urbanists.	V
CO3 :Analyze challenges/issues related to Urban Design	IV
CO4 : Be able to apply the learnings to given context	III
CO5: Produce reports and generate maps to help understand the principles.	VI

Program outcome of this course

Description	PO's
1: Ability to read urban fabric.	1
2: Generate systematic method of data collection and documentation	3,9
3: Ability to develop certain soft and technical skills	4
4: Able to identify and address any predicament.	5,9
Mapping of CO's and Po's	

Graduate Attributes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	3	2	1	-	-	-	2	3
CO2	3	2	2	-	-	-	-	-	-	-
CO3	3	2	3	2	-	-	-	-	2	-
CO4	3	3	2	2	-	-	-	-	2	2
CO5	3	3	3	2	1	-	-	-	3	2
Average	3	2.4	2.6	1.6	0.4	-	-	-	1.8	1.4

Knowledge	Analytical Skills	Application of Research	Application of latest technology /tools	Generate Designs/Solutions	Ethics	Societal Concern	Environmental concern	Collaborative aptitude	Opportunity for continued learning
PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10

Mapping Co-relation	Low	Medium	High	No
	1	2	3	-

COURSE: THEORY OF URBAN FORM			
Course code:	22UDC13	CIE Marks	50
Teaching hours /Week (L:P:SDA)	2:0:2	SEE Marks	50
Total Hours of Pedagogy	3	Total Marks	100
Credits	3	Exam Hours	3
Course Learning Objectives:			
The course is intended as a comprehensive study of urban form, processes, and urban spaces in historical and theoretical terms.			
Module-1			
INTRODUCTION TO URBAN DESIGN AND URBAN FORM			
Urban design- (ideology/theory) and the various concerns (scope and objectives) of the discipline; components of urban design and their inter-dependencies.			
urban form- morphology (significance of understanding Urban form and Urban Process). Determinants of urban form-natural and human-made determinants			
Teaching Learning Process	Introduction to the topic through lectures, readings, and discussions. Presentation of urban design case studies by faculty/students to understand the various scopes and objectives of urban design		
Module-2			
STUDY OF URBAN FORM			
Comparison between the various perspectives of studying and analyzing urban form- space; conservation, evolution, and the life of urban form.			
Urban space and form through history (overview) Western context: The Early Cities (Neolithic, classical antiquity), Medieval Towns, Renaissance and Baroque Planning, Form of modern city and early cities of capitalism (industrialization and influences City beautiful movement, City and Garden, Camilo Sitte); Modern Movement (Tony Garnier, Corbusier, F L Wright, Arturo Soria Y Mata, Antonio Sant 'Elia), post-World War II (Doxiades and Ekistics), Megastructure; Cites of sweat equity and highway; subsequent directions.			
Indian Context: The Early Cities, Mughal and Medieval Towns, Temple Cities, Colonial influences, post-independence, and modern cities (Chandigarh, Bhubaneshwar, Gandhinagar) and further developments.			
Teaching Learning Process	Introduction to the topic through lectures, readings, and discussions. Documentation and analysis of urban form (evolution, city at different scales, analysis of urban form determinants) through case studies from all or a few of the topics listed above. Writing research paper		
Module-3			
APPROACHES TO READING URBAN FORM AND SPACE (western, Islamic cities and influences)			
City as patterns; diagrams; spaces and ideas (organic; grid; political-functional-secularist-socialist diagrams; grand manner; skyline; city edge; urban division; public spaces- various typologies including street and parks); subsequent direction and further developments.			

Teaching Learning Process	Introduction to the topic through lectures, readings, and discussions. Discussion of various case studies of cities according to patterns
Module-4	
URBAN PROCESS Rise and fall of cities; disaster; destruction and reconstruction; Haussmanization; incremental changes; urban renewal; contemporary issues and phenomenon shaping urban form and space (sprawl, sustainable growth, transportation).	
Teaching Learning Process	Introduction to the topic through lectures, readings, and discussions.
Module-5	
THEORIZING URBAN FORM (Introduction to modern, post-modern perspectives and influences) Utopias; ideas of Gordon Cullen, Jane Jacobs, William Whyte, Mumford, Kevin Lynch (Good City Form; Imageability and Memory), New Urbanism of Krier; Public and Private domains; Suburbs and periphery; Privacy, Territoriality and Proxemic theory; Defensible spaces; ideas of community through design; treatment of urban space; future of the city (contemporary practices and directions). Various theoretical views associated with nature of city form (normative, positive, substantive, and procedural theories); Cosmic, Machine and Organic Models; Descriptive and functional theories; Alternative theoretical postulations.	
Teaching Learning Process	Introduction to the topic through lectures, readings, and discussions. Shared reading from a list of key texts formulated
Assessment Details (CIE and SEE) The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together. Continuous Internal Evaluation: Continuous Internal Evaluation will be based on Assignments, Tests and Term Paper submission. Semester End Examination: Theory Examination shall be held for 3-hour duration, students are expected to answer FIVE full questions, one question from each module.	
Suggested learning resources: Books: 1. Spiro Kostof, the City Assembled, Thames and Hudson. 2. Spiro Kostof, The City Shaped, Thames and Hudson. 3. Jon Lang, Urban Design Typology and procedures, Architectural Press 4. A.E.J. Morris, History of Urban Form, Longman Scientific and Technical. 5. Kevin Lynch, Good City Form, MIT Press. 6. Edmund Bacon, Design of Cities. 7. Geoffrey Broadbent, Emerging Concepts of urban Design	
Web links and Video Lectures(e-Resources) https://ocw.mit.edu/courses/4-241j-theory-of-city-form-spring-2013/video_galleries/video-lectures/	

Skill development activities suggested

Group discussions about the form and structure of different cities by picking one example each

Shared reading from a list of key texts formulated

Presenting aspects of urban form of Indian cities through examples

Course outcome (course skill set)

Sl. No.	Description	Blooms Level
CO1	Identify scope, objectives of urban design, determinants of urban form	II
CO2	Study evolution of urban form through history with western and Indian contexts	III
CO3	Familiarize with approaches to reading urban form- reading cities as patterns	IV
CO4	Comprehend urban process	II
CO5	Analyze different theories related to urban morphology	IV

Program outcome of this course

Sl. No.	Description	POs
1	Understanding the meaning and components of urban form	1, 2
2	Analyzing the urban form of various settlements/cities across time	2, 3
3	Understanding urban processes	1, 2, 3
4	Analyzing the theoretical views on urban form	1, 2, 3

Mapping of COs and POs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	1	-	-	-	-	-	-	-	2
CO2	2	3	2	-	-	-	-	-	2	2
CO3	2	3	3	1	-	-	-	-	-	2
CO4	3	2	1	-	-	-	-	-	-	1
CO5	1	2	2	-	-	-	-	-	1	1
Average	2.2	2.2	1.6	0.2	0.0	0.0	0.0	0.0	0.6	1.6

Graduate attributes

Knowledge	Analytical skills	Application of research	Application of latest technology/tools	Generate design/solutions	Ethics	Societal concern	Environmental concern	Collaborative aptitude	Opportunity for continued learning
PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10

Mapping co-relation	Low	Medium	High	No
	1	2	3	-

COURSE: CITY PLANNING PROCESS IN INDIA			
Course code:	22UDS14	CIE Marks	50
Teaching hours /Week (L:P:SDA)	2:1:0	SEE Marks	50
Total Hours of Pedagogy	3	Total Marks	100
Credits	3	Exam Hours	3
Course Learning Objectives:			
<ol style="list-style-type: none"> 1. To expose students to the process of city planning and implementation in India. 2. To learn about the institutional context of city planning including national, state and local level policies, legislations and regulations used to monitor, aid, manage and design the growth and transformations in cities. 3. To understand the issues and the impact of planning policies and regulations on the physical, social, economic and ecological environment of cities, and learn about current planning practices and strategies to address them. 4. To undertake a critical review of the planning, development and regulatory processes and practices shaping the Indian city. 			
Module-1			
INTRODUCTION TO THE CITY PLANNING PROCESS			
<ul style="list-style-type: none"> • A historical overview of city planning in the Indian context, the goals of planning and significance for urban design • Planning legislations in India - A review of national, state and local level policies, programmes, Acts and regulations used to monitor, aid, manage and design the growth and transformations in cities through history. • Scope and purpose of various plan types - Perspective plans, regional plans / structure plans, and master plans / comprehensive development plans, local area plans, special purpose plans, annual plans, projects / schemes. 			
Teaching Learning Process	<ul style="list-style-type: none"> - Introduction to City Planning– lectures, videos, readings, class activities and discussion - History of plan-making in India and study of plan types and legislations – readings, presentations and discussion seminar 		
Module-2			
THE PLAN MAKING PROCESS			
<ul style="list-style-type: none"> • Urbanisation challenges and planning process in the regional context, master planning, visioning, and development of planning strategies and policies • Techniques of data collection, mapping, survey, projection of requirements; preparation of base map, developmental plan proposals and delineation of zones • Assessment of developmental issues for sectors such as land use, transportation, ecology and environment, urban poor and urban design among others. 			
Teaching Learning Process	<ul style="list-style-type: none"> - Understanding urbanization challenges and analyzing planning processes across sectors - group work to analyse various Master Plans, presentations, readings and discussion seminar 		
Module-3			
LAND USE AND ZONAL REGULATIONS (Development tools)			
<ul style="list-style-type: none"> • Land use zones: History of zoning, current zoning sub classification, permissible and prohibited activities, types of zoning, drawbacks of zoning, issues and limitations; • Zoning tools: Impacts of FAR, TDR and floating FSI, incentive zoning and other regulatory mechanisms 			
Teaching Learning Process	<ul style="list-style-type: none"> Discussion on implications of land use regulations and zoning tools - Case studies, readings and discussion seminar 		

Module-4	
EMERGING PLANNING PRACTICES AND CONCEPTS	
<ul style="list-style-type: none"> • A review of land pooling, urban renewal, conservation and redevelopment processes • Understanding concepts of smart growth, transit oriented design, growth management strategies, transit metropolis, new urbanism, advocacy planning, smart city and other current schemes and programs in practice in Indian cities. 	
Teaching Learning Process	Understanding the planning practices and concepts - Case examples, National policy and mission documents, readings and discussion seminar
Module-5	
PLAN IMPLEMENTATION, MONITORING MODALITIES AND CRITICAL REVIEW OF PLANNING PROCESS	
<ul style="list-style-type: none"> • Plan implementation and monitoring - Appeals, appellant authority, and issues related to unauthorized and informal developments. • Public private and people partnerships; resource mobilization; plan monitoring and review; public participation techniques; and zonal / ward level plans. • Critical review – Discussion of alternatives to the master planning process in India. 	
Teaching Learning Process	Discussion on outcomes and impacts of plan implementation and critical review – readings, case examples and discussion seminar
Assessment Details(CIE and SEE)	
<p>The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.</p> <p>Continuous Internal Evaluation: Continuous Internal Evaluation will be based on weekly assignments, class presentations, participation in seminar discussions and term paper / report submission.</p> <p>Semester End Examination: Theory Examination shall be held for 3-hour duration, students are expected to answer FIVE full questions, one question from each module.</p>	
Suggested learning resources:(Includes but not restricted to the following)	
Books:	
<ol style="list-style-type: none"> 1. Taylor, John L and Williams, David G.1982. Urban Planning Practice in Developing Countries, Pergamon Press, ISBN: 978-0080222257 2. URDPFI Guidelines Volume I, IIA and IIB, 2014 3. Jain, A. K. 2017. Urban Transformation: Making Cities Inclusive, Safe, Resilient and Sustainable 4. Jain, A. K. 2018. Town Planning: Principles, Process and Practice 5. Kumar, A., Vidyarthi, S., & Prakash, P. 2020. City Planning in India, 1947–2017 (1st ed.). Routledge India. 6. Glaeser, Edward. 2012. Triumph of the City. London, England: Pan Books. 7. Master Plan documents of Bangalore, New Delhi, Mumbai, Chennai and other Indian cities 8. Selected readings provided in class 	

