VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI.

Scheme of Teaching and Examinations and Syllabus of Semester-I

M.Arch-URBAN DESIGN

(Effective from the academic year 2022-23)

SL NO	COURSE	COURSE CODE	COURSE TITLE	TEACHING HOURS PER WEEK			EXAMINAITON				TOTAL MARKS	CREDITS
				THEORY	PRACTICAL/ STUDIO	SKILL DEVELOPMENT ACTIVITIES	DURATION OF HOURS	CIE MARKS	SEE MARKS			
									THEORY	VIVA/TW		
				L	P	SDA						
1	PCC	22UDC11	URBAN DESIGN STUDIO-I	1	8	0	-	50	-	50	100	10
2	PCC	22UDC12	URBAN DESIGN PRINCIPLES AND TECHNIQUES	2	1	2	-	100	-	-	100	4
3	PCC	22UDC13	THEORY OF URBAN FORM	2	0	2	3	50	50	-	100	3
4	PSC	22UDS14	CITY PLANNING PROCESS IN INDIA	2	1	0	3	50	50	-	100	3
5	PSC	22UDS15	SOCIAL THEORY AND URBAN DESIGN	2	0	0	3	50	50	-	100	2
6	MC	22UDS16	RESEARCH METHODOLOGY AND IPR	1	0	2	3	50	50	-	100	2
7	PEC-1	22UDE171	INDIAN URBANISM	2	0	0	-	50	0	50	100	2
		22UDE172	SPATIAL /SOFTWARES SKILLS FOR URBAN DESIGN & APPLICATION IN CITY READING	0	2	0						
		22UDE173	GIS-I	0	2	0						
8	AUD	22AUD17	BOS RECOMMENDED ON LINE COURSE									PP
			TOTAL	13	14	6	-	400	200	100	700	26

VTU- SCHEME OF TEACHING 2022-23 M ARCH (URBAN DESIGN) CBCS-OBE

SEMESTER-I

Note: PCC: Professional Core Course, PSC: Professional Support Course, MD- Mandatory Course, PEC: Professional Elective Course, AUD: Audit Course,

1L-1 Credit, 1P-1 Credit, and SDA –Skill Development Activities (hours include self-exploration, site visits, and workshops, 02hours =1 credit)

1. **Studio:** Students and course instructor/s to be involved individually or in groups to interact to enhance learning and application skills. The students should interact with the construction industry (small, medium, and large), understand their problems or foresee what can be undertaken for study in the form of research/ case study testing projects, and for creative and innovative methods to solve the identified problem.

Students will:

   a. Gain confidence in working along with professionals.

   b. Work on different software/s(tools)to simulate, analyze and authenticate the output to interpret and conclude.

   c. Handle advanced technology to enhance technical talent.

   d. Involve in case studies and field visits/fieldwork.

   e. Accustom with spatial standards to narrow the gap between academia and the profession. All activities should enhance student's abilities to Employment and/or self-employment opportunities, management skills, Statistical analysis, fiscal expertise, etc.

2. Skill Development Activities: They may be in the form of periodic site visits, guest conferences, and webinars, not a fixed slot in timetables.

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

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		Total Marks	100
Credits	10	Exam Hours	Viva Voce

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.

Studio Outline

The studio will incorporate interdisciplinary principles, processes and interactions that are fundamental to Urban Design. The studio tasks will include the following;

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.

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".

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.

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:

Sl 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

Sl 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		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:

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

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/So lutions	Ethics	Societal Concern	Environme ntal concern	Collaborati ve aptitude	Opportunit y 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		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-modem 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%. Theminimum 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. SpiroKostof, 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. KevinLynch, 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		Total Marks	100
Credits	3	Exam Hours	3

Course Learning Objectives:
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 • 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 are plans, special purpose plans, annual plans, projects / schemes.	
Teaching Learning Process	- 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 • 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	- 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) • 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	Discussion on implications of land use regulations and zoning tools - Case studies, readings and discussion seminar

Module-4
EMERGING PLANNING PRACTICES AND CONCEPTS • 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 • 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)

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 weekly assignments, class presentations, participation in seminar discussions and term paper / report 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:(Includes but not restricted to the following)

Books:

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 documentsof Bangalore, New Delhi, Mumbai, Chennai and other Indian cities
8. Selected readings provided in class

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

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 trajectory of City Planning approaches and analyse thechanging 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

Blooms Levels:
I – Knowledge
II- Comprehension
III – Application
IV – Analysis
V – Synthesis
VI - Evaluation

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 currentprograms and plans, and their implementation, in shaping city design and developmentat 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		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)

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, term paper 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. Borden, Iain, Tim Hall and Malcolm Miles (Eds.). 2003. *The City Cultures Reader*. Routledge
2. Benjamin, S. 2008. Occupancy Urbanism: Radicalizing Politics and Economy beyond Policy and Programs. International Journal of Urban and Regional Research, 32.3, 719-729.
3. Castells, Manuel. 1978. *City, Class and Power (Sociology, politics &cities).* Palgrave Macmillan
4. Chatterjee, Partha. 2006. *Politics of the Governed: Reflections on Popular Politics In Most of the World*. Columbia University Press.
5. Correa, Charles. 1989. *The New Landscape: Urbanisation in the Third World.* London. Butterworth Architecture
6. Correa, Charles. 2000. Housing and Urbanization. UDRI Mumbai
7. Davis, Mike. 1990. *City of Quatrz: Excavating the Future in Los Angeles.* Verso
8. Harvey, David. 2001. *Spaces of Capital: Towards a Critical Geography.*Blackwell/Wiley
9. Harvey, David. 2000. *Spaces of Hope.* University of California Press
10. Jacobs, Jane. 1961. *The Death and Life of Great American Cities*. Vintage
11. Kaviraj, Sudipta. 1997. *Filth and the Public Sphere: Concepts and Practices about Space in Calcutta*. Public Culture, 10 (1), 83-113.
12. Lin, Jan and Christopher Mele (eds.).2012. *The Urban Sociology Reader*. Routledge
13. Mehrotra, R. (2008) *Negotiating the Static and Kinetic Cities: The Emergent Urbanism of Mumbai*, in Huyssen, A. (ed.) Other Cities, Other Worlds: Urban Imaginaries in a Global Age. Duke University Press: Durham and London. pp.205-18.
14. Roy, Ananya. 2005. *Urban Informality: Towards an Epistemology in Planning*, Journal of the American Planning Association, 71 (2), 147-158.

