

SEMESTER - I

I Semester

HABITAT DESIGN STUDIO-I			
Course Code	2MAHD101	CIE Marks	100
Teaching Hours/Week (L:T:S:P)	28:0:84:0	SEE Marks(Viva)	100
Total Hours of Pedagogy	8	Total Marks	200
Credits	8	Exam Hours	-
Course Learning objectives: To develop the ability to identify, document, and analyse the spatial structure, evolution, and character of inner-city and historic urban areas through urban morphology; examine their socio-cultural dynamics, infrastructure systems, environmental conditions, and stakeholder networks through socio-spatial analysis; and formulate context-sensitive habitat regeneration strategies and architectural interventions that integrate heritage conservation, urban planning, and the needs of existing communities.			
Studio Outline This studio focuses on the comprehensive understanding and regeneration of a selected historic inner-city precinct through an integrated socio-spatial and morphological approach. Students will undertake systematic documentation and condition assessment of the urban fabric, including urban morphology, figure-ground relationships, land-use patterns, public and private realms, mobility networks, cultural activities, infrastructure systems, and stakeholder dynamics. The analysis will enable students to identify the spatial, social, environmental, and economic challenges affecting the precinct while recognizing its heritage significance and local identity. Building upon this evidence-based assessment, the studio culminates in the preparation of a comprehensive urban regeneration strategy that enhances heritage value, revitalizes public spaces, improves accessibility and mobility, supports local livelihoods, and strengthens the overall quality of the urban environment through context-sensitive, sustainable, and inclusive design interventions. Emphasis is placed on balancing conservation with contemporary urban needs to create resilient and livable historic neighbourhoods. The studio shall include: • Introduction to the nature and evolution of historic urban cores, processes of urban transformation, decline, regeneration, and principles of sustainable inner-city revitalization. • Understanding urban morphology and the spatial structure of historic settlements through the study of street networks, block patterns, plot structure, built form, figure-ground relationships, density, and land-use characteristics. • Application of urban documentation techniques, including site reconnaissance, spatial mapping, photographic surveys, measured documentation, behavioural observation, and GIS-based analytical methods. • Comprehensive socio-spatial and cultural analysis encompassing demographic characteristics, community structure, local livelihoods, informal economies, cultural practices, temporal patterns of use, place identity, and social interactions within the historic urban fabric. • Assessment of the public and private realm through analysis of streets, public spaces, open spaces, interfaces, edges, activity patterns, walkability, accessibility, and the quality of the urban environment. • Documentation and evaluation of heritage assets, historic streetscapes, architectural character, cultural precincts, and their contribution to urban identity and continuity. • Analysis of mobility systems, including street hierarchy, pedestrian movement, public transport connectivity, parking, traffic management, universal accessibility, and last-mile connectivity within the historic core. • Assessment of urban infrastructure systems, including water supply, stormwater drainage, wastewater, solid waste management, utilities, and environmental services, with emphasis on their adequacy and integration within historic areas. • Stakeholder identification and mapping, community engagement, and understanding of institutional roles, governance structures, and local aspirations influencing urban regeneration.			

• Review and application of statutory planning frameworks, heritage conservation guidelines, urban development policies, and development control regulations relevant to historic urban areas. • Formulation of an integrated regeneration vision supported by strategic planning principles that promote heritage conservation, adaptive reuse, public realm enhancement, improved mobility, environmental sustainability, climate responsiveness, and socio-economic revitalization. • Development of comprehensive urban regeneration proposals incorporating land-use restructuring, public space networks, streetscape improvements, heritage-sensitive design interventions, infrastructure enhancement, and sustainable urban design strategies that strengthen the identity, resilience, inclusivity, and livability of the historic urban core.
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 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 a) Seminars, Assignments, and Embedded studio assignments. b) Two Internal Reviews, two External Reviews and Final Portfolio Submission for Studio component. Semester End Examination: Viva-voce: The viva voce shall be conducted in two phases, firstly for the group work followed by individual interventions. Weightage ratio of 70:30.
Suggested Learning Resources: Books: • Bandarin, F., & van Oers, R. (2012). <i>The historic urban landscape: Managing heritage in an urban century</i>. Wiley-Blackwell. • Bharne, V. (2017). <i>Rediscovering the Indian city: From the traditional to the contemporary</i>. Oro Editions. • Lynch, K. (1960). <i>The image of the city</i>. MIT Press. • Oliveira, V. (2016). <i>Urban morphology: An introduction to the study of the physical form of cities</i>. Springer. • Roberts, P., Sykes, H., & Granger, R. (Eds.). (2017). <i>Urban regeneration</i> (2nd ed.). Sage Publications.
Web links and Video Lectures (e-Resources): • Ministry of Housing and Urban Affairs (MoHUA): https://mohua.gov.in • Smart Cities Mission: https://smartcities.gov.in • AMRUT Mission: https://amrut.gov.in • National Institute of Urban Affairs (NIUA): https://niua.in • Global Designing cities initiative: https://whc.unesco.org/en/activities • The UNESCO forum: https://globaldesigningcities.org
Skill Development Activities Suggested 1. Analysis of the different layers of the historic urban core/inner city core 2. Documentation and inventory preparation for spatial analysis and mapping techniques 3. Community engagement and stakeholder communication for critical interpretation of urban issues

Course outcome (Course Skill Set)

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

Sl. No.	Description	Blooms Level
C01	Analyze the physical structure of historic urban cores using principles of Urban Morphology	IV
C02	Evaluate socio-cultural dynamics and perform Socio-spatial Analysis to interpret community needs, activity patterns, and cultural significance of inner city areas.	IV
C03	Assess infrastructure systems, mobility networks, and public realm quality to identify key issues affecting livability and accessibility in dense urban contexts.	V
C04	Formulate context-sensitive regeneration strategies integrating planning policies and stakeholder inputs within the framework of Urban Planning.	III
C05	Develop multi-scalar proposals that incorporate heritage sensitivity and principles of Sustainable Urbanism.	VI

Program Outcome of this course

Sl. No.	Description	Pos
1	Analytical Skills	3
2	Societal Concern	7
3	Generate Designs/ Solutions	5
4	Opportunity for Continued Learning	10

Mapping of COS and POs

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010
C01	3	3	2	-	-	-	2	-	-	-
C02	2	3	2	-	-	-	-	1	-	-
C03	-	3	2	-	-	-	3	3	-	2
C04	-	-	-	3	-	2	3	3	2	2
C05	1	3	-	-	3	2	3	1	-	2
Average	1.2	2.4	1.2	0.6	0.6	0.8	2.2	1.6	0.4	1.2

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
P01	P02	P03	P04	P05	P06	P07	P08	P09	P010