<p>Web links and Video Lectures(e-Resources): (Includes but not restricted to the following)</p> <ol style="list-style-type: none"> 1. URDPFI Guidelines 2014 (http://moud.gov.in/URDPFI). 2. The Constitution (74th Amendment) Act, 1992. (http://indiacode.nic.in/coiweb/amend/amend74.htm) 3. Five Year Plans Introduction (https://mospi.gov.in/documents/213904/369745/Five_Year_Plan.pdf) 4. City Planning in India, 1947-2017 (https://www.researchgate.net/publication/342252824_City_Planning_in_India_1947-2017) 5. Understanding India's New Approach to Spatial Planning and Development: A Salient Shift? (https://www.researchgate.net/publication/331486168_Understanding_India's_New_Approach_to_Spatial_Planning_and_Development_A_Salient_Shift) 6. The Karnataka Town and Country Planning Act, 1961 (https://dpal.karnataka.gov.in/storage/pdf-files/11%20of%201963%20(E).pdf) 7. A. Srivathsan: 60 years of Planning – Lessons from Chennai, Urban Planning in India (https://soundcloud.com/crdfpodcast/a-srivathsan-60-years-of-planning-lessons-from-chennai) 		
<p>Skill development activities suggested– Not Applicable</p>		
<p>Course outcome (course skill set) At the end of the course the student will be able to:</p>		
Sl. No.	Description	Blooms Level
CO1	Understand the trajectory of City Planning approaches and analyse the changing policy and legal mandates through time on city development	I, II, IV
CO2	Recognise the role of visioning, regional and master planning processes and cross-sectoral analysis in addressing the consequences of urbanization, and evaluate consequences of planning decisions	I, II, IV, V, VI
CO3	Analyse the implications of land use regulations and zoning tools applied in cities to assess the social, economic and environmental impacts	IV, V
CO4	Be conversant with and analyse the outcome and impacts of schemes, missions and planning tools adopted in current planning practice	I, II, IV
CO5	Understand the challenges of plan implementation and conduct a critical review of planning and development processes in the Indian context.	II, IV, VI
<p>Blooms Levels: I – Knowledge II- Comprehension III – Application IV – Analysis V – Synthesis VI - Evaluation</p>		

Program outcome of this course

Sl. No.	Description	POs
1	Be conversant with the City Planning process and understand the significance of policies and legal mandates as a framework for urban design practice.	1, 2, 10
2	Understand the challenges of urbanization and social, environmental and economic impact of planning policies, Master Plans and regulatory tools on city form and development and apply learnings as recommendations for future planning and urban design.	1, 2, 3, 6, 7, 8, 9, 10
3	Develop an critical framework to assess the outcomes and impacts of current programs and plans, and their implementation, in shaping city design and development at the local area level; and recommend possible steps for future planning efforts.	1, 2, 3, 4, 6, 7, 8, 10
4	Evaluate and critically review planning processes to assess impact on urban form, social and environmental justice and livability and think of alternative methods to guide urban design practice.	2, 3, 7, 8, 10

Mapping of COs and POs

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO 1	3	2	-	-	-	-	1	1	-	2
CO 2	2	3	2	-	1	2	3	3	2	3
CO 3	2	3	2	1	1	2	3	3	-	3
CO 4	2	2	2	-	-	2	3	3	-	3
CO 5	1	2	1	-	-	2	2	2	-	2
Average	2.0	2.4	1.4	0.2	0.4	1.6	2.4	2.4	0.4	2.6

Graduate Attributes

Knowledge	Analytical skills	Application of Research	Application of latest technology / Tools	Generate Designs / Solutions	Ethics	Societal Concern	Environmental Concern	Collaborative Aptitude	Opportunity for continued learning
PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10

Mapping Co-relation	Low	Medium	High	No
	1	2	3	-

COURSE: SOCIAL THEORY AND URBAN DESIGN			
Course Code:	22UDS15	CIE Marks	50
Teaching hours /Week (L:P:SDA)	2:0:0	SEE Marks	50
Total Hours of Pedagogy	2	Total Marks	100
Credits	2	Exam Hours	03
Course Learning Objectives:			
The course introduces first semester students to conceptual and theoretical perspectives of urban social theory.			
Module-1			
Classical Theoretical Perspectives:			
Karl Marx; (Capitalism and class); Friedrich Engels (Living conditions of the urban working class in post-industrialized towns); Ferdinand Tonnies (Community and Association), Emile Durkheim (Social solidarity); Georg Simmel (Urban experience, Social distance, Philosophy of money);Max Weber (Social structure of city and urban community).			
Teaching Learning process	Introduction to the course content through lectures		
Module-2			
Contemporary Theoretical Perspectives:			
Robert Park (Human ecology, Symbiotic versus Societal organization, Dynamics and processes of human community: population, material culture (technological development), nonmaterial culture(customs and beliefs), Natural resources of the habitat, Societal pyramid, Differences between ecology and human ecology); Louis Wirth (urban theory on urbanism as a function of population density, size and heterogeneity); Ernest Burgess (Concentric Zone Theory); Homer Hoyt (Sector Theory); Harris and Ullman: Multiple Nuclei Theory).			
Teaching Learning process	Introduction to the course content through lectures		
Module-3			
Political Economy:			
Political and economic forces in a society with reference to works of Henri Lefebvre; Michael Storper and Richard Walker (Theory of location and labour); Manuel Castells; David Harvey; Logan and Molotch(City as Growth Machine);Saskia Sassen (Global City); John Friedmann (World City Hypothesis); Michael Dear (Los Angeles School/ Chicago School).			
Teaching Learning process	Introduction to the course content through lectures		
Module-4			
Social Life inthe Public Realm (Discourses in the West):			
Michel de Certeau (Everyday life in the city); Fredrick Law Olmsted (The civilizing effect of park space in cities); RichardSennet (Fall of the Public Man); Wilson &Kelling (Broken Windows Theory); Carr et al. (The Nature of Public Life); Mike Davis (The Fortress LA: The Militarization of Public Space); William Whyte (Social life in small urban public spaces), Jane Jacobs (eyes on the street; sidewalk ballet).			
Teaching Learning process	Introduction to the course content through lectures		
Module-5			
Social Theory and Urbanism In India			
M N Srinivas (rural sociology); SudiptaKaviraj (public realm in Indian cities); Charles Correa (post-Independence Indian urbanism); Partha Chatterjee (civil society-political society); Rahul Mehrotra (static-kinetic city); Solomon Benjamin (occupancy urbanism); Ananya Roy (Informality in Indian cities).			

Teaching Learning process	Introduction to the course content through lectures
Assessment Details (Both CIE and SEE)	
<p>The weight age of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.</p> <p>Continuous Internal Evaluation: Continuous Internal Evaluation will be based on assignments, term paper presentation and submission.</p> <p>Semester End Examination: Theory examination shall be held for 3-hour duration, students are expected to answer five full questions, one question from each module</p>	
Suggested learning Resources	
<ol style="list-style-type: none"> 1. Borden, Iain, Tim Hall and Malcolm Miles (Eds.). 2003. <i>The City Cultures Reader</i>. Routledge 2. Benjamin, S. 2008. Occupancy Urbanism: Radicalizing Politics and Economy beyond Policy and Programs. <i>International Journal of Urban and Regional Research</i>, 32.3, 719-729. 3. Castells, Manuel. 1978. <i>City, Class and Power (Sociology, politics & cities)</i>. Palgrave Macmillan 4. Chatterjee, Partha. 2006. <i>Politics of the Governed: Reflections on Popular Politics In Most of the World</i>. Columbia University Press. 5. Correa, Charles. 1989. <i>The New Landscape: Urbanisation in the Third World</i>. London. Butterworth Architecture 6. Correa, Charles. 2000. Housing and Urbanization. UDRI Mumbai 7. Davis, Mike. 1990. <i>City of Quartz: Excavating the Future in Los Angeles</i>. Verso 8. Harvey, David. 2001. <i>Spaces of Capital: Towards a Critical Geography</i>. Blackwell/Wiley 9. Harvey, David. 2000. <i>Spaces of Hope</i>. University of California Press 10. Jacobs, Jane. 1961. <i>The Death and Life of Great American Cities</i>. Vintage 11. Kaviraj, Sudipta. 1997. <i>Filth and the Public Sphere: Concepts and Practices about Space in Calcutta</i>. <i>Public Culture</i>, 10 (1), 83-113. 12. Lin, Jan and Christopher Mele (eds.). 2012. <i>The Urban Sociology Reader</i>. Routledge 13. Mehrotra, R. (2008) <i>Negotiating the Static and Kinetic Cities: The Emergent Urbanism of Mumbai</i>, in Huysen, A. (ed.) <i>Other Cities, Other Worlds: Urban Imaginaries in a Global Age</i>. Duke University Press: Durham and London. pp.205-18. 14. Roy, Ananya. 2005. <i>Urban Informality: Towards an Epistemology in Planning</i>, <i>Journal of the American Planning Association</i>, 71 (2), 147-158. 	
Web links and Video Lectures (e-Resources)	<ol style="list-style-type: none"> 1. https://www.youtube.com/watch?v=nBUq21iahpl 2. https://www.youtube.com/watch?v=gaw8iUi-i6E
Skill Development Activities suggested	
<ol style="list-style-type: none"> 1. Walking around the city for photo-documentation and activity-mapping 2. Attending seminars, talks and workshops organized by parent institution and other institutions in the city and outside. 	