Web links and Video Lectures (e-Resources)	1. https://www.youtube.com/watch?v=nBUq21iahpl 2. https://www.youtube.com/watch?v=gaw8iUi-i6E

Skill Development Activities suggested

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:

Sl 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

Sl 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

Knowledge	Analytical skills	Application of research	Application of latest technology and tools	Generate design/solution	Ethics	Societal concern	Environmental concern	Collaborative 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		Total Marks	100
Credits	02	Exam Hours	03

Course Learning Objectives:

This course intends to introduce the idea of research designand 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 casestudy 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 groupdiscussions, participant observation. Types of surveys, methodology of survey research.Questionnaire Design. Definitions of reliability, theory of reliability. Types ofvalidity. Variance definitions of validity. Interview schedule, Different typesof interview methods. Examples of interview as a research tool. Sampling,sampling frame, study population, target population. Randomization, sample size andkinds of samples. Classification of Sampling. Preparation of and types of Questionnaires. Administeringquestionnaires, target group, Methods of gathering information.	
Teaching Learning Process	Lecture sessions, Group discussions, Assignment-based learning, Peer Evaluation

Module-5
Methods of Data Analysis- Statistics:
Definition and purpose of statistics. Data sources, collection methods, andrepresentation techniques. The law of average numbers Standard deviation,interpretation of data Mean, differences, correlation coefficients. Correlation,Variance, Co Variance, Hypothesis testing.

<table>
<tr><td colspan="2">Analysis and Representation of Data, Deriving Conclusions for Research.
The Concept of Intellectual Property Systems, Copyright and Related Rights, Trademarks.</td></tr>
<tr><td>**Teaching Learning Process**</td><td>Lecture sessions, Workshops for writing research paper, Mathematical Sums for Practice.</td></tr>
</table>

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 Internal Reviews, External Reviews and Final Portfolio Submission **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
Suggested learning resources: **Books:** 1. Ranjit Kumar, Research Methodology- A step by step guide for Beginners. SagePublications, New Delhi. 2. Fred N. Kerlinger, Foundations of Behavioural Research, Holt, Rinehart andWinston 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.

Web links and Video Lectures(e-Resources):
  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

Skill development activities suggested
  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:

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):
1. https://www.youtube.com/watch?v=LCw2LOKqO-Q&t=776s
2. https://www.youtube.com/watch?v=qUU5CTlCBq4
3. https://www.youtube.com/watch?v=esPJRnKEyHU
4. https://www.youtube.com/watch?v=Y40pp8OFubs

Skill development suggested:
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:

Sl 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

Sl 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

Knowledge	Analytical skills	Application of research	Application of latest technology and tools	Generate design/solution	Ethics	Societal concern	Environmental concern	Collaborative 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
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)

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, exercises 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: 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): 1. https://clipchamp.com/en/video-editor/ 2. https://www.youtube.com/watch?v=k5-8XQ24yjU 3. https://www.youtube.com/watch?v=MqwlW76sFCM 4. https://www.youtube.com/watch?v=gYO1uk7vIcc

Skill development suggested:
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:

Sl 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

Sl 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: GIS-I			
Course code:	**22UDE173**	CIE Marks	50
Teaching hours /Week (L:P:SDA)	0:2:0	SEE Marks	50
Total Hours of Pedagogy		Total Marks	100
Credits	2	Exam Hours	VIVA

Course Learning Objectives:
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.

Lecture and hands-on lab exercises: Students will complete lab exercises using any good Geographical; and Spatial information systems software with any DBMS.

HISTORYANDDEVELOPMENT OF GEOGRAPHICALINFORMATIONSYSTEMS, INTRODUCTION TO THE GIS ROOTS IN CARTOGRAPHY
Mapsandtheirhistoricaldevelopment,AdvantagesofGISovermanualmethods,first automaticprocessingofgeographicalinformation, Spatial learning and development, Using and learning maps, defining a map, other representations of the world, Mappingconcepts,featuresandproperties. Important milestones in the development of GIS, Recent developments.

Teaching Learning Process	Introduction to the course through Lectures.
	Major areas of application through lectures, hands-on and videos

SPATIAL DATA STRUCTURE AND MODELS

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.

Data collection workflow, Field mapping/collecting data using the Mobile application. Primary & secondary geographic data capture, integrating datafrom external sources, Geographic data formats, capturing attribute data, Managing a data capture project, and Data editing.

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.

GIS MODEL TO REPRESENT REAL-WORLD DATA
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.

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.

USE OF OPEN-SOURCE DATA IN GIS

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.

Integrating 3rd dimension of data and processing 3D maps and TerrianDEM analysis

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

Compose and create a printable map in GIS, build the 3D model in virtual mode, Urban Planning and design exercises.

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

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.

Assessment Details (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% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Evaluation: Continuous Internal Evaluation will be based on Exercises, Projects, and Seminars Semester End Examination: Viva Voce.

Suggested learning resources:
Books:
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;, PACKT 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 using3D 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	-