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

I Semester

HUMAN HABITAT: THEORY AND DESIGN THOUGHT			
Course Code	2MAHD102	CIE Marks	50
Teaching Hours/Week (L:T:S:P)	42:0:0:0	SEE Marks	50
Total Hours of Pedagogy	3	Total Marks	100
Credits	3	Exam Hours	3
Course Learning objectives: This course introduces the theories and concepts governing human habitats across historical and contemporary contexts, enabling students to understand the evolution and dynamics of human settlements. It develops an understanding of urban form, morphology, and the behavioural dimensions that influence the design and functioning of urban environments. The course examines both classical and contemporary urban design theories and their application in habitat design while encouraging the critical evaluation of sustainable, inclusive, and resilient approaches to habitat planning. It also equips students with analytical skills to read, interpret, and assess urban environments for informed planning and design decisions.			
Module-1			
Foundations of Human Habitat: Concepts, Evolution, Settlement Systems and Urbanization - Human Habitat: Concepts, Definitions and Components - Evolution of Human Settlements; Habitat as a Living System; Rural–Urban Continuum - Determinants of Urban Growth: Physical, Social, Economic, Cultural, Political, Environmental. - Evolution of Indian Cities; Global Urbanization Trends			
Module-2			
Urban Form and Morphology: Concepts and Analytical Approaches - Introduction to Urban Form: Concepts and definitions of urban form and urban morphology - Components of urban form: streets, plots, blocks, buildings, open spaces - Scales of urban morphology: building, block, neighbourhood, city, and region - Classical Theories of Urban Morphology: Fringe Belt Theory, Muratori and Caniggia's Typomorphology, Urban block and public realm analysis - Urban morphometrics: plot, density, and street network analysis			
Module-3			
Theoretical Foundations and Contemporary Paradigms - Classical Theories: Modernism; CIAM; Team X; Structuralism; Postmodernism; Contextualism - Contemporary Paradigms: New Urbanism; Everyday Urbanism; Landscape Urbanism; Ecological Urbanism; Tactical Urbanism; Inclusive Urbanism; Healthy Cities; Livable Cities; Transit-Oriented Development; Complete Streets - Emerging Trends: Smart Cities; Digital Urbanism; AI in Urban Design			
Module-4			
Human Behaviour and Habitat Design: Theories, Approaches and Spatial Experience - Cultural and Behavioural Approach; Human-Centred Design Approach; Pattern Language Approach. - Space Syntax and Spatial Analysis Approach; Responsive Environment Approach; Socio-Spatial Approach; Participatory and Self-help Housing Approach; Open Building and Adaptability Approach; Defensible Space and Safety Approach; Behavioural Observation and Public Life Approach			
Module-5			
Layering in the Habitat: Historical Evolution, Urban Transformation and Design Perspectives - Layering in a habitat: Organic habitats and designed habitats, Historic core and contemporary urbanism, Study of ideas of historic layering of space and networks, Lattices v/s trees as urban structural metaphors. - Urban Social Movement in India and their impacts on habitat evolution. - Habitat Design, Urban Design and their relationship with planning and architecture, Role of Habitat Designer.			
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 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% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation:

- Two Unit Tests each of 30 Marks.
- Two assignments each of 10 Marks and Skill Development Activity of 20 marks to attain the COs and POs.

The sum of two tests, two assignments/skill Development Activities, will be scaled down to 50 marks

CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

Semester-End Examination:

- The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50.
- The question paper will have ten full questions carrying equal marks.
- Each full question is for 20 marks. There will be two full questions (with a maximum of four sub-questions) from each module.
- Each full question will have a sub-question covering all the topics under a module.
- The students will have to answer five full questions, selecting one full question from each module.

Suggested Learning Resources:

Books

- Alexander, C., Ishikawa, S., & Silverstein, M. (1977). *A pattern language: Towns, buildings, construction*. Oxford University Press.
- Cullen, G. (1961). *Townscape*. Architectural Press.
- Gehl, J. (2011). *Life between buildings: Using public space* (6th ed.). Island Press. (Original work published 1971)
- Harvey, D. (1973). *Social justice and the city*. Edward Arnold.
- Jacobs, J. (1961). *The death and life of great American cities*. Random House.
- Lefebvre, H. (1991). *The production of space* (D. Nicholson-Smith, Trans.). Blackwell Publishing. (Original work published 1974)
- Lynch, K. (1960). *The image of the city*. MIT Press.
- Rapoport, A. (1977). *Human aspects of urban form: Towards a man-environment approach to urban form and design*. Pergamon Press.
- Rossi, A. (1982). *The architecture of the city* (D. Ghirardo & J. Ockman, Trans.). MIT Press. (Original work published 1966)
- Whyte, W. H. (1980). *The social life of small urban spaces*. Project for Public Spaces.

Reference Books

- Banerjee, T., & Loukaitou-Sideris, A. (Eds.). (2019). *The companion to urban design* (2nd ed.). Routledge.
- Bentley, I., Alcock, A., Murrain, P., McGlynn, S., & Smith, G. (1985). *Responsive environments: A manual for designers*. Architectural Press.
- Carmona, M., Heath, T., Oc, T., & Tiesdell, S. (2010). *Public places, urban spaces: The dimensions of urban design* (2nd ed.). Routledge.
- Gehl, J. (2010). *Cities for people*. Island Press.
- United Nations Human Settlements Programme (UN-Habitat). (2017). *New urban agenda*. United Nations.

Web links and Video Lectures (e-Resources):

- <https://www.jstor.org/stable/40315538>
- <https://iopscience.iop.org/article/10.1088/1755-1315/764/1/012033>
- <https://www.jstor.org/stable/23286055>
- <https://www.gehlpeople.com>
- <https://www.research-collection.ethz.ch/bitstream/handle/20.500.11850/113477/eth-48691-01.pdf>

Skill Development Activities Suggested

- Analysing cities and their components through case studies.
- Analysis of urban projects concerning public spaces, transport nodes, and other important components of the public realm.
- Applying Cognitive Mapping as an important tool in reconnaissance survey of site area.
- Evaluating the impact of various Urban Theories on Urban Form.
- Studying the role played by NGOs with respect to issues concerning habitat.

Course outcome (Course Skill Set)

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

Sl. No.	Description	Blooms Level
C01	Explain the evolution, determinants and components of human habitats.	II
C02	Interpret urban form using morphological and behavioural analytical techniques.	IV
C03	Evaluate classical and contemporary urban design theories.	V
C04	Apply habitat theories to analyse urban spaces and neighbourhoods.	III
C05	Analyse and interpret the evolution of Human habitat in India	VI

Program Outcome of this course

Sl. No.	Description	Pos
1	Develop an understanding of the evolution, determinants, components, and theoretical foundations of human habitats to interpret the relationship between people, place, and the built environment.	1,2
2	Apply urban morphology, behavioural analysis, and habitat theories to critically analyse urban form, neighbourhoods, and public spaces using appropriate analytical methods.	1,2,3,4
3	Evaluate classical and contemporary urban design theories to address challenges related to sustainability, inclusivity, resilience, and quality of urban environments.	2,3,5,7,8
4	Recommend innovative and resilient habitat design strategies by integrating, social, and ethical considerations in professional practice.	3,4,5,6,7,8,9,10

Mapping of COS and POs

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010
C01	3	2	1	-	-	-	2	1	-	1
C02	2	3	3	2	1	-	2	2	1	1
C03	2	3	2	-	2	1	2	2	-	2
C04	2	3	3	2	3	1	3	2	2	1
C05	2	2	2	2	3	2	3	3	2	3
Average	2.2	2.6	2.2	1.2	1.8	.8	2.4	2.0	1	1.6

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
P01	P02	P03	P04	P05	P06	P07	P08	P09	P010