Course outcome(Course skill set)**At the end of the course the student will be able to:**

SI No	Description	Blooms level
CO1	Gain knowledge about urban sociology and built form	III
CO2	Can analyze scholarly papers on subject matter	IV
CO3	Make presentations based on subject matter	IV
CO4	Interpret social phenomena into drawings of places and space	IV
CO5	Understand contemporary concepts of urbanism in Indian cities	III

Program outcome of this course

SI No	Description	POs
1	Students' single and group presentations based on the course material readings will help them with their overall presentation skills	1,2, 4,5,9,10
2	Students will gain knowledge about urban sociology and built form in different contexts	1, 2, 3,7, 9,10
3	The course will sharpen students' ability to interpret social phenomena into drawings of places and space	1,2, 3,4,6, 7,9, 10
4	Students will learn contemporary concepts of urbanism in Indian cities that they can apply in their architecture design studios	1, 2, 3, 10

Mapping of COs and POs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	3	-	-	-	3	-	3	3
CO2	3	3	3	-	-	-	-	-	-	3
CO3	1	3	-	3	2	-	-	-	3	2
CO4	3	3	3	3	-	1	1	-	1	2
CO5	3	2	3	-	-	-	-	-	-	3
Average	2.6	2.6	3	1.2	0.4	0.2	0.8	0	1.4	2.6

Graduate attributes

Knowl edge	Analytic al skills	Applicatio n of research	Application of latest technology and tools	Generate design/sol ution	Ethics	Societal concern	Environ mental concern	Collabor ative aptitude	Opportunity for continued learning
PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10

Mapping correlation	Low	Medium	High	No
	1	2	3	--

COURSE: RESEARCH METHODOLOGY AND IPR			
Course code:	22UDS16	CIE Marks	50
Teaching hours /Week (L:P:SDA)	1:0:2	SEE Marks	50
Total Hours of Pedagogy	03	Total Marks	100
Credits	02	Exam Hours	03
Course Learning Objectives:			
This course intends to introduce the idea of research design and critical analysis by teaching methods and tools commonly deployed in urban research. It will guide students towards structured, systematic and targeted approaches yielding qualitative and quantitative outputs for urban studies focusing on urban design, planning and the associated environment. It also intends to introduce the concept of Intellectual Property Rights to researchers.			
Module-1			
Introduction to Research Methodology and its relevance:			
Importance, Purpose and Scope of Research and Field Studies. Research Process/ Cycle. Scientific method of Research. Research Problem and Hypothesis. Ethics in conducting Research. Types and Areas of research in architecture. Ethnographic Research			
Teaching Learning Process	Lecture sessions, Group discussions, Assignment-based learning, Peer Evaluation		
Module-2			
Conceptual foundations of research design:			
Purpose of Research Design, Defining a Research Problem, Aim, Objectives, Scope, Limitations, Gaps in Research. Research question design, Constants and variables. Types of variables. Interrelationship of variables. Scales of Measurement. Qualitative, quantitative, mixed methods-definition, types and application.			
Teaching Learning Process	Lecture sessions, Group discussions, Assignment-based learning, Peer Evaluation		
Module-3			
Case Studies, Literature Studies & Literature Review:			
Case study research methods- single case, multiple case, comparative case study research etc. Pilot Studies. Case Studies vs. Literature Studies. Literature Review- Relevance, Process. Citations and Referencing in Research. Formation of Abstract, Reading of Papers. Report Writing - Writing a Research Paper.			
Teaching Learning Process	Lecture sessions, Group discussions, Assignment-based learning, Peer Evaluation		
Module-4			
Methods of Data Collection- Survey Research:			
Socio-economic research techniques such as surveys, questionnaires, interviews, focused group discussions, participant observation. Types of surveys, methodology of survey research. Questionnaire Design. Definitions of reliability, theory of reliability. Types of validity. Variance definitions of validity. Interview schedule, Different types of interview methods. Examples of interview as a research tool. Sampling, sampling frame, study population, target population. Randomization, sample size and kinds of samples. Classification of Sampling. Preparation of and types of Questionnaires. Administering questionnaires, target group, Methods of gathering information.			
Teaching Learning Process	Lecture sessions, Group discussions, Assignment-based learning, Peer Evaluation		

Module-5	
<p>Methods of Data Analysis- Statistics: Definition and purpose of statistics. Data sources, collection methods, and representation techniques. The law of average numbers Standard deviation, interpretation of data Mean, differences, correlation coefficients. Correlation, Variance, Co Variance, Hypothesis testing. Analysis and Representation of Data, Deriving Conclusions for Research. The Concept of Intellectual Property Systems, Copyright and Related Rights, Trademarks.</p>	
Teaching Learning Process	Lecture sessions, Workshops for writing research paper, Mathematical Sums for Practice.
<p>Assessment Details(CIE and SEE) The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.</p> <p>Continuous Internal Evaluation: Continuous Internal Evaluation will be based on Internal Reviews, External Reviews and Final Portfolio Submission</p> <p>Semester End Examination: Theory Examination shall be conducted for a duration of 3 hours (per student) for the subjects listed under theory for all the semesters</p>	
<p>Suggested learning resources:</p> <p>Books:</p> <ol style="list-style-type: none"> 1. Ranjit Kumar, Research Methodology- A step by step guide for Beginners. Sage Publications, New Delhi. 2. Fred N. Kerlinger, Foundations of Behavioural Research, Holt, Rinehart and Winston Inc, New York. 3. Enquiry by Design: Tools for Environment-Behaviour Research. John Zeisel. Publisher-CUP Archive, 1984. ISBN-0521319714, 9780521319713 4. C. R. Kothari, Research Methodology – Methods & Techniques. New Age International Publishers. 	
<p>Web links and Video Lectures(e-Resources):</p> <ol style="list-style-type: none"> 1. https://fcit.usf.edu/internet/chap5/chap5.htm 2. https://youtu.be/EHh51aoHicQ 3. https://youtu.be/DLphybLmAsE 4. https://youtu.be/iTERmpVEIcY 5. https://youtu.be/FCJzjX57d4Q 6. https://youtu.be/E-32Rk5MYWQ 7. https://youtu.be/1r3UctqT_aM 8. https://youtu.be/YMOz07uFgY8 9. https://youtu.be/JlIf9CgMpMM 10. https://www.youtube.com/watch?v=PkUtMZfoMjM 	
<p>Skill development activities suggested</p> <ol style="list-style-type: none"> 1. Application of Research Methodology in the Design Studios 2. Preparing Questionnaire formats for Survey 3. Data Collection and Surveys 4. Data Analysis and Representation activities 	

Course outcome (course skill set)

At the end of the course, the student will be able to:

Sl. No.	Description	Blooms Level
CO1	Understand the relevance, process and classification of Research	I, II
CO2	Design a workable Methodology for Research	III
CO3	Study and identify gaps in previously existing work	II
CO4	Select most appropriate methods of data collection and apply it to the research	III
CO5	Develop ability to analyze collected data and draw inferences	IV, V

Program outcome of this course

	Description	POs
1	Ability to conduct a Research	2,3,6
2	Data collection, documentation and relevant Analysis	2
3	Drawing appropriate conclusions from Research	5,7,8,10
4	Ability to write a Research Report	1,2

Mapping of COS and Pos

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	1	1	2	-	2	2	2	1	1
CO2	2	1	3	2	-	2	-	-	2	3
CO3	3	2	-	-	-	2	2	1	2	3
CO4	3	2	2	2	1	3	3	3	2	1
CO5	2	3	3	3	3	2	2	2	1	3
Avg.	2.6	1.8	1.8	1.8	0.8	2.2	1.8	1.6	1.6	2.2

Mapping Co- relation	Low	Medium	High	No
	1	2	3	-

COURSE: INDIAN URBANISM			
Course Code:	22UDE171	CIE Marks	50
Teaching hours /Week (L:P:SDA)	2:0:0	SEE Marks	50
Total Hours of Pedagogy	2	Total Marks	100
Credits	2	Exam Hours	VIVA
Course Learning Objectives:			
The course is intended to develop an understanding of key issues of urbanism in India, its dilemmas, ideologies and the new patterns that it has taken with neo-liberalism.			
Course outline			
The course covers on issues of Indian urbanism related to polity and colonial legacy, ideology of tenure and exchange, environment and water, daily life and informal sector, gender, art and media in the city. The course would be conducted through readings, discussions and invited lectures covering case studies and published research works.			
Teaching learning process	Introduce each subsection through case study and generate discussion through article reading		
Assessment Details (Both CIE and SEE)			
The weight age of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.			
Continuous Internal Evaluation: Continuous Internal Evaluation will be based on presentation, interaction and submission.			
Semester End Examination: Viva-voce: The viva voce shall be conducted for a duration of 20 minutes (per student) for the subjects listed under viva voce for all the semesters			
Suggested learning resources:			
<ol style="list-style-type: none"> 1. K. Sivaramakrishnan and Arun Agrawal (Edit), Regional Modernities: The Cultural Politics of Development in India, Stanford University Press, 2003. 2. Kenneth R Hall (Edit), Structure and Society in early South India, Oxford University Press, 2004. 3. Malcolm Miles and Tim Hall (Eds), The City Cultures Reader, Routledge Taylor & Francis Group, 2004. 4. Partha Chatterjee, The Politics of the Governed, New York: Columbia University Press, 2004. 5. Reader compiled by course instructor. 			
Web Links and Video lectures (E-resources):			
<ol style="list-style-type: none"> 1. https://www.youtube.com/watch?v=LCw2LOKqO-Q&t=776s 2. https://www.youtube.com/watch?v=qUU5CTICBq4 3. https://www.youtube.com/watch?v=esPJRnKEyHU 4. https://www.youtube.com/watch?v=Y40pp8OFubs 			
Skill development suggested:			
<ol style="list-style-type: none"> 1. Compilation of readings available on Indian urbanism through group work 2. Familiarization of various patterns of Indian urbanism 			

Course outcome(Course skill set)

At the end of the course the student will be able to:

SI No	Description	Blooms level
CO1	Familiarize the key issues of urbanism in India	I
CO2	Understanding of different ideologies and urban pattern	IV
CO3	Familiarization of Various tools and lenses in reading the urban pattern	IV

Program outcome of this course

SI No	Description	Pos
1	Comprehend the issues of urbanism in India	1,2,7,8
2	Knowledge of urban pattern reading	2,3,4,9,10
3	Relate and application of tools and technology	4,6

Mapping of CO s and PO s

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	2	-	-	-	2	2	1	1
CO2	2	3	2	3	-	-	2	3	3	2
CO3	-	-	2	3	-	2	1	-	-	2
Average	1.6	1.6	2	2	-	1	1.6	1.6	1.3	1.6

Graduate attributes

Know ledge	Analyti cal skills	Applicati on of research	Applicatio n of latest technology and tools	Generate design/s olution	Ethics	Societal concern	Environ mental concern	Collabor ative aptitude	Opportunity for continued learning
PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10

Mapping correlation	Low	Medium	High	No
	1	2	3	--

COURSE: SPATIAL /SOFTWARES SKILLS FOR URBAN DESIGN & APPLICATION IN CITY READING			
Course Code:	22UDE172	CIE Marks	50
Teaching hours /Week (L:P:SDA)	0:2:0	SEE Marks	50
Total Hours of Pedagogy	2	Total Marks	100
Credits	2	Exam Hours	VIVA
Course Learning Objectives: This course aims at study and application of software skills that matters in city reading and visual expression			
Course outline			
<ol style="list-style-type: none"> 1. Basic software skill (presentation): introduction and advance study in Photoshop, InDesign, Lumion, Prezi, Sketch up modeling etc. 2. Audio visual skill for effective presentation : Basics of Photography, Videography, Editing techniques and its application in city reading and application of such tools in collection of city data(tangible and intangible), illustration through visuals/sound(movie making), graphical representation, expressing conceptual idea, processing and participatory planning, stake holders meeting etc 			
Teaching learning process	Introduction to the course content through lectures, guest talk, case study, and practical exercises-use of appropriate tools and software		
Assessment Details (Both CIE and SEE)			
<p>The weight age of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.</p> <p>Continuous Internal Evaluation: Continuous Internal Evaluation will be based on presentation, exercises and submission.</p> <p>Semester End Examination: Viva-voce: The viva voce shall be conducted for a duration of 20 minutes (per student) for the subjects listed under viva voce for all the semesters</p>			
Suggested learning resources:			
<ol style="list-style-type: none"> 1. Edmund N Bacon- Design of cities -A Penguin Book 2. Jacobs , Allan B, "Great streets "MIT press 1993 			
Web Links and Video lectures (E-resources):			
<ol style="list-style-type: none"> 1. https://clipchamp.com/en/video-editor/ 2. https://www.youtube.com/watch?v=k5-8XQ24yjU 3. https://www.youtube.com/watch?v=MqwIW76sFCM 4. https://www.youtube.com/watch?v=gYO1uk7vlcc 			
Skill development suggested:			
<ol style="list-style-type: none"> 1. Integration of visual techniques for better communication 2. Develop tools and techniques for internalization of the subject and interactive presentation 			