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

I Semester

PLANNING THEORY AND TECHNIQUES			
Course Code	2MAHD103	CIE Marks	50
Teaching Hours/Week (L:T:S:P)	42:0:0:0	SEE Marks	50
Total Hours of Pedagogy	3	Total Marks	100
Credits	3	Exam Hours	3
Course Learning objectives: This course provides an understanding of the evolution, philosophy, and theoretical foundations of planning while enabling students to critically analyse classical and contemporary planning theories and paradigms. It develops knowledge of planning legislation, governance mechanisms, and institutional frameworks in India and international contexts. The course equips students with the ability to apply quantitative, qualitative, and spatial analytical techniques in planning practice and builds competency in plan preparation, implementation, monitoring, and evaluation. It also emphasizes the integration of GIS, Smart Cities, climate resilience, Sustainable Development Goals (SDGs), and emerging digital technologies into planning processes to support sustainable and evidence-based decision-making.			
Module-1			
Evolution of Planning Thought and Contemporary Planning Theory • Introduction: Evolution of Planning; Nature and Scope of Planning; Goals and Objectives of Planning; Planning Process; Ethics in Planning Profession. • Planning Paradigms: Rational Comprehensive Planning; Systems Planning; Incremental Planning; Mixed Scanning; Advocacy Planning; Equity Planning; Political Economy; Collaborative Planning; Communicative Planning; Strategic Spatial Planning. • Emerging Concepts: Healthy Cities; 15-Minute City; Complete Streets; Compact Cities; Transit-Oriented Development; Tactical Urbanism; Placemaking			
Module-2			
Planning Legislation, Governance and Institutional Framework • Planning Framework: Constitutional Provisions; 73rd & 74th Constitutional Amendments; Planning Institutions in India • Planning Legislations: Town and Country Planning Acts; Urban and Regional Development Acts; Governance: Metropolitan Governance; Regional Governance; Development Authorities; Municipal Planning • Emerging Governance Models: Participatory Planning, Collaborative Planning, Public Participation GIS, E-Governance, Digital Governance • Planning Policies: National Urban Policy; National Transit Policy; Smart Cities Mission; AMRUT; PM Gati Shakti; PMAY; Land Value Capture;			
Module-3			
Planning Methods, Spatial Analytics and Decision Support Systems • Analytical Methods: SWOT; Land suitability analysis; Cost-Benefit Analysis; Multi-Criteria Decision Analysis (MCDA); Analytical Hierarchy Process (AHP). • Quantitative Methods: Population Forecasting; Demographic Projections; Economic Base Analysis; Gravity Model; Network Analysis.			
Module-4			
Plan Preparation, Implementation and Resource Mobilisation • Hierarchy of Plans: National Plan; Regional Plan; Metropolitan Plan; Development Plan; Master Plan; Local Area Plan; Zonal Plan; Structure Plan; Comprehensive Plan; Strategic Plan • Plan Preparation: Visioning; Goal Formulation; Land Use Planning; Infrastructure Planning; Mobility Planning; Housing Planning; Environmental Planning; • Implementation Tools: Town Planning Scheme; Land Pooling; TDR; Betterment Levy; Impact Fee; Land Value Capture; PPP; Development Rights.			

Monitoring: Performance Indicators; Evaluation Framework; Plan Review; Monitoring Tools; Outcome Assessment.
Module-5
Planning Technologies, Sustainability and Future Planning - Survey and Data Collection: Household Surveys; Questionnaire Design; Sampling; - Digital Surveys; Mobile GIS; Drone Survey; LiDAR; OpenStreetMap, - Real-time Data Collection and IoT Sensors, Big Data and Location-Based Data Analytics
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 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% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.
Continuous Internal Evaluation: - Two Unit Tests each of 25 Marks. - Two assignments each of 25 Marks or one Skill Development Activity of 50 marks to attain the COs and Pos. The sum of two tests, two assignments/skill Development Activities, will be scaled down to 50 marks CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.
Semester-End Examination: The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50. The question paper will have ten full questions carrying equal marks. Each full question is for 20 marks. There will be two full questions (with a maximum of four sub-questions) from each module. Each full question will have a sub-question covering all the topics under a module. The students will have to answer five full questions, selecting one full question from each module.
Suggested Learning Resources: Text Books - Cullingworth, J. B., & Nadin, V. (2021). <i>Town and country planning in the UK</i> (16th ed.). Routledge. - Faludi, A. (Ed.). (1973). <i>A reader in planning theory</i>. Pergamon Press. - Hall, P., & Tewdwr-Jones, M. (2020). <i>Urban and regional planning</i> (6th ed.). Routledge. - Levy, J. M. (2023). <i>Contemporary urban planning</i> (12th ed.). Routledge. - McHarg, I. L. (1992). <i>Design with nature</i>. John Wiley & Sons. (Original work published 1969) - Steiner, F. (2008). <i>The living landscape: An ecological approach to landscape planning</i> (2nd ed.). Island Press. - Taylor, N. (1998). <i>Urban planning theory since 1945</i>. Sage Publications Reference Books - Hall, Peter. <i>Cities of Tomorrow</i>. 4th Edition. Wiley-Blackwell, 2014. - Chapin, F. Stuart Jr. <i>Urban Land Use Planning</i>. 3rd Edition. University of Illinois Press, 1979. - Chadwick, George. <i>A Systems View of Planning</i>. Pergamon Press, 1971. - McLoughlin, J. Brian. <i>Urban and Regional Planning: A Systems Approach</i>. Faber & Faber,

1969.

- Burrough, P. A. & McDonnell, R. A. *Principles of Geographical Information Systems*. Oxford University Press.
- Longley, Paul A., Goodchild, Michael F., Maguire, David J. & Rhind, David W. *Geographical Information Systems and Science*. Wiley.
- Chang, Kang-tsung. *Introduction to Geographic Information Systems*. McGraw-Hill.
- Tomlinson, Roger. *Thinking About GIS: Geographic Information System Planning for Managers*. ESRI Press.
- Creswell, John W. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Sage Publications.
- Kothari, C. R. *Research Methodology: Methods and Techniques*. New Age International.
- Beatley, Timothy. *Green Urbanism: Learning from European Cities*. Island Press.
- Newman, Peter & Kenworthy, Jeffrey. *Sustainability and Cities: Overcoming Automobile Dependence*. Island Press.
- Calthorpe, Peter. *Urbanism in the Age of Climate Change*. Island Press.

Government Publications and Guidelines

- Ministry of Housing and Urban Affairs (MoHUA). *Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines*, 2015.
- Bureau of Indian Standards. *National Building Code of India (NBC)*, 2016.
- Ministry of Housing and Urban Affairs. *Master Plan for Delhi-2041*.
- Ministry of Housing and Urban Affairs. *Smart Cities Mission Statement and Guidelines*.
- Ministry of Housing and Urban Affairs. *AMRUT Mission Guidelines*.
- Ministry of Housing and Urban Affairs. *National Transit-Oriented Development (TOD) Policy*.
- Ministry of Urban Development. *National Urban Transport Policy (NUTP)*.
- United Nations. *Transforming Our World: The 2030 Agenda for Sustainable Development (SDGs)*.
- UN-Habitat. *New Urban Agenda*.
- UN-Habitat. *World Cities Report*.

Web links and Video Lectures (e-Resources):

1. <https://www.istor.org/stable/3517133>
2. <https://www.youtube.com/watch?v=NvHsD4GyCAw>
3. https://www.youtube.com/watch?v=k2_wuThLG6o
4. <https://www.youtube.com/watch?v=goC4R9oF3Eo>
5. https://onlinecourses.nptel.ac.in/noc21_ar12/preview

Skill Development Activities Suggested

- Research paper on land use-oriented techniques such as land suitability analysis, network analysis, population projection, etc.
- Critical analysis of live planning projects highlighting implementation process, organizational structure, and resource mobilization.

Course outcome (Course Skill Set)

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

Sl. No.	Description	Blooms Level
CO1	Explain the evolution, concepts, principles, and classical as well as contemporary theories of planning, and evaluate their relevance to present-day urban and regional planning practice.	II
CO2	Analyze planning systems, legislative frameworks, governance structures, planning policies, and institutional mechanisms governing urban and regional	IV

	development in India.	
C03	Apply planning methods, research techniques, spatial analysis, GIS, and decision-support tools to investigate urban issues and prepare evidence-based planning proposals.	III
C04	Evaluate planning strategies, implementation mechanisms, resource mobilization techniques, and sustainable planning approaches for effective plan preparation and execution.	V
C05	Evaluate planning strategies, implementation mechanisms, resource mobilization techniques, and sustainable planning approaches for effective plan preparation and execution.	VI
Program Outcome of this course		
Sl. No.	Description	POs
1	Develop advanced theoretical knowledge, critical thinking, and analytical skills to understand, evaluate, and address complex issues related to habitat, urban design, planning, and the built environment	1,2
2	Apply research methodologies, spatial analysis, digital technologies, and contemporary planning and design tools to develop evidence-based, innovative, and context-sensitive solutions for habitat and urban development.	3,4
3	Generate creative, sustainable, resilient, and inclusive planning and design solutions by integrating environmental, technological, social, and economic considerations into professional practice.	5,7,8
4	Demonstrate ethical responsibility, effective communication, interdisciplinary collaboration, leadership, and professional competence while engaging with communities and stakeholders.	6,9
5	Engage in independent learning, innovation, and continuous professional development to adapt to emerging challenges, technologies, and global best practices in habitat design and planning .	6,7,8,9

I Semester

HOUSING AND REAL ESTATE			
Course Code	2MAHD104	CIE Marks	100
Teaching Hours/Week (L:T:S:P)	14:0:14:0	SEE Marks	-
Total Hours of Pedagogy	2	Total Marks	100
Credits	2	Exam Hours	-
Course Learning objectives: To understand the housing dynamics, real-estate market mechanisms and their implications on the process of resource mobilization and city development.			
Studio Outline			
Introduction to Housing as a Process - Housing as a process — definitions and components of housing and settlement. Concepts and systems approach to housing. - Introduction to housing tenure, affordability and housing market — ownership, rental housing, affordability, housing demand, supply and gap. Housing stock, prices and consumption patterns. Housing Provisions and Finance - Housing stress — its impact (social and economic) on households. - Methods of enabling housing — public housing, employee housing, sites and services, SHGs. Role of NHB, Housing Finance Companies (HFCs), co-operatives, NGO engagement and microfinance. Introduction to Real Estate - Fundamental concepts in real estate, development process and real estate market dynamics. - Introduction to real estate regulation and indexes — real estate laws, rent control laws and other legal frameworks. Rating system in real-estate market, Residex Index and real estate regulations. Stakeholders in Housing & Real Estate - Investment, regulation & global linkages — international investment structuring, RERA and other regulatory bodies, public-private participation, and the role of FDI in the real estate market. - Financial decision-making & institutional roles — investment appraisal tools, NRI/PIO investment participation, and the role of public, private and cooperative institutions (HUDCO, BUPP, NGOs, Housing Boards, Building Societies). Project Formulation and Development Process - Tools and concepts for project formulation — frameworks and methods for formulating greenfield and redevelopment projects. - Practical exercises in project development — applied exploration of housing finance, greenfield and brownfield development, real estate project formulation, housing community building, township projects, and neighbourhood design. The Housing and Real Estate Studio is conceived as a continuous applied studio focused on the redevelopment and regeneration of inner-city and historic urban areas, enabling students to contextualize and apply concepts of housing, real estate, finance, markets, regulation, heritage, and urban transformation within a real settlement context. The studio bridges housing and real-estate theory with spatial, socio-economic, cultural, and financial analysis, encouraging students to understand the complex relationship between existing housing systems, historic urban fabric, market forces, development pressures, community needs, and redevelopment processes. The concepts covered in the course will be explored through housing and market surveys, mapping, documentation, heritage assessment, case studies, and feasibility analysis. Rather than studying housing, finance, and real estate as isolated topics, students will examine how these dimensions interact			

within a selected inner-city or historic neighbourhood, developing an evidence-based understanding of its existing conditions, transformation pressures, and potential for sensitive and inclusive redevelopment. As part of this contextual learning process, students will document and analyse the following thematic layers:

- Existing Housing Stock, Tenure and Historic Settlement Mapping
- Housing Condition, Occupancy and Adaptation Patterns
- Housing Demand, Supply and Affordability
- Housing Stress, Displacement and Gentrification
- Real Estate Market Survey and Property Value / Rent Mapping
- Land Ownership, Parcel Structure and Development Potential
- Heritage, Cultural Character and Historic Urban Fabric
- Regulatory and Legal Framework Mapping, including RERA, rent control, heritage regulations, development regulations, and redevelopment policies
- Stakeholder, Community and Institutional Role Mapping
- Investment, Development Models and Financial Feasibility
- Redevelopment, Regeneration and Adaptive Reuse Opportunities
- Housing and Real Estate Project Formulation
- Integrated Inner-City Redevelopment Synthesis, connecting housing, heritage, market, finance, regulation, community, and spatial dimensions

The documentation and analysis will be undertaken progressively throughout the semester, with each stage building upon the findings of the previous one. The studio will culminate in a **comprehensive housing and real-estate redevelopment proposal** that responds to existing housing needs, heritage and cultural values, market conditions, development feasibility, regulatory frameworks, and community aspirations. While conducted as a supporting studio to **Habitat Design Studio**, the findings will directly inform the design process, enabling students to translate housing needs, redevelopment pressures, heritage values, market realities, and financial feasibility into **context-sensitive regeneration and habitat design strategies**.

Studio Process

- Read the housing system
- Map finance & market layers
- Interrogate stakeholders & regulation
- Formulate the project

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 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

- Seminars, Assignments, and studio assignments.
- Two Internal Reviews, one External Reviews and Final Portfolio Submission for Studio component.

Semester End Examination:

Viva-voce: The viva voce shall be conducted in two phases, firstly for the group work followed by individual interventions. Weightage ratio of 60:40..

Suggested Learning Resources:

Books — Housing, Real Estate & Finance

- Michael Ball, Colin Lizieri, Bryan D. Macgregor, *The Economics of Commercial Property Markets*, Routledge, 1st Edition, 1998
- Adrienne Schmitz, Deborah L. Brett, *Real Estate Market Analysis: A Case Study Approach*, Urban Land Institute, 2nd Edition, 2001
- Mike E. Miles, Laurence M. Netherton, Adrienne Schmitz, *Real Estate Development: Principles and Process*, Urban Land Institute, 5th Edition, 2015
- Prashant Das, Divyanshu Sharma, *Real Estate Finance in India*, Sage Publications, 2013
- CA Madhukar Hiregange, CA Virender Chauhan, CA Sudhir V S, CA Roopa Nayak, *A Practical Guide to GST on Real Estate Industry*, Bloomsbury, 2019
- David Falk, *The Fundamentals of Real Estate Finance*, USA, 2005
- Ratcliff, John, et al., *Urban Planning and Real Estate Development*, Routledge
- Weimer, Arthur, and Hoyt, *Principles of Real Estate*, The Ronald Press Co.
- Cedric Pugh, *Housing and Urbanization*, SAGE Publications, 1st Edition, 1990
- Kavita Datta, Gareth Jones, *Housing Finance in Developing Countries*, Routledge, 1st Edition, 2012