Course outcome(Course skill set)

At the end of the course the student will be able to:

SI No	Description	Blooms level
CO1	Understand the available techniques and application	IV
CO2	Develop skills for expressing the concern and idea	IV
CO3	Interactive skills and its application	VI

Program outcome of this course

SI No	Description	POs
1	Able to develop skills of presentation and visual techniques	4,5,9
2	Application of software skills and integration of visual techniques for effective communication	1,2,4,5

Mapping of CO s and PO s

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	1	3	2	3		1	2	2	2	2
CO2	2	2	2	1		1	2	1	1	1
CO3	1	1	2	3	3	1	2	2	2	2
Average	1.3	2	2	2.3	1	1	2	1.6	1.6	1.6

Graduate attributes

Know ledge	Analyti cal skills	Applicati on of research	Applicatio n of latest technology and tools	Generate design/s olution	Ethics	Societal concern	Environ mental concern	Collabor ative aptitude	Opportunity for continued learning
PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10

Mapping correlation	Low	Medium	High	No
	1	2	3	--

COURSE: GEOGRAPHICAL INFORMATION SYSTEMS -I			
Course code:	22UDE173	CIE Marks	50
Teaching hours /Week (L:P:SDA)	0:2:0	SEE Marks	50
Total Hours of Pedagogy	2	Total Marks	100
Credits	2	Exam Hours	VIVA
<p>Course Learning Objectives:</p> <ol style="list-style-type: none"> 1. History and development of GIS. Understand GIS as a decision-support tool in urban scenarios., Practical understanding of GIS concepts, techniques and real-world applications in spatial planning. 2. Utilizing free and open-source data and software to make GIS maps for Desktop and the web, GIS is a Bridge between the conceptual realms - Architecture /Site - Terrain Analysis/ Landscape architecture/Urban Design and urban planning. <p>Lecture and hands-on lab exercises: Students will complete lab exercises using any good Geographical; and Spatial information systems software with any DBMS.</p>			
<p>HISTORY AND DEVELOPMENT OF GEOGRAPHICAL INFORMATION SYSTEMS, INTRODUCTION TO THE GIS ROOTS IN CARTOGRAPHY</p> <p>Maps and their historical development, Advantages of GIS over manual methods, first automatic processing of geographical information, Spatial learning and development, Using and learning maps, defining a map, other representations of the world, Mapping concepts, features and properties. Important milestones in the development of GIS, Recent developments.</p>			
Teaching Learning Process	Introduction to the course through Lectures. Major areas of application through lectures, hands-on and videos		
<p>SPATIAL DATA STRUCTURE AND MODELS</p> <p>Types of information in a digital map, The shape of the earth, Datum types, General coordinate systems, Earth coordinate geometry, Map projections, World geographic reference system (GEOREF), Concept of the grid on the earth's surface and its required correction. Information organization and data structure, Geographic data and geographic information, The relationship perspective of information organization. Data– Fundamental concepts, Spatial – non-spatial data, database management system, data models.</p> <p>Data collection workflow, Field mapping/collecting data using the Mobile application. Primary & secondary geographic data capture, integrating data from external sources, Geographic data formats, capturing attribute data, Managing a data capture project and Data editing.</p>			
Teaching Learning Process	Introduction to the course content through lectures. Hands-on training on earth coordinate geometry, Map projections, geographic reference system. Data modeling theoretical concept with hands-on training.		
<p>GIS MODEL TO REPRESENT REAL-WORLD DATA</p> <p>Vector data model, storing points and lines, storing area boundaries, The Topological approach, Storing vector data. Raster data models-realizing the raster model, storing raster data structures, Semi-Automatic conversion between vector and raster models, Geographical representation of objects, Object attributes, and Object relations, from database to GIS to map. Introduction to Google Earth and its connection with GIS. Spatial and Nonspatial queries.</p>			

Teaching Learning Process	Introduction to the course content through lectures. Hands-on training on capturing and processing raster, vector data along with attribute data and Google Earth.
<p>USE OF OPEN-SOURCE DATA IN GIS</p> <p>Using Freely available data sources to generate and process raster and vector data for example Open Street Maps, Google Maps, Bing maps, wiki maps, and census data.</p> <p>Integrating 3rd dimension of data and processing 3D maps and TerrianDEM analysis</p>	
Teaching Learning Process	Introduction to the course content through lectures. Hands-on training on working with basic raster and vector data models in GIS, and utilization of Open-source vector data
<p>Compose and create a printable map in GIS, build the 3D model in virtual mode, Urban Planning and design exercises.</p> <p>Map composition with 2D and 3D views as well as a key map with a North arrow, scale bars legend and attribute integration. Create a web map for access to the internet. Visualization and navigation of maps</p>	
Teaching Learning Process	Introduction to the course content through lectures. Hands-on training on printable 2D and 3D maps along with analysis, also porting the map on to the web.
<p>Assessment Details (CIE and SEE):</p> <p>Assessment Details (both CIE and SEE) The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum mark. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.</p> <p>Evaluation: Continuous Internal Evaluation will be based on Exercises, Projects, and Seminars Semester End Examination: Viva Voce.</p>	
<p>Suggested learning resources:</p> <p>Books:</p> <ol style="list-style-type: none"> 1. Anupama Pai, "An Introduction to Maps", Foundation for Ecological Research, Advocacy and Learning, 2004. 2. Peter A. Burrough, Rachael A. McDonnell, and Christopher D. Lloyd, "Principles of Geographical Information Systems", Oxford University Press, 2015 3. Frederik Ramm, Jochen Topf, Steve Chilton, "OpenStreetMap: Using and Enhancing the Free Map of the World", UIT Cambridge, 2010. 4. Robert Laurini, "Information Systems for Urban Planning: A Hypermedia Cooperative Approach", Taylor Francis Ltd, 2001. 5. Michael Zeiler, "Modeling our world: The ESRI Guide to Geodatabase Concepts", ESRI Press, 2010. 6. C.J.Date, " An Introduction to Data base Systems", Addison-Wesley Publishing Company, 1995 6. RamezElmasri, Shamkant B. Navathe, "Fundamentals of Data base Management System", Pearson, 2016. 7. Anita Graser ,quot;LearningQGISquot; PAKT open source, 2016. 8. GISP Dr. John Van Hoesen, Dr. Luigi Pirelli, GISP Dr. Richard Smith Jr., GISP Kurt 9. Menke, quot; A refreshing look at QGIS: Mastering QGISquot;, PAKT Pub., 2016 10. Kurt Menke. Locate press, Discover QGIS 3.x, A Workbook for Classroom or Independent Study 	

Web links and Video Lectures(e-Resources)

1. <https://sites.duke.edu/envgis/tutorials/introduction-to-google-earth/>
2. <https://sites.duke.edu/envgis/tutorials/introduction-to-google-earth/>
3. <https://www.google.com/earth/outreach/learn/>
4. <https://learnosm.org/>
5. <https://documentation.qgis.org/>
6. <https://www.qgistutorials.com/>
7. <https://docs.mapbox.com/help/how-mapbox-works/>
8. https://wiki.openstreetmap.org/wiki/Main_Page
9. <https://elearning.iirs.gov.in/spaceapplications/>

Skill development activities suggested

1. Composing maps for Urban planning using GIS (AutoCAD MAP3D, QGIS, Global mapper)
2. Identifying informal settlements and urban growth patterns
3. Analyzing metro rail accessibility
4. Analyzing street connectivity for walkability
5. Dem creation and analysis for Slope and aspects
6. Water stream analysis in forest areas and Micro watershed delineation using 3D data through Google earth, Stereo pair imagery
7. Creating buffers for transportation corridors and land use/Landcover for impact assessment
8. Lake encroachment and shrinking analysis using google earth imagery and DEM
9. Land suitability and selection for development on a hilly terrain using DEM and land cover data.

Course outcome (course skill set)

At the end of the course the student will be able to:

SI. No.	Description	Blooms Level
CO1	Understanding History and basics of mapping and GIS	I
CO2	Field mapping/collecting data using primary and secondary data sources and Mobile application	II
CO3	Visualizing data and making custom maps in 2D & 3D	III
CO4	Using open-source data	IV
CO5	Compose map, Creation of Base maps for site areas in 2D and 3D	V

Program outcome of this course

SI. No.	Description	POs
1	Understand mapping as a crucial tool in data analysis of Urban scenario	1, 2, 4, 10
2	Creating base maps of study areas upon which further research and analysis can be carried out	1, 2, 3, 4, 9,10
3	Spatial representations of various types of data. Vector, Raster, Attributes, pictorial, annotations, 2D & 3D, related to urban context, including land use/Land cover, transportation corridor, Surface hydrology, Inferencing from datasets	1,2, 3,4, 5,7, 9, 10

Mapping of COs and Pos

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	1	-	1	-	-	-	-	-	3
CO2	2	-	3	3	-	-	-	-	3	3
CO3	1	3	3	3	2	-	2	2	1	3
CO4	2	3	3	2	2	3	-	-	2	2
CO5	2	2	3	3	3	1	2	2	3	3
Average	2	1.8	2.4	2.4	1.4	0.8	0.8	0.8	1.8	2.8

Graduate Attribute

Knowledge	Analytical Skills	Application of Research	Application of Latest Technology and Tools	Generate Design and Solutions	Ethics	Societal Concern	Environmental Concern	Collaborative Aptitude	Opportunity for continued Learning
PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10

Mapping Co-Relations	Low	Medium	High	No
	1	2	3	-

SEMESTER –II

COURSE: URBAN DESIGN STUDIO-II			
Course Code:	22UDC21	CIE Marks	50
Teaching hours /Week (L:P:SDA)	2:8:0	SEE Marks	50
Total Hours of Pedagogy	10	Total Marks	100
Credits	10	Exam Hours	Viva Voce
<p>Course Learning Objectives:</p> <p>The overall goal of this studio shall be to incorporate and test ideas inculcated in the parallel streams of theories and principles. Objectives shall be; 1. To identify and categorize various non formal issues which are relevant in the process of designing an urban environment 2. To understand the process of making a physical planning proposal viable with available techniques of financing and feasibility 3. To understand the role of various interest groups in the realization of urban design scheme.</p>			
<p>Studio Outline</p> <ol style="list-style-type: none"> 1. The studio shall begin with documenting implemented urban design as a case in understanding the process followed in each of schemes. Documentation shall be intensive exercises with teams of two who will identify the project (across India) and illustrate the entire process of design as well review the present status of the project and realization of stated objectives. 2. The main studio project shall be chosen within an area of a city (or even a small city) which is undergoing rapid changes triggered by an identifiable event or policy. The studio shall debate the needs of conserving the overall character of the chosen area with an in depth analysis on the social- cultural issues. Design of the proposed built element shall be preceded by a comprehensive urban design scheme which shall be detailed. 3. Projects like; Tourism development; Conservation of Natural and Built Heritage; intervention in an urban area which has not been able to maintain its cultural moorings due to market forces shall be attempted. 			
Teaching Learning Process	Lecture sessions, Site visits, Student presentations, Group discussions and presentation, Periodic Reviews, Workshops are part of the Teaching Learning Process		