Books — Project & Construction Management

11. Krishnamurthy, S.V. Ravindra, *Construction Management*, CBS Publishers & Distributors, 2nd Edition, 2017
12. Prasanna Chandra, *Projects: Planning, Analysis, Selection, Financing, Implementation and Review*, McGraw-Hill, 8th Edition, 2017
13. L.S. Srinath, *PERT and CPM: Principles and Application*, Affiliated East-West Press, 2001
14. Harold Kerzner, *Project Management*, Wiley, New York, 2003
15. Chitkara, *Construction Project Management*, Tata McGraw-Hill, New Delhi
16. Kamaraju Ramakrishna, *Essentials of Project Management*, PHI Learning, New Delhi, 2010

Reports and Policy Documents

17. OECD Economics Department, *Housing for All in India*, Working Paper No. 1612, 2020
18. Prashant Das, Poorvi Anchalia, *Real Estate Sector in India*, IIM Ahmedabad – Misra Centre for Financial Markets and Economy, Policy Brief, 2023
19. Ministry of Housing and Urban Affairs (MoHUA), Government of India, *Pradhan Mantri Awas Yojana (Urban) – Scheme Guidelines*, latest revision

Web Links and Video Lectures (e-Resources)

- MIT Professional Education — Real Estate Finance & Development:
<https://professional.mit.edu/course-catalog/professional-certificate-program-real-estate-financedevelopment>
- Harvard GSD Executive Education — Real Estate Development Fundamentals:
<https://execed.gsd.harvard.edu/real-estate-development-fundamentals>
- NPTEL (IIT Roorkee) — Housing Policy & Planning, Prof. Uttam Kumar Roy:
https://onlinecourses.nptel.ac.in/noc20_ar14/preview
- Video Lecture: <https://www.youtube.com/watch?v=SBZGsjL4uWo>
- Video Lecture: <https://www.youtube.com/watch?v=OkAhcWemp9M>
- WRI India — Sustainable Housing: <https://www.wricitiesindia.org/content/sustainable-housing>
- Ministry of Housing & Urban Affairs — Schemes and Programmes:
<https://mohua.gov.in/cms/schemes-or-programmes.php>
- WRI — Confronting the Urban Housing Gap: <https://www.wri.org/insights/confronting-urban-housing-gap>
- World Bank — Housing for All by 2030:
<https://www.worldbank.org/en/news/infographic/2016/05/13/housing-for-all-by-2030>
- UN-Habitat — Housing: <https://unhabitat.org/topic/housing>

Skill Development Activities Suggested

1. Exploring housing finance models- Innovative international Case studies on Housing and Housing Finance, low income housing, highlight innovative aspects related to delivery, access, and sustainability.
2. Assessing Real Estate Markets- Real estate analysis: Comparison, Investment potential, estimation, understanding features, location and conditions; Feasibility Studies- Market conditions and financial Projection.
3. Conduct market research and analysis for different habitat situations- Market Research: Demand and Supply, Demographic shifts.
4. Project Formulation- Identify a housing project, study the different steps in project formulation and project cycle, understanding the issues and redesign according to the findings.

Course outcome (Course Skill Set)

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

Sl. No.	Description	Blooms Level
C01	Explain the fundamental concepts and components of housing	II
C02	Evaluate housing policies and housing finance mechanisms and their significance	V
C03	Describe the various aspects of real estate market dynamics, planning, and management	II
C04	Analyze the roles of various stakeholders involved in housing and real estate	IV
C05	Formulate good practices and strategies for real estate development	VI

Program Outcome of this course

Sl. No.	Description	POs
1	Understand housing as a significant component of habitat	1, 2, 10
2	Understand the institutional mechanisms involved in real estate development	1, 6, 7, 8, 10
3	Comprehend the role of various stakeholders in the housing and real estate market	1, 6, 9, 10
4	Develop skills to formulate housing and real estate projects	2, 3, 4, 5, 6, 7, 8, 9, 10

Mapping of COS and POs

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010
C01	3	2	2	-	-	-	3	2	-	-
C02	2	3	2	-	-	-	-	1	-	-
C03	3	3	2	-	-	2	3	3	-	2
C04	-	-	-	3	-	2	3	3	2	2
C05	1	3	-	-	-	-	3	1	-	2
Average	1.8	2.2	1.2	0.6	0	0.8	2.4	2	0.4	1.2

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
P01	P02	P03	P04	P05	P06	P07	P08	P09	P010

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

I Semester

SOCIOLOGY, CULTURE AND HUMAN HABITAT			
Course Code	2MAHD105	CIE Marks	50
Teaching Hours/Week (L:T:S:P)	14:0:14:0	SEE Marks(Viva)	50
Total Hours of Pedagogy	2	Total Marks	100
Credits	2	Exam Hours	-
Course Learning objectives: To understand the relationship between society, culture, and the built environment; analyse how cultural practices and social structures shape human habitats; examine issues of equity, inclusion, identity, and social justice in urban environments; and synthesise sociological understanding into habitat design thinking.			
Studio Outline EVOLUTION OF URBAN SOCIOLOGY 1. Introduction to Urban Sociology. 2. Theories of Urban Sociology- Emile Durkheim, Georg Simmel, Max Weber, Louis Wirth 3. Overview of Sociological perspectives on human habitats SOCIO-CULTURAL ELEMENTS OF A HABITAT 1. Society, Community, Caste, Kinship, Family, Culture, Social Institutions, Religious and Spiritual Beliefs. Identity. 2. Social Behaviour and relationships of individuals within the habitat and social dynamics in urban areas, Social Stratification and Networks. 3. Significance of culture and its impact on the physical environment. DEMOGRAPHIC CHARACTERISTICS • Attributes of a population that provide insights into its composition, distribution and trends. • Demographic Transition and its influence on the physical environment. • Characteristics of communities- Homogeneity & Heterogeneity, Ethnic enclaves, social cohesion, social segregation. • Symbiotic relations of communities. SOCIAL INSTITUTIONS AND MIGRATION • Urbanization-Impact and Implications. • Evolution and significance of Social Institutions in urban settings. • Migration Patterns- Social Disorganization, alienation, Concerns of Privacy, and Identity. • Examination of the concept of the neighbourhood through the understanding of socio-cultural aspects. URBAN SOCIAL PROCESSES • Social implications of Gentrification, Neo-liberalization, Globalization. • Other Issues- Crime, Gendered Urban Spaces, Contested Spaces. • Demonstration of social processes and conditions through illustrations. The Sociology and Culture of Human Habitats course is conceived as a support studio to Habitat Design Studio I, enabling students to contextualize and apply theoretical concepts within a real urban			

setting. The studio bridges sociological theory with spatial analysis, encouraging students to understand the complex relationship between society, culture, and the built environment.

The theoretical concepts covered above will be explored through field-based inquiry, mapping, documentation, and analysis. Rather than studying these concepts in isolation, students will examine how they manifest within a selected neighbourhood, thereby developing an evidence-based understanding of human habitats and their socio-spatial dynamics.

As part of this contextual learning process, students will document and analyse the following thematic layers:

- **Social Infrastructure Mapping**
- **Demographic Analysis (Quantitative)**
- **Community Characteristics and Settlement Structure**
- **Mapping Access, Equity, and Ownership of Public Spaces (Qualitative)**
- **Behavioural Mapping and Activity Patterns**
- **Understanding Gender, Safety, and Identity** through mapping, perception studies, and interviews
- **Social Institutions, Migration, and Neighbourhood Identity**
- **Mapping Socio-Spatial Conflicts**, including contested spaces, exclusion, informal–formal interfaces, and issues of accessibility
- **Socio-Spatial Synthesis**, integrating all thematic layers to understand the relationship between social processes and the physical environment.