Assessment Details (Both CIE and SEE)

Assessment Details (both CIE and SEE) The weight age of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation: Continuous Internal Evaluation will be based on Internal Reviews, External Reviews and Final studio report and individual project Submission/VIVA VOCE

Semester End Examination: Viva-voce: The viva voce shall be conducted for a duration of 20 minutes (per student) for the subjects listed under viva voce for all the semesters

Suggested learning Resources

1. The Kinetic City & Other Essays, Rahul Mehrotra, ArchiTangle GmbH; 2021
2. The art of building cities: Camillo Sitte
3. Indian cities: Annapurna Shaw Oxford University press
4. Contesting the Indian City: Global Visions and the Politics of the Local: Gavin Shatkin: Wiley Blackwell
5. Sacredscapes and Pilgrimage systems- editor Rana P B Singh-Shubhi Publications
6. housing & urbanization- Charles Correa
7. Urbanisation in early historic India-George Erdosy

Web links and Video Lectures (e-Resources)

- 1 <https://www.youtube.com/watch?v=wJwZ0ID06NM>
- 2 <https://www.youtube.com/watch?v=gOGdL7uaBGc>
- 3 <https://www.youtube.com/watch?v=xc4ayMUxuD4>
- 4 <https://www.youtube.com/watch?v=vTLcxny7YSg>
- 5 https://www.youtube.com/watch?v=TV21eP0uu_0
6. <https://www.youtube.com/watch?v=ITTyzy1dZ8s>

Skill Development Activities suggested

1. Study, research and place reading and representation techniques at region/city/precinct scale
2. Mapping the observation and inferring at region/city/precinct scale
3. Skills that enable analysis and identify the Urban design issues
5. Ability to program Urban design strategies and Design project

Course outcome (Course skill set)

At the end of the course the student will be able to:

SI No	Description	Blooms level
CO1	Able to identify urban study theme and the city	IV
CO2	Engage with the place, people/stakeholders ,method of data collection/documentation of the practices/parameters that influences the city and built fabric	V
CO3	Able to Identify issues/conflicts that influence city and precinct	V
CO4	Able to generate UD strategies at city and precinct scale	VI
CO5	Urban Design intervention and design demonstration	VI

Program outcome of this course

SI No	Description	POs
1	Ability to read relate to theme and the city	1,2,8,9
2	Ability to engage, interact and document the place	1,2,4,8
3	Able to generate strategies to address the UD issues	2,3,5
4	Ability to demonstrate urban design solution	5,7,9,10

Mapping of CO s and PO s

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	3	3	1	-	-	3	2	2	1
CO2	3	3	2	2	-	2	2	2	2	1
CO3	2	3	3	1	-	-	1	2	3	2
CO4	2	3	2	1	3	1	2	2	2	2
CO5	1	2	2	2	3	2	2	2	2	3
Average	2.2	2.8	2.4	1.4	1.2	1	2.0	2.0	2.2	1.8

Graduate attributes

Know ledge	Analyti cal skills	Applicati on of research	Applicatio n of latest technology and tools	Generate design/s olution	Ethics	Societa l concer n	Environ mental concer n	Collabo rative aptitud e	Opportunity for continued learning
PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10

Mapping correlation	Low	Medium	High	No
	1	2	3	--

COURSE: URBAN CONSERVATION			
Course code:	22UDC22	CIE Marks	50
Teaching hours /Week (L:P:SDA)	2:1:2	SEE Marks	50
Total Hours of Pedagogy	4	Total Marks	100
Credits	4	Exam Hours	03
Course Learning Objectives:			
The course is intended to introduce and to understand the various issues of urban conservation in terms of feasibility, community participation and heritage charters across the country.			
Module-1			
Introduction to conservation of historic and inner city areas. Concepts of conservation in India and Understanding INTEGRATED HERITAGE MANAGEMENT for historic cities.			
Teaching Learning Process	Introduction to the course content through lectures and discussion		
Module-2			
Socio-Economic development, Tourism Infrastructure Development, and role of Urban Design in Understanding of CULTURAL LANDSCAPES, SACRED CITIES.			
Teaching Learning Process	Introduction to the course content through lectures and case study presentation		
Module-3			
Institutional aspects of Conservation- Charters, World heritage legislation and sites, Conservation Acts and legislation and available institutional frame work of conservation in India-New schemes of Government like HRIDAY for heritage cities, SMART CITIES.			
Teaching Learning Process	Introduction to the course content through lectures, discussion, debate and presentation		
Module-4			
Conservation area practice, Adaptive Reuse, up gradation programs in old areas, infill design and regeneration of inner city areas.			
Teaching Learning Process	Introduction to the course content through lectures, discussion, debate and presentation		
Module-5			
Conservation management, Community Participation, Economic Regeneration, Financing and Implementation of frame work for Redevelopment and Revitalization projects.			
Case studies in India and abroad to illustrate the above mentioned concepts and approaches-Introduction to World Heritage Sites and Site Management Plans			
Teaching Learning Process	Introduction to the course content through lectures, discussion, debate and presentation.		
Assessment Details (Both CIE and SEE)			
The weight age of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.			
Continuous Internal Evaluation: Continuous Internal Evaluation will be based on assignments, group or individual assignment/ presentation and submission.			
Semester End Examination:			
Theory examination shall be held for 3-hour duration, students are expected to answer five full questions, one question from each module			

Suggested learning resources:

1. Feildan Bernard, Conservation of Historic Buildings, Butterworth-Heinemann.
2. Fitch James, Historic Preservation- A Curatorial Approach, University Press of Virginia.
3. People-Centered Methodologies for Heritage Conservation: Exploring Emotional Attachments to Historic Urban Places (Critical Studies in Heritage, Emotion and Affect)by Rebecca Madgin and James Lesh
4. Equity in Heritage Conservation: The Case of Ahmadabad, India (Routledge Research in Architectural Conservation and Historic Preservation)by Jigna Desai
5. Sacredscapes and Pilgrimage systems- editor Rana P B Singh-Shubhi Publications.

Web links and Video Lectures (e-Resources)

- 1 <https://www.youtube.com/watch?v=W0GfpZPI1VM&t=3361s>
- 2 <https://www.youtube.com/watch?v=LpL8tuIJgHY>
- 3 https://www.youtube.com/watch?v=_5sTNavbbeQ
- 4 https://www.youtube.com/watch?v=Gath5_YVh8o

Skill development activities suggested

1. Site/city visit and mapping the observation related to urban conservation
2. Policy/ guidelines related to urban heritage conservation and impact on built.
3. Application of conservation management practice and stakeholder

Course outcome (course skill set)

- Identify/Understand and demonstrate the policies/charters that influence urban fabric
- Understand the conservation and related aspects through national and international projects at various scale

At the end of the course the student will be able to:

SI No	Description	Blooms level
CO1	Various concepts conservation and heritage management in India	III
CO2	Indian heritage cities and Urban design approaches	V
CO3	Analyze conservation policy and charters and its impact on built through case studies	V
CO4	Able to identify various heritage conservation approaches to inner core of Indian cities	IV
CO5	Urban heritage management and various approaches	V

Program outcome of this course

SI No	Description	POs
1	Understand Heritage management concepts in conservation	1,2
2	Able to identify the scope of urban design in urban conservation	2,4,7,9
3	Familiarization of various concepts and approaches in conservation of urban core	3,7,8,9
4	Exposure to the policies related to management of heritage sites and plans	1,7,8,10

Mapping of CO's and Po's

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	1	2	-	-	-	1	1	1	1
CO2	3	2	1	-	-	-	2	2	3	2
CO3	1	3	2	-	-	-	2	2	2	3
CO4	1	3	2	-	-	-	2	2	2	2
CO5	1	2	2	-	-	-	2	1	1	2
Average	1.8	2.2	1.8	0	0	0	1.8	1.6	1.8	2.0

Knowledge	Analytical Skills	Application of Research	Application of latest technology /tools	Generate Designs/Solutions	Ethics	Societal Concern	Environmental concern	Collaborative aptitude	Opportunity for continued learning
PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10

Graduate attributes

Mapping Co-relation	Low	Medium	High	No
	1	2	3	-

COURSE: CONTEMPORARY THEORIES OF URBANISM AND ARCHITECTURE			
Course code:	22UDC23	CIE Marks	50
Teaching hours /Week (L:P:SDA)	2:1:0	SEE Marks	50
Total Hours of Pedagogy	3	Total Marks	100
Credits	3	Exam Hours	03
Course Learning Objectives:			
To expose the students to the current theoretical trends in architecture and urbanism, with focus on Western architecture but with cross reference to Contemporary Indian trends using relevant examples.			
Module-1			
Post Modernism and post functionalism. Post script to the modern movement. Semiotics and structuralism. Post structuralism and Deconstruction. (Eg. Works of Robert Venturi, Robert Stern, Charles Moore, Peter Eisenman, Bernard Tschumi, Zaha Hadid, Daniel Libeskind and similar architects with examples.)			
Teaching Learning Process	Introduction to the course content through lectures, discussion, debate and case study presentation		
Module-2			
Urban theory after Modernism, Contextualism, Main Street and beyond. Collage city and towards the contemporary city.			
Teaching Learning Process	Introduction to the course content through lectures and discussion.		
Module-3			
School of Venice, territory and architecture, an analogical architecture. Political and ethical agenda, the ethical function of architecture. (Vittorio Gregotti, Aldo Rossi).			
Teaching Learning Process	Introduction to the course content through lectures, discussion and debate		
Module-4			
Heidegger's thinking on architecture, a look at the phenomenology of architecture, Phenomenology and meaning of place. (Christian Norberg-Schulz, Juhani Pallasmaa, Spirit of Place and Indian temple towns and vernacular architecture).			
Teaching Learning Process	Introduction to the course content through lectures, discussion, debate and presentation.		
Module-5			
Critical regionalism, local culture and universal civilization. Tectonic expression. Brief review of the issues of Gender in architecture. City design examples such as Lutyens Delhi, Chandigarh, Bhubaneswar, Shantiniketan and Relevance of Postmodern theory in India.			
Teaching Learning Process	Introduction to the course content through lectures , discussion, debate and presentation.		
Assessment Details (CIE and SEE)			
The weight age of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.			

Continuous Internal Evaluation:

Continuous Internal Evaluation will be based on assignments, presentation and submission..

Semester End Examination:

Theory Examination shall be held for 3-hour duration, students are expected to answer FIVE full questions, one question from each module.

Suggested learning resources:**Books:**

1. Kate Nesbit, Theorizing a new agenda for architecture, Princeton Architectural Press, 1996.
2. Michael Hayes, Architecture Theory since 1968, MIT Press, London.
3. Kevin Lynch, Good City Form, MIT Press, London.
4. Bernd Evers, Architectural Theory From Renaissance to the Present, Taschen, Cologne, 2002.
5. Geoffrey Broadbent, Emerging Concepts in Urban Space Design, Taylor& Francis, 1995
6. Jon Lang, Concise History of Modern Architecture in India, Permanent Black, 2010
7. Dr. Solomon Benjamin, Urban Informality
8. Shilpa Ranade, Gender and Space

Web links and Video Lectures (e-Resources)

<https://www.youtube.com/watch?v=nBUq21iahpl&t=23s>
<https://www.youtube.com/watch?v=esPJRnKEyHU&t=11s>
[youtube.com/watch?v=aW4LY3iHJal](https://www.youtube.com/watch?v=aW4LY3iHJal)
<https://www.youtube.com/watch?v=0wLsMZ4tsQ&list=RDLVaW4LY3iHJal&index=5>
<https://www.youtube.com/watch?v=jgBU3yJD5d4>
<https://www.youtube.com/watch?v=8MK1vEQkego>
<https://www.youtube.com/watch?v=YsNpJp4DKTw>

Skill development activities suggested

The following skills with respect to urban and built form:

- Critical Reading
- Presentation of analysis
- Identifying other relevant perspectives
- Critique of urban and built form

Course outcome (course skill set)

At the end of the course the student will be able to:

SI No	Description(refer module outcome)5 module=5outcome	Blooms level
CO1	Assume a critical position	V
CO2	Identify theoretical lens of project or reading	IV
CO3	Positional analysis of urban and built form	V
CO4	Clarify perspectives of stakeholders	III
CO5	Factors determining urban and built form	VI

Program outcome of this course

Sl. No.	Description	POs
1	Perspectives of Individual and the collective	1,2,3
2	Constructs linking urban and built form to other disciplines	2,3
3	Identifying intentions and challenges of urban and built form	3,4,7
4	Implementing critique to urban and built form	3,4,9,10

Mapping of COs and POs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	2	2	1	-	-	2	2	-	-	1
CO2	3	3	2	-	-	1	2	-	2	2
CO3	1	3	2	2	-	1	2	2	1	2
CO4	-	2	3	2	-	1	2	1	2	3
CO5	-	-	2	2	-	1	1	1	2	2
Average	1.2	2.0	2.0	1.2	-	1.2	1.8	0.8	1.4	2.0

Graduate attributes

Knowledge	Analytical skills	Application of research	Application of latest technology/tools	Generate design/solutions	Ethics	Societal concern	Environmental concern	Collaborative aptitude	Opportunity for continued learning
PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10

Mapping co-relation	Low	Medium	High	No
	1	2	3	-

COURSE: URBAN DESIGN POLICY AND IMPLEMENTATION			
Course code:	22UDS24	CIE Marks	100
Teaching hours /Week (L:P:SDA)	2:1:0	SEE Marks	----
Total Hours of Pedagogy	3	Total Marks	100
Credits	3	Exam Hours	----
Course Learning Objectives:			
This course will			
<ul style="list-style-type: none"> - Emphasize the importance of integrating the urban design agenda into the city planning process and highlight the challenges of urban design practice in India. - Focus on illustrating methods and design tools to address and incorporate urban design in city planning, from the policy level to city plan and project implementation. - Understand the significance of the urban design visioning process, preparation of urban design strategies, policies, regulations and guidelines for plan and project implementation. - Discuss the influence of current and new innovative policies and development regulations on city structure, built form and urban space, using case examples. - Highlight the challenges of application of urban design policy and implementation mechanisms for urban design projects using examples from India and abroad. 			
Course Outline:			
1. Role of urban design in the city planning process and process for preparing urban design plans			
<ul style="list-style-type: none"> • Historic overview and case examples of current planning policies influencing urban design at regional and city scales; and • Role of visioning process in urban design plan preparation; analysis of issues and opportunities; and preparation of concept plans with objectives, policies and developmental strategies. 			
2. Impact of land use zonal regulations on urban form and space and other innovative design tools			
<ul style="list-style-type: none"> • Analysis of impact of current land use and development regulations of Master Plans on urban form and space; and • Innovations in development regulations, alternative types of zoning and design tools including form based codes, performance zoning, incentive zoning and design review. 			
3. Practical exercise to prepare an urban design framework and apply policies and design tools			
<ul style="list-style-type: none"> • Preparation of urban design / local level plans with a vision, concepts, and strategies in a given context; and • Role of applicable policies, design regulations, design guidelines and other tools and methods in preparing a framework for implementing a first order design intervention. 			
4. Challenges of preparing an urban design framework			
<ul style="list-style-type: none"> • Impact of informality and temporality on regulating urban form and space; limitations of current planning framework; and • Understanding the role of urban design in the real estate development process. 			
5. Project implementation strategies and modalities			
<ul style="list-style-type: none"> • Role of Government, private sector, CBOs / NGOs and other stakeholders; • Participatory design process and public engagement process; and • Project implementation process including preparation of short term and long term actions, strategies for financing, and operations and maintenance guidelines for design projects 			

Teaching Learning Process:

- Lectures, videos and studio exercises to understand the parameters for urban design plan preparation
- Case studies, readings, discussions and class presentations on alternative types of design tools and their impact on urban form
- Practical exercises and group work to illustrate the process of preparing a framework for urban design implementation and testing the application of regulations and design tools
- Readings with case examples to discuss challenges of design in the real estate development process
- Case studies and critical review of implementation modalities of various urban design projects

Assessment Details (CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 100% and for Semester End Exam (SEE) is 0%. The minimum passing mark for the CIE is 50% of the maximum marks. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation).

Continuous Internal Evaluation:

Continuous Internal Evaluation will be based on weekly assignments, class presentations, participation in seminar discussions and term paper / report submission.

Semester End Examination: (not applicable)**Suggested learning resources:** (Includes but not restricted to the following)

Books:

1. Barnett, Jonathan. Introduction to Urban Design, Icon (Harpe); 1st edition, 1982. ISBN: 978-0064303767.
2. Barnett, Jonathan. Urban Design as Public Policy, McGraw-Hill Inc.,US, 1974. ISBN: 978-0070037663.
3. Hall, Tony. Turning a Town Around: A Proactive Approach to Urban Design. Oxford, United Kingdom: Blackwell Publishing, 2008. ISBN: 978-1405170239.
4. Hosagrahar, Jyoti. Indigenous Modernities: Negotiating Architecture and Urbanism, Routledge 2005
5. Jacob, Alan. Making City Planning Work, American Planning Association, 1980. ISBN: 978-0918286123
6. Lang, Jon. Urban Design: A Typology of Procedures and Products. Oxford, United Kingdom: Architectural Press, 2005. ISBN: 978-0750666282.
7. Lehnerer, Alexander. Grand Urban rules (Rotterdam: 010 Publishers, 2009)
8. Lynch, Kevin. Managing the sense of a region, MIT Press, 1976
9. Tiesdell, Steve and Adams, David. Urban Design in the Real Estate Development Process. Wiley-Blackwell, 2011. ISBN: 978-1405192194
10. Tiesdell, Steve and Carmona, Mathew. Urban Design Reader, Routledge 2007
11. Bureau of Indian Standards. National Building Code, 2010.
12. Master Plans of Bangalore, New Delhi, Mumbai and other Indian cities.
13. Selected journal articles and readings

Web links and Video Lectures(e-Resources): (Includes but not restricted to the following)

1. Commission for Architecture and the Built Environment. Design Review, Principles and Practice, 2009. (www.cabe.org.uk/files/design-review-principles-and-practice.pdf)
2. In-formalised urban space design. Rethinking the relationship between formal and informal (<https://cityterritoryarchitecture.springeropen.com/articles/10.1186/s40410-016-0046-9>)
3. Patel, Shirish. Urban Layouts, Densities and the Quality of Urban Life (<https://www.epw.in/journal/2007/26/special-articles/urban-layouts-densities-and-quality-urban-life.html>)
4. Design Review: Principles and Practice (https://www.designcouncil.org.uk/fileadmin/uploads/dc/Documents/Design%2520Review_Principles%2520and%2520Practice_May2019.pdf)
5. Incremental production of urban space: A typology of informal design. (<https://www.sciencedirect.com/science/article/pii/S019739751930877X>)

6. Excerpt from The Kinetic City & Other Essays: The Permanent and Ephemeral (<https://www.gsd.harvard.edu/2021/11/excerpt-from-the-kinetic-city-other-essays-the-permanent-and-ephemeral-by-rahul-mehrotra/>)
7. Tactical urbanism guidebook. (<https://www.mobiliseyourcity.net/tactical-urbanism-guidebook-gizmohua-india>)A. Srivathsan: 60 years of Planning – Lessons from Chennai, Urban Planning in India (<https://soundcloud.com/crdfpodcast/a-srivathsan-60-years-of-planning-lessons-from-chennai>)

Skill development activities suggested– Not Applicable

Course outcome (course skill set)

At the end of the course the student will be able to:

Sl. No.	Description	Blooms Level
CO1	Understand the role of urban design in city planning and be well-versed with the urban design process works in practice	I, II, III
CO2	Be conversant with strategic methods and design tools to incorporate urban design in city planning process and understand the pros and cons of the application of alternative design tools that shape built form and space	I, II, III, IV, V, VI
CO3	Evaluate the environmental, social, economic, physical and political impact of development regulations and design tools on urban form, space and livability	III, IV, V,
CO4	Apply policies, design tools and methods to prepare a framework for implementing a first order design intervention	III, IV, V
CO5	Establish implementation strategies and modalities for urban design projects and understand the challenges of implementation	I, II, III, IV, V, VI

Blooms Levels:

I – Knowledge

II- Comprehension

III – Application

IV – Analysis

V – Synthesis

VI - Evaluation

Program outcome of this course

Sl. No.	Description	POs
1	Conversance with the importance of integrating the urban design agenda into the city planning process and the challenges of urban design practice in India.	1, 3, 6, 7, 10
2	Conversance with processes of urban design such as visioning, preparation of urban design strategies and plans, and preparation of policies, regulations and guidelines to develop a framework for a first order design intervention	1, 2, 3,4, 5, 6, 7, 8, 9, 10
3	Exposure to application of strategic methods and design tools of urban design, from the policy level to city plan and project implementation	1, 2, 3, 4, 5, 7, 8, 10
4	Understanding the environmental, social, economic, physical and political impact of development regulations and design tools on urban form, space and livability, and develop innovative design approaches	1, 2, 3, 4, 5, 6, 7, 8, 9, 10
5	Evaluating and reviewing implementation strategies and modalities for urban design projects and understanding the challenges of implementation of urban design projects	1, 3, 5, 6, 7, 8, 9, 10

Mapping of COs and POs

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO 1	3	2	2	-	-	3	2	-	1	2
CO 2	3	3	3	2	3	3	3	3	2	3
CO 3	2	3	1	3	3	3	3	3	3	3
CO 4	2	3	2	3	3	2	3	3	3	3
CO 5	3	2	2	2	3	3	3	3	3	3
Average	2.6	2.6	2.0	2.0	2.4	2.8	2.8	2.4	2.4	2.8

Graduate Attributes

Knowledge	Analytical skills	Application of Research	Application of latest technology / Tools	Generate Designs / Solutions	Ethics	Societal Concern	Environmental Concern	Collaborative Aptitude	Opportunity for continued learning
PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10