The documentation will be undertaken progressively throughout the semester, culminating in a comprehensive socio-spatial analysis that informs and supports the design explorations undertaken in Habitat Design Studio I.

Read the habitat → Map the socio-spatial layers → Interpret urban processes → Inform design decisions.

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 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

1. Seminars, Assignments, and studio assignments.
2. Two Internal Reviews, one External Reviews and Final Portfolio Submission for Studio component.

Semester End Examination:

Viva-voce: The viva voce shall be conducted in two phases, firstly for the group work followed by individual interventions. Weightage ratio of 60:40.

Suggested Learning Resources:**Books**

- Rapoport, A. (1969). *House form and culture*. Prentice-Hall.
- Lin, J., & Mele, C. (Eds.). (2013). *The urban sociology reader* (2nd ed.). Routledge.
- Flanagan, W. G. (2010). *Contemporary urban sociology* (5th ed.). Cambridge University Press.
- Lefebvre, H. (1996). *Writings on cities*. Blackwell Publishers.
- Gottdiener, M., & Hutchison, R. (2011). *The new urban sociology* (4th ed.). Westview Press.
- Brenner, N., Marcuse, P., & Mayer, M. (Eds.). (2012). *Cities for people, not for profit: Critical urban theory and the right to the city*. Routledge.

Indian and Global South References

- Bhan, G. (2016). *In the public's interest: Evictions, citizenship, and inequality in contemporary Delhi*. Orient Blackswan.
- Bhan, G. (2019). *Notes on a southern urban practice*. Yoda Press.
- Baviskar, A. (2020). *Uncivil city: Ecology, equity, and the commons in Delhi*. Sage Publications.
- Baviskar, A., & Ray, R. (Eds.). (2011). *Elite and everyman: The cultural politics of the Indian middle classes*. Routledge.
- Benjamin, S. (2008). *Selected writings on occupancy urbanism, informality, and governance*.
- Gidwani, V. (2008). *Capital, interrupted: Agrarian development and the politics of work in India*. University of Minnesota Press.
- Mehrotra, R. (2011). *Working in Mumbai*. Pictor Publishing.
- Mehrotra, R., Dwivedi, S., & Masselos, J. (2004). *Bombay to Mumbai: Changing perspectives*. Oxford University Press.
- Hosagrahar, J. (2005). *Indigenous modernities: Negotiating architecture and urbanism*. Routledge.

Suggested Indian Articles and Reports

- Government of India, Ministry of Urban Development, & Town and Country Planning Organisation. (2015). *Urban and regional development plans formulation and implementation (URDPFI) guidelines (Vol. 1–2)*. Ministry of Urban Development.
- National Institute of Urban Affairs. (2021). *Inclusive City Framework*. <https://niua.in/intranet/sites/default/files/publications/Inclusive%20City%20Framework.pdf>
- Indian Institute for Human Settlements. (n.d.). *Working papers on housing, mobility, informality, and urbanization*.
- NITI Aayog. (n.d.). *National Urban Policy Framework*. https://www.nitiforstates.gov.in/public-assets/Policy/policy_files/GNC5180000315.pdf
- Ministry of Housing and Urban Affairs. (n.d.). *Smart Cities Mission reports*.
- UNESCO. (2011). *Recommendation on the Historic Urban Landscape*.

Web links and Video Lectures (e-Resources):

- <https://nptel.ac.in/courses/109104074>
- <https://researchdirectory.uc.edu/r/russelfm>
- <https://www.nature.com/articles/srep10265>
- <https://www.jstor.org/stable/43630965>
- <https://www.jstor.org/stable/23618928>
- <https://www.tandfonline.com/doi/full/10.1080/07352166.2016.1255526>
- <https://www.gacbe.ac.in/images/E%20books/Culture%20and%20everyday%20life%20.pdf>

Skill Development Activities Suggested

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 key terms and concepts related to urban sociology, culture, and human habitats	II
CO2	Develop a socio-spatial understanding of urban neighbourhoods through documentation of social, cultural, and demographic characteristics.	III
CO3	Generate and analyse multiple socio-spatial layers using qualitative and quantitative mapping techniques	IV
CO4	Critically examine urban social processes through evidence-based mapping of equity, identity, gender, safety, migration, and socio-spatial conflicts within human habitats.	IV
CO5	Synthesize socio-spatial datasets into an integrated neighbourhood profile that informs Habitat Design Studio I and supports evidence-based habitat planning and design interventions.	V

Program Outcome of this course

Sl. No.	Description	Pos
1	Knowledge	1
2	Analytical Skills	2
3	Application of Research	3
4	Societal Concern	7
5	Opportunity for Continued Learning	10

Mapping of COS and Pos

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010
CO1	3	1	-	-	-	-	1	-	-	1
CO2	3	2	1	-	-	-	2	-	-	1
CO3	2	3	3	-	-	-	2	-	-	2
CO4	2	3	2	-	-	-	3	-	-	1
CO5	2	3	3	-	-	-	2	-	-	3
Average	2.4	2.4	2	-	-	-	2.0	-	-	1.6

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
P01	P02	P03	P04	P05	P06	P07	P08	P09	P010

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

I Semester

INTELLIGENT HABITAT SYSTEMS: DIGITAL ECOLOGIES AND INFRASTRUCTURE			
Course Code	2MAHD106A	CIE Marks	50
Teaching Hours/Week (L:T:S:P)	14:0:0:28	SEE Marks (Viva)	50
Total Hours of Pedagogy	3	Total Marks	100
Credits	3	Exam Hours	-
Course Learning objectives: To introduce students to emerging digital technologies, including smart sensors, connected devices, artificial intelligence, and digital modelling, and their applications in the design and planning of intelligent habitats. The course aims to develop an understanding of how data, networks, and feedback influence living environments; explore smart mobility, energy, and environmental systems; and critically examine the social, ethical, and environmental implications of integrating digital technologies into human habitats.			
Syllabus Outline: Introduction to Intelligent Habitat Systems - The idea of the 'smart city' and how it has grown into adaptive, living habitats. - Difference between 'smart' and 'intelligent' habitats - The layers that make a habitat 'intelligent': sensing, connectivity, data and decision-making. - Indian and global examples: Songdo, Masdar City, Amsterdam and India's Smart Cities Mission — what worked and what did not. Sensing and Digital Infrastructure in Habitats - Common sensors in cities — for air quality, movement, energy and water — and what they measure. - How connected devices (the Internet of Things) gather and share data across a habitat. - The journey of data: from sensor, to network, to a dashboard people can read. - The physical backbone — networks, smart street furniture and data centres — and why energy use and reliability matter. Digital Models and Spatial Data - Digital twins: digital copies of a place used to study and test design ideas; examples such as Virtual Singapore. - Open data and city maps as shared resources for planning. - Basics of data governance — who owns data, who can use it, and protecting privacy. Smart Mobility, Energy and Environment - Intelligent mobility: connected transport, shared mobility, smart parking and better streets for walking. - Smart energy: IoT and energy-saving buildings, Using nature-based solutions alongside technology. - Monitoring the environment: air quality, urban heat, water and waste, supported by digital tools. Ethics, Governance and the Future - Key concerns: data privacy, surveillance, fairness and the risk of a 'digital divide'. - How habitats are governed — the roles of government, private companies and communities in managing data. - Emerging directions: AI in design and planning, and predictive habitat management. - The habitat designer's evolving role as a thoughtful, responsible user of digital tools.			
Assessment Details (both CIE and Viva)			

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) - Viva 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% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation (CIE) The assessment shall comprise the following components:

Two Assignments – Total: 25 marks

One Skill Development Activity (SDA) – 25 marks

The total CIE shall be evaluated out of 50 marks. Assessment methods shall be designed to evaluate the attainment of Course Outcomes (COs) and Programme Outcomes (POs) across different levels of Bloom's Taxonomy through assignments, presentations, case studies, reports and practical exercises, as appropriate to the course. Deliverables may be linked to the design brief of Habitat Design Studio-I (2MAHD101) so that analytical outputs feed back into the studio.