Mapping Co-relation	Low	Medium	High	No
	1	2	3	-

COURSE: ECOLOGY AND SITE PLANNING			
Course Code:	22UDS 25	CIE Marks	50
Teaching hours /Week (L:P:SDA)	2:1:0	SEE Marks	50
Total Hours of Pedagogy	3	Total Marks	100
Credits	3	Exam Hours	03
Course Learning Objectives:			
To introduce students to the art of site planning and the concerns of environmental variables in the process of urban design.			
Module-1			
Introduction to physical geography; earth science; Geology, soil, Hydrology; Climate. Understanding, contours, slopes & its analysis. Role, of Terrain, watershed, catchment zone and its relation vegetation. Geographical regions. Study of natural and Manmade features of the site.			
Teaching Learning process	Lectures supported with illustration and visuals. Assignments to elaborate on key terms used with real time places and spaces.		
Module-2			
Ecology: Basic concepts of ecology, components of ecosystem structure & environmental planning, use and management of resources; environmental concerns related to development; environmental degradation; pollution control and evaluation of energy resources. Man-environment interface towards sustainable development.			
Teaching Learning process	Presentation supported with movie clips and visuals. Case study and site examples presentation/		
Module-3			
Ecology and settlements, Sustainable urbanity and urban climate change: ECO URBANITY- Towards well-directed urbanity. Urban landscapes and Sustainable cities: Urban Biodiversity and ecology.			
Teaching Learning process	Teaching by group discussions. Presentation of reading material by students & debates.		
Module-4			
Site Planning: Site, User, Programme and Design. Sensed landscape and its materials, access, earth work and utilities. Field surveys, reading aerial survey, climatic variables. Site Planning strategies and case studies.			
Teaching Learning process	Lectures supported with illustration and visuals. Drawing and sketching exercises of the concepts discussed.		
Module-5			
Application of site planning methods to design concepts, Analyzing the given Issue to show definition of site, User, & Program. Matching site qualities with program. Design of built & open spaces, recreation areas, landscape elements			
Teaching Learning process	Design process interaction, drawing, sketching, and workshops. Pin up reviews, jury comments		

Assessment Details (Both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 40% and for Semester End Exam (SEE) is 60%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation:

Continuous Internal Evaluation will be based on Assignments, Tests and Term Paper /Portfolio submission.

Semester End Examination:

Theory examination shall be held for 3-hour duration, students are expected to answer five full questions, one question from each module.

Suggested learning Resources

1. Kevin Lynch, Good City Form, MIT Press, Cambridge
2. Kevin Lynch and Gary Hack, Site Planning, MIT Press, Cambridge.
3. Peter Jacobs and Douglas Way, Visual Analysis of Landscape Development, Harvard Press.
4. Gary.O.Robinette (Ed), Landscape Planning and Energy Conservation. Van-Nostrand Reinhold.
5. Design with Nature: Ian L. McHarg.
6. The Landscape of Man: Geoffrey Jellicoe and Susan Jellicoe.
7. Geography of Settlements. *Author: R.Y. Singh. ISBN,*
8. Site Planning and Design Handbook. Thomas Russ (Author) / McGraw-Hill
9. RiverCentricUrban Planning Guidelines.TOWN AND COUNTRY PLANNING ORGANISATIONMINISTRY OF HOUSING AND URBAN AFFAIRSGOVERNMENT OF INDIA
10. Landscape Architecture, Fifth Edition: A Manual of Environmental Planning and Design

Web links
and Video
Lectures
(e-
Resources)

1. https://cpwd.gov.in/cty/writereaddata/eventdoc/EVENTFILE_23092019050925.pdf
2. <https://www.cseindia.org/environmental-clearance---the-process-403>
3. <https://www.britannica.com/science/urban-ecosystem>
4. <http://environmentclearance.nic.in/writereaddata/FormB/agenda/29012020OA101ANJSupplementaryProceedingofSEACmeetingheldon26122019.pdf>
5. https://books.google.co.in/books/about/Physical_Geography.html?id=wQgmjgEACA&redir_esc=y

Skill Development Activities suggested

1. Observation of Natural setting to identify it as an outcome of, Geological, hydrological & climatic processes.
2. Bring to Note implications of ecology disturbances by human action in our current times.
3. Noting Good practices from Traditional knowledge as well New Research applications.
4. Learning from Awarded projects, workshops conducted.
5. Knowledge bank form Environmental laws, Legal cases, Critiquing Bye Laws.

Course outcome (Course skill set)**At the end of the course the student will be able to:**

SI No	Description	Blooms level
CO1	Skill to observe Land and its Related ongoing Natural process on site.	III
CO2	To understand Ecological Processes around Human settlements & their interrelation	VI
CO3	To Appreciate concepts of Sustainable cities: Urban Biodiversity and ecology	VI
CO4	Getting conversant with issues related Landscape perception and its design tools.	IV
CO5	Site planning skills to Address issues of Site, User, Program.	III

Program outcome of this course

SI No	Description	POs
1.	Expand understanding of site in the larger context of urban & natural environment.	1,8,9
2.	Be aware of the Contemporary issues man , nature conflict and its Implication on Both	1,2,7,8
3.	Learn from Good practices, Dos &Don'ts,& use of new methods to solve the issues arising.	1,3,7,9
4	Ability to find a balanced solution to a site planning exercise based on the parameters in question	3,6,10

Mapping of COs and POs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	2	3	1	-	-	2	2	3	2	2
CO2	2	3	2	2	-	2	2	3	2	2
CO3	1	2	3	2	-	2	2	2	3	2
CO4	1	2	3	3	2	1	2	2	3	2
CO5	-	2	2	3	3	-	1	1	2	3
Average	1.2	2.4	2.2	2.0	1.0	1.4	1.8	2.2	2.4	2.2

Graduate attributes

Knowl edge	Analytic al skills	Applicatio n of research	Application of latest technology and tools	Generate design/sol ution	Ethics	Societal concern	Environ mental concern	Collabor ative aptitude	Opportunity for continued learning
PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10

Mapping correlation	Low	Medium	High	No
	1	2	3	--

COURSE: PUBLIC PARTICIPATION IN GOVERNANCE			
Course code:	22UDE271	CIE Marks	50
Teaching hours /Week (L:P:SDA)	1:0:2	SEE Marks	50
Total Hours of Pedagogy	2	Total Marks	100
Credits	2	Exam Hours	VIVA
Course Learning Objectives:			
The course is intended to introduce concept of people's participation in urban design project.			
Course outline			
<ol style="list-style-type: none"> 1. Concept and importance of people's participation/planning, types and relevance, existing system and scope. 2. Identification of stake holders, issues and interactions, institutionalization of people participation. 3. Individual/NGO/CBO efforts in peoples planning with example, national and international. 4. Role of urban designer in process of people participation in urban design project, example. 			
Teaching Learning Process	Introduce each subsection through talk/presentation, case study and generate discussion through article reading		
Assessment Details(CIE and SEE)			
The weight age of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.			
Continuous Internal Evaluation:			
Continuous Internal Evaluation will be based on presentation, interaction and submission.			
Semester End Examination: Viva-voce: The viva voce shall be conducted for a duration of 20 minutes (per student) for the subjects listed under viva voce for all the semesters			
Suggested learning resources:			
<ol style="list-style-type: none"> 1. Partha Chatterjee, the Politics of the Governed, New York: Columbia University Press, 2004. 2. Report-seminar on good urban governance new Delhi 2001-2002, Nagarapalika journal, reports etc. 			
Web links and Video Lectures(e-Resources):			
https://www.youtube.com/watch?v=-vojtrw9Ys https://www.youtube.com/watch?v=tACf-kiuHwU https://www.youtube.com/watch?v=P8u5YQYv0d8 https://www.youtube.com/watch?v=hFDCCrySV9A			
Skill development activities suggested			
<ol style="list-style-type: none"> 1. Field visit to enable students to identify conflicts related to governance 2. Stakeholders and their roles 3. Manage and conduct of public/stakeholders participation meet 			

Course outcome (course skill set)

At the end of the course, the student will be able to:

Sl. No.	Description	Blooms Level
CO1	The application of people participation in the existing system	III
CO2	Role of NGOs and stakeholders in people participation	III
CO3	Need for the people participation in making of Urban Design project	VI

Program outcome of this course

Sl. No.	Description	POs
1	Able to relate various people planning systems and opportunities	1,3,9,10
2	Ability to identify stakeholders and manage peoples planning activities	2,6,7
3	Relate and integrate the people planning approach while making of Urban Design project	4,9,10

Mapping of COs and Pos

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	2	-	-	2	2	2	3	3
CO2	1	3	2	-	-	2	3	2	2	2
CO3	1	1	2	-	2	2	3	3	3	2
Avg.	1.6	2	2	-	.6	2	2.6	2.3	2.6	2.3

Graduate Attributes

Knowl edge	Analytic al skills	Applicati on of research	Application of latest technology and tools	Generate design/sol ution	Ethics	Societal concern	Environ mental concern	Collaborativ e aptitude	Opportunity for continued learning
PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10

Mapping Co-relation	Low	Medium	High	No
	1	2	3	-

COURSE: URBAN MANAGEMENT			
Course Code:	22UDE272	CIE Marks	50
Teaching hours /Week (L:P:SDA)	1:0:2	SEE Marks	50
Total Hours of Pedagogy	3	Total Marks	100
Credits	2	Exam Hours	VIVA
Course Learning Objectives:			
The course intends to help students understand and illustrate the complex challenges in the functioning of a city and develop their skills in addressing such complexities through efficient management of resources in the Urban Environment.			
Studio outline			
<p>Introduction: the students are introduced to Complexity theory and its relevance in urban planning, urban design (in creating city image) and other relevant management disciplines. The theory stresses the overlay of city management players such as the economy, infrastructure, people and nature. Topics such as sustainability and equity are introduced as a result of effective and efficient management system. The course will introduce theoretical understanding with case studies and encourage students to hands on experience under the following urban systems.</p> <ol style="list-style-type: none"> 1. People and the city: Human resource management – The role of people or citizens as primary stakeholders in managing a city, importance and relevance of participatory decision making explained through case studies. Theory of Informality and its associations with the city’s life. Topics such as Livelihood, health, well-being and quality of life as prescribed by world organizations and a comparative analysis drawn to sensitize on India’s scenario. The systems that involve fundamentals and effective management of Human resources in urban area including HR policies and Laws. 2. Nature and the city: Natural resource management system – sustainability beyond greening, green Urbanism, urban form and sustainability, and other relevant topics that discuss the efficient and effective use of natural resources, significant stake holders in play and management strategies that recognizes developmental pressures, its impact on nature to suggest resilient solutions. 3. Economy and the city: Urban finance management system - Understand fundamentals of urban finance, Effective and efficient budget in ULBs, financial planning and management. Understand the economic flows that bind development needs and people-centric solutions through case studies across the world. Assess India’s scenario by dissecting into concepts of “competitiveness” and “Happiness” 4. Urban project management system: Holistic management with equal importance even to the role of people/citizens, the natural systems of the context and the financial as well the development trajectories that trigger largely in decision making. Assessing Time management modules through evaluation and monitoring of ongoing small and large scale urban projects. 			
Teaching learning process	Lectures with case studies, Student discussions, Peer reviews, Workshops, Action Planning as a sub-course to procure real time data for ongoing urban challenges.		
Assessment Details (Both CIE and SEE)			
The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) or Term Work (TW) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE i.e., TW is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% in the sum total of the CIE(Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.			

SEE(Semester End Examination): The viva voce shall be conducted for a duration of 20 minutes (per student) for the subjects listed under viva voce for all the semesters

Suggested learning resources:

1. Portugali, J. (2011). *Complexity, cognition and the city* (pp. 22-42). Berlin: Springer.
2. Bettencourt, L. M. (2015). Cities as complex systems. *Modeling complex systems for public policies*, 217-236.
3. Bettencourt, L. M. (2021). *Introduction to urban science: evidence and theory of cities as complex systems*.
4. Ahluwalia, I. J. (2014a). *Improving our cities through better governance*. London, England: LSE Cities
5. Ahluwalia, I. J., Kanbur, R., & Mohanty, P. K. (2014). *Urbanisation in India: Challenges, opportunities and the way forward*. New Delhi, India: Sage India
6. World Bank. (2012). *Lessons from business plans for Maharashtra, Rajasthan, Haryana and international good practices*. Washington, DC: Author.
7. Brosius, J.; Peter Tsing; Anna Lowenhaupt; Zerner, Charles (1998). "Representing communities: Histories and politics of community-based natural resource management". *Society & Natural Resources*.
8. Batty, M., & Marshall, S. (2012). The origins of complexity theory in cities and planning. In *Complexity theories of cities have come of age* (pp. 21-45). Springer, Berlin, Heidelberg.
9. Batty, M. (2016). Complexity in city systems: Understanding, evolution, and design. In *A planner's encounter with complexity* (pp. 99-122). Routledge.
10. Scott, A. & Storper, M., 2007. Regions, Globalization, Development. *Regional Studies*, 41(1), 191.
11. Campbell, S. (1996). Green cities, growing cities, just cities?: Urban planning and the contradictions of sustainable development. *Journal of the American Planning Association*, 62(3), 296-312.
12. Florida, R. (2005). THE WORLD IS SPIKY Globalization has changed the economic playing field, but hasn't leveled it. *Atlantic monthly*, 296(3), 48.
13. Feiock, R. C., Jae Moon, M., & Park, H. J. (2008). Is the world "flat" or "spiky"? Rethinking the governance implications of globalization for economic development. *Public Administration Review*, 68(1), 24-35.
14. Montgomery, C. (2013). *Happy city: Transforming our lives through urban design*. Penguin UK.
15. Lehmann, S. (2011). What is green urbanism? Holistic principles to transform cities for sustainability. *Climate Change-Research and Technology for Adaptation and Mitigation*, 243-266.

Web Links and Video lectures (E-resources):

1. Poli-Plex-Icon: A tool for city image visualization in the age of complexity by Efrossyni Tsakiri in *The Urban Transcripts journal*, Volume 2, No.2, June 2020.
2. <https://journal.urbantranscripts.org/article/poli-plex-icon-a-tool-for-city-image-visualization-in-the-age-of-complexity-efrossyni-tsakiri/>
3. E-article on Bettencourt and Sahasranaman attempt the first detailed analysis of Indian cities as complex systems. March 14, 2019. journal article topic: Urban geography and scaling of contemporary Indian cities. <https://miurban.uchicago.edu/2019/03/14/bettencourtsahasranaman/>
4. Wilensky, U. (2007). NetLogo Urban Suite - Cells model. <http://ccl.northwestern.edu/netlogo/models/UrbanSuite-Cells> . Center for Connected Learning and
5. Computer-Based Modeling, Northwestern University, Evanston, IL.
6. The happy city experiment | Charles Montgomery | TEDxVancouver | 2014 <https://www.youtube.com/watch?v=7WiQUzOnA5w>
7. Fight of the Century - Keynes vs. Hayek - Round One (2010) and Two (2012)
8. <https://www.youtube.com/watch?v=d0nERTFo-Sk&t=392s>
9. <https://www.youtube.com/watch?v=LA1-1DlhuXU&t=298s>

10. Complexity, citizen engagement in a Post-Social Media time | David Snowden | TEDxUniversityofNicosia | 2018. <https://www.youtube.com/watch?v=JkJDyPh9phc>
11. TEDxRotterdam - Igor Nikolic - Complex adaptive systems | 2010. https://www.youtube.com/watch?v=jS0zj_dYeBE

Skill development suggested:

1. Skills to understand cities as complex adaptive systems and decode the complex layers in the working of a city i.e., the economic, the physical, the social and the environmental.
2. Skills to prepare surveys for assessing urban issues/real time data as part of action planning.
3. Skills to map the stakeholders in play, the governance strategies arising from the complex layers and assessing them.
4. Access, analyze and interpret data to provide recommendation.

Course outcome (course skill set)

At the end of the course the student will be able to:

Sl. No	Description	Blooms level
CO1	Identify and decode the complex layers of the urban challenges/issues	IV
CO2	Identify and map the roles and responsibilities of key stakeholders	IV
CO3	Generate methodologies in data collection, sampling and survey techniques	V
CO4	Analyze and assess the data collected	V
CO5	Provide strategic planning techniques to address the issues and recommend	VI

Program outcome of this course

Sl. No	Description	POs
1	Ability to understand complex layers in the management of a city	1,2,3,7,8,10
2	Ability to comprehend the inter-relatedness of the layers, networks and flows	2,3,4,9
3	Documentation of identified challenges and the layers	2,3,4,9
4	Analysis to provide strategies and solutions	2,3,4,5,6,9

Mapping of CO s and PO s

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	3	1	-	1	2	2	1	2
CO2	2	2	3	1	-	1	2	2	3	1
CO3	1	3	2	3	2	2	1	1	3	2
CO4	2	3	2	3	1	2	-	-	2	2
CO5	1	2	2	3	3	2	2	2	2	2
Average	1.8	2.4	2.4	2.2	1.2	1.6	1.4	1.4	2.2	1.8

Graduate attributes

Know ledge	Analyti cal skills	Applicati on of research	Applicatio n of latest technology and tools	Generate design/ solution	Ethics	Societal concern	Environ mental concern	Collabor ative aptitude	Opportunity for continued learning
PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10

Mapping correlation	Low	Medium	High	No
	1	2	3	--

COURSE: GIS (GEOGRAPHICAL INFORMATION SYSTEMS) -II			
Course Code:	22UDE273	CIE Marks	50
Teaching hours /Week (L:P:SDA)	0:2:0	SEE Marks	50
Total Hours of Pedagogy	2	Total Marks	100
Credits	2	Exam Hours	VIVA
Course Learning Objectives:			
<p>The course is intended to understand GIS as a decision-support tool in the urban spatial planning process. The prerequisite to this course is GIS-I in the previous semester. GIS II deals with an understanding of advanced GIS concepts, advanced GIS models, techniques and real-world applications in spatial planning. The course also introduces Geographic Query and Analysis, Application in an Urban project and provides a glimpse of the future of GIS.</p> <p>It also establishes a bridge between the conceptual realms - Architecture /Site - Terrain Analysis/ Landscape architecture/Urban Design and Urban planning. The Output is digital, online and printed maps.</p> <p>Outcome: Students will complete lab exercises using any good Spatial information systems software. This will help in creating maps and output of spatial queries in the urban context.</p>			
Course outline			
Advanced-Data Models			
<p>Surface representation, Grid model, other models, Practical observations – Accuracy, Three-dimensional objects, Representation of time.</p> <p>Network model, Model for movement over surfaces, Combination of models, representation of networks, Node-node adjacency matrix, Computation of shortest paths on a network and Terrain Analysis.</p>			
Geographic Query and Analysis			
<p>Types of spatial analysis - Queries and reasoning, Measurements, Transformations. Optimization techniques, Hypothesis testing, Spatial interpolation- Inverse distance weighting, Density estimation and potential, Advanced spatial analysis.</p> <p>Descriptive summaries–Centers, Dispersion, Histograms and pie charts, Scatter plots, Spatial dependence as a correlation method.</p>			
The Future of GIS			
<p>Future data: Easy access to digital data, Remote sensing and GIS, GPS as a data source for GIS. Image maps and GIS, Data exchange and GIS. Location-based services and GIS.</p> <p>Future hardware – The workstation revolution, The network revolution, The microcomputer revolution, The mobility revolution, The impact of the revolutions, prospects of hardware, Future software – Software trends. The raster versus vector debate, object-oriented GIS, Distributed databases, GIS user needs, and GIS software research.</p> <p>GIS interoperability, Future issues and problems – Privacy, Data ownership, Scientific visualization, New focus.</p>			
Creating Reports			
<p>Definition, components of web GIS, internet, web GIS v/s Internet GIS, Sharing Work, and Publishing Maps over intranet/Internet, collaborative web mapping, Web Mapping Services, Open Layers, and Google maps.</p>			

Urban Project		
Application of GIS through an URBAN Project taken from the previous semester.		
Teaching learning process	Introduction of the course through lectures. Major areas of application through lectures, videos, field data collection and hands-on on the software.	
Assessment Details (Both CIE and SEE)		
Assessment Details (both CIE and SEE) The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum mark. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% of the total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.		
Continuous Internal Evaluation: Continuous Internal Evaluation will be based on Exercises, Projects, and Seminars Semester End Examination: Viva Voce/TW.		
Suggested learning resources:		
<ol style="list-style-type: none"> 1. Anita Graser, "Learning QGIS" PAKT open source, 2016. 2. Dr. John Van Hoesen, Dr. Luigi Pirelli, Dr. Richard Smith Jr., GISP Kurt Menke, " A refreshing look at QGIS: "Mastering QGIS", PACKT Pub., 2016. 3. Discovering GIS and ArcGIS by Bradley A. Shellito. 		
Web Links and Video lectures (E-resources):		
https://sites.duke.edu/envgis/tutorials/introduction-to-google-earth/		
Skill development suggested:		
Site Visits, hands-on various software like Global Mapper, QGIS, cross domains with emerging architectural trends in Geospatial Industry		
Course outcome(Course skill set)		
At the end of the course the student will be able to:		
Sl.No	Description	Blooms Level
CO1	Understanding 3D Model with Terrain Analysis.	I
CO2	Working with advanced spatial analysis techniques.	II
CO3	Understanding the Future scope of geographic information systems like GIS.	III
CO4	Working with web mapping services other than GIS.	IV
CO5	Working on an Urban project using GIS and outcome through spatial queries.	V
Program outcome of this course		
Sl No	Description	POs
1	Understand mapping and Spatial analysis as crucial tools in data analysis of the Urban scenario.	1, 2, 4, 10
2	Analyzing urban scenarios project using Geographical information system.	1, 2, 3, 4, 9,10
3	Spatial analysis of various types of data using advanced spatial analysis techniques.	1,2, 3,4, 5,7, 9, 10

Mapping of CO s and PO s

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	2	3	1	-	-	-	2	2
CO2	3	3	3	2	2	-	1	1	1	3
CO3	2	1	-	1	-	2	1	2	2	2
CO4	-	2	2	3	-	1	1	1	3	1
CO5	3	3	2	2	3	-	1	1	3	3
Average	2.2	2.2	1.8	2.4	1.2	0.6	0.8	1	2.2	2.2

Graduate attributes

Know ledge	Analyti cal skills	Applicati on of research	Applicatio n of latest technology and tools	Generate design/s olution	Ethics	Societal concern	Environ mental concern	Collabor ative aptitude	Opportunity for continued learning
PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10

Mapping correlation	Low	Medium	High	No
	1	2	3	--