Suggested Learning Resources

Books

1. Townsend, A.M., "Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia", W.W. Norton & Company, 2013.
2. Batty, M., "The New Science of Cities", The MIT Press, 2013.
3. Ratti, C. and Claudel, M., "The City of Tomorrow: Sensors, Networks, Hackers, and the Future of Urban Life", Yale University Press, 2016.
4. Kitchin, R., "The Data Revolution: Big Data, Open Data, Data Infrastructures and Their Consequences", SAGE Publications, 2014.
5. Greenfield, A., "Radical Technologies: The Design of Everyday Life", Verso Books, 2017.
6. Shi, W., Goodchild, M.F., Batty, M., Kwan, M.-P. and Zhang, A. (Eds.), "Urban Informatics", Springer, 2021.
7. Deakin, M. and Al Waer, H. (Eds.), "From Intelligent to Smart Cities", Routledge, 2012.

Web links and Video Lectures (e-Resources)

1. <https://smartnet.niua.org/> (NIUA — Smart Cities Urban Observatory, India)
2. <https://iudx.org.in/> (India Urban Data Exchange — open urban data platform)
3. <https://smartcitiescouncil.com/resources/smart-cities-readiness-guide> (Smart Cities Council Readiness Guide)
4. <https://www.itu.int/en/ITU-T/ssc/Pages/default.aspx> (ITU — Smart Sustainable Cities standards)
5. <https://mohua.gov.in/cms/smart-cities.php> (Ministry of Housing & Urban Affairs — Smart Cities Mission, India)
6. https://onlinecourses.nptel.ac.in/noc23_ar05/preview (NPTEL — Smart Cities and Urban Planning)
7. <https://www.youtube.com/c/SingaporeGovt> (Virtual Singapore and Smart Nation initiative)

Skill Development Activities Suggested

1. Smart habitat walk: observe a neighbourhood near the Studio-I study area and note visible digital infrastructure cameras, smart meters, sensors, Wi-Fi. Present findings as a simple annotated map with a short written note on gaps and fairness.
2. Sensor idea sketch : choose one habitat problem (for example air quality or pedestrian safety) and sketch, in simple terms, what could be sensed, how the data would flow, and what a basic dashboard might show.
3. Explore a digital twin: using a free online 3D city viewer, view a study-area location with one data layer added, and produce three annotated screenshots showing how such a model could help design decisions.
4. Mobility mapping : using public transit and map data, study how easily people move through a habitat area and suggest one simple, technology-supported improvement.
5. Ethics case study : write a short critical note on one Indian smart-city project, looking at who

controls the data and what privacy or fairness concerns arise; present as a brief report with a one-page infographic.										
Course outcome (Course Skill Set)										
At the end of the course the student will be able to:										
Sl. No.	Description								Blooms Level	
C01	Explain the basic ideas behind intelligent habitat systems — smart cities, connected devices and digital ecologies — and discuss Indian and global examples.								I, II	
C02	Identify the sensors, connected devices and digital infrastructure used in habitats, and describe how they gather data and why energy use and reliability matter.								II, III	
C03	Use simple digital models and open spatial data to represent and study habitat systems, with a basic understanding of data ownership and privacy.								III, IV	
C04	Examine how smart mobility, energy and environmental systems work in habitats and suggest simple technology-supported improvements linked to design.								IV	
C05	Discuss the ethical, governance and equity questions raised by digital technologies in habitats, and reflect on the designer's responsible role.								IV, V	
Program Outcome of this course										
Sl. No.	Description								POs	
1	Build foundational knowledge of intelligent habitat systems, digital infrastructure and smart-city ideas relevant to habitat design.								1, 2, 4	
2	Develop basic skills to observe and describe digital systems in habitats and reflect on their performance and fairness.								1, 2, 3, 4	
3	Use simple digital models and open data in habitat design and planning, connecting data with spatial thinking.								2, 4, 5, 7	
4	Recognise the ethical, governance and social dimensions of digital technologies in habitats and take a responsible design approach.								3, 6, 7, 10	
Mapping of COs and POs										
	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010
C01	3	2	2	1	-	-	3	2	-	3
C02	3	3	2	2	1	-	-	1	-	2
C03	2	2	3	-	-	2	1	1	-	2
C04	2	2	2	3	3	2	3	3	2	2
C05	1	2	1	1	2	-	3	1	1	3
Average	2.2	2.2	2.0	1.4	1.2	0.8	2.0	1.6	0.6	2.4

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
P01	P02	P03	P04	P05	P06	P07	P08	P09	P010
Mapping Co- relation			Low	Medium	High	No			
			1	2	3	-			

I Semester

HABITAT ANALYTICS & SPATIAL INTELLIGENCE: DATA-DRIVEN DESIGN OF LIVING SYSTEMS			
Course Code	2MAHD106B	CIE Marks	50
Teaching Hours/Week (L:T:S:P)	14:0:0:28	SEE Marks (Viva)	50
Total Hours of Pedagogy	3	Total Marks	100
Credits	3	Exam Hours	-
Course Learning objectives: To develop an understanding of urban data and spatial intelligence in analysing people, buildings, environment, movement, and other components of living systems; develop practical skills in QGIS, open-data platforms, and basic Python tools for spatial analysis, mapping, and visualisation at multiple scales; analyse the physical and spatial structure of habitat areas and apply data-driven insights to habitat design; and critically evaluate the opportunities and limitations of data-driven design by integrating spatial analysis with fieldwork, community knowledge, and contextual understanding.			
Syllabus Outline: Foundations Of Habitat Data And Spatial Intelligence - The urban data ecosystem: government sources (Census, NSSO), open platforms (OpenStreetMap, Bhuvan), and satellite imagery - and the difference between map data (vector) and image data (raster). - Using QGIS as the main mapping and analysis tool, plus a first look at Python tools (GeoPandas, Shapely, Folium) for working with spatial data. - Preparing data for analysis: combining Census information with maps, handling gaps or errors, and creating simple exploratory maps of the Studio-I study area. Urban Morphological Analysis And Land Use Mapping - Measuring the physical form of a neighbourhood: street patterns, building types, and how complex or irregular an area's layout is. - Mapping land use and land cover from satellite imagery to see how an area has changed over time. - Introduction to Space Syntax — a method for analysing how street layouts affect movement and connectivity — applied to the Studio-I area. Accessibility, Mobility And Environmental Quality Analytics - Accessibility analysis and Measuring accessibility: how easily people can walk to daily amenities, and underserved mapping areas. - Mobility data analysis: Understanding mobility patterns using transit and movement data to spot problem areas in a neighbourhood's connectivity. - Environmental quality analytics: Assessing environmental quality: mapping green cover, heat, and air quality to identify areas of environmental stress. Pattern Recognition, Clustering And Predictive Analytics - Introduction to machine learning in habitat analytics: A beginner-friendly introduction to how computers can group similar areas (clustering) to identify neighbourhood types. - Spatial autocorrelation and hotspot analysis: Finding patterns and 'hotspots' in data — areas where a problem or characteristic is unusually concentrated. - Scenario analysis and evidence-based design intelligence: Combining multiple data layers to highlight priority zones and translate findings into practical design recommendations. Data Visualisation, Communication And Critical Practice - Principles of spatial data visualisation: Principles of good map-making: colour, symbols, and layout choices that make maps clear and easy to read. - Turning analysis into a story: building infographics and simple dashboards that communicate findings to non-technical audiences. - Reflecting critically on data-driven design: recognising what data can and cannot tell us, and why fieldwork and community input remain essential.			
Assessment Details (both CIE and Viva) The weightage of Continuous Internal Evaluation (CIE) is 50%, and for Semester End Exam (SEE) - Viva is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE are 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% (50 marks out of 100) in the total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation (CIE) The assessment shall comprise the following components:

- Two Assignments – Total: 25 marks
- One Skill Development Activity (SDA) – 25 marks
- The total CIE shall be evaluated out of 50 marks.
- Assessment methods shall be designed to evaluate the attainment of Course Outcomes (COs) and Programme Outcomes (POs) across different levels of Bloom's Taxonomy through assignments, presentations, case studies, reports and practical exercises, as appropriate to the course. Deliverables may be linked to the design brief of Habitat Design Studio-I (2MAHD101) so that analytical outputs feed back into the studio

Suggested Learning Resources

Books

- Longley, P.A., Goodchild, M.F., Maguire, D.J. and Rhind, D.W., “Geographic Information Science and Systems”, Wiley, 4th Edition, 2015.
 - Hillier, B. and Hanson, J., “The Social Logic of Space”, Cambridge University Press, 1984. [Foundational text for Space Syntax in Module 2]
 - Hillier, B. ‘Space is the Machine: A Configurational Theory of Architecture’, Cambridge University Press, 1998
 - Rae, A. and Cecilia, W., “Applied Data Analysis for Urban Planning and Management”, SAGE Publications, 2021.

Web links and Video Lectures (e-Resources)

- <https://qgis.org/en/docs/index.html> (QGIS official documentation, training manuals, and tutorial datasets)
- <https://geopandas.org/en/stable/docs.html> (GeoPandas documentation — spatial data analysis in Python)
- <https://bhuvan.nrsc.gov.in/> (ISRO Bhuvan — Indian national geospatial data portal, satellite imagery and thematic layers)
- <https://geoffboeing.com/2016/11/osmnx-python-street-networks/> (OSMnx tutorials — street network analysis, Geoff Boeing, USC)
- <https://smartnet.niua.org/> (NIUA Smart Cities Urban Observatory — Indian urban open data)
- <https://depthmapx.org/> (DepthmapX — Space Syntax analysis software, UCL Bartlett)
- <https://journals.sagepub.com/home/epb> (Environment and Planning B: Urban Analytics and City Science — peer-reviewed journal for spatial data research)

Skill Development Activities Suggested

1. Habitat base map: build a simple QGIS project of the Studio-I area using open data layers, and compare two sub-areas using basic measurements.
2. Land use change map: compare two satellite images of the area taken years apart, and write a short note on what changed.
3. Walkability map: identify which parts of the area are within easy walking distance of daily amenities, and which are not.
4. Environmental quality map: identify the most heat-stressed or least green parts of the study area and suggest priorities.

Capstone (Module 5): bring the above activities together into a short analytical portfolio of the Studio-I area, highlighting the three most important design opportunities the data reveals, plus a short reflection on what the data missed.

Course outcome (Course Skill Set)

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

Sl. No.	Description	Blooms Level
C01	Find and organise spatial habitat data from Indian open data sources, and use QGIS and Python to explore and map it for the study area.	II, III
C02	Analyse the physical form of a habitat area — land use, street layout, and building patterns — to understand its spatial structure and design implications.	III, IV
C03	Assess accessibility, mobility, and environmental quality in a habitat area, and use the findings to inform design decisions.	III, IV
C04	Use pattern recognition and hotspot analysis to identify neighbourhood typologies and priority zones, and translate the findings into design briefs.	IV, V
C05	Produce clear spatial data visualisations and communicate habitat intelligence to design audiences, while recognising the limits of quantitative data and the importance of fieldwork and community knowledge.	V, VI

Program Outcome of this course

Sl. No.	Description	Pos
1	General understanding of spatial data concepts, common data sources, and basic GIS/Python tools used to study habitat areas.	1, 2, 3
2	Practical analytical skills in reading urban form, mapping accessibility, and sensing environmental conditions using open tools and data.	2, 3, 4, 5
3	Ability to apply simple spatial research methods to generate evidence that directly supports the Habitat Design Studio-I project.	2, 3, 4, 7
4	Working familiarity with QGIS, Python mapping libraries, and open data platforms, building confidence for independent, data-informed design work.	3, 4, 8, 10

Mapping of COS and POs

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010
C01	3	2	2	2	-	-	3	2	-	2
C02	2	3	3	3	1	-	-	1	-	2
C03	2	3	2	-	-	2	3	2	1	2
C04	1	3	3	3	2	-	3	2	2	3
C05	1	2	2	2	2	-	2	1	1	3
Average	1.8	2.6	2.6	1.6	1.4	0.6	2.4	2.4	0.4	1.2

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
P01	P02	P03	P04	P05	P06	P07	P08	P09	P010

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

I Semester

HABITAT ECONOMICS & LIVELIHOOD SYSTEMS			
Course Code	2MAHD106C	CIE Marks	50
Teaching Hours/Week (L:T:S:P)	14:0:0:28	SEE Marks (VIVA)	50
Total Hours of Pedagogy	3	Total Marks	100
Credits	3	Exam Hours	-
Course Learning objectives: This course enables students to understand the role of economics in shaping human habitats and settlements by examining the interrelationship between economic activities, livelihood systems, and the built environment. It focuses on analyzing the economic drivers influencing urban, peri-urban, and rural transformation while applying economic tools to evaluate habitat development projects and public policies. The course also emphasizes the integration of sustainable, inclusive, and resilient livelihood strategies into habitat planning to support equitable and long-term community development.			
Syllabus Outline: Fundamentals of Habitat Economics • Concepts and scope of habitat economics • Demand, supply, and market equilibrium • Land as an economic resource, Urbanization and economic development • Human capital and productivity, Formal and informal economies • Economic geography and settlement systems • Sustainable Development Goals (SDGs) and economic development Livelihood Systems and Habitat Development • Concepts of livelihoods and sustainable livelihood framework • Rural, peri-urban, and urban livelihood systems • Livelihood assets and capitals: Natural capital, Human capital, Social capital, Financial capital, Physical capital • Livelihood vulnerability and resilience, Gender and livelihoods • Migration and employment, Informal sector and street economy • Skill development and entrepreneurship Urban Economy, Land Markets and Economic Analysis • Urban economic theories. Housing economics • Land valuation, Land markets and land use economics • Real estate economics • Cost-Benefit Analysis (CBA), Cost Effectiveness Analysis (CEA), Multi-Criteria Decision Analysis (MCDA) • Livelihood impact assessment, Economic indicators for habitat planning Financing Habitat Development and Policy Framework • Municipal finance, Public finance • Infrastructure financing • Public-Private Partnerships (PPP), Land Value Capture (LVC), Transferable Development Rights (TDR) • Town Planning Schemes			

- Government programmes: PMAY, DAY-NULM, MGNREGA, National Urban Livelihood Mission, Smart Cities Mission, AMRUT

Sustainable Livelihoods, Climate Resilience and Emerging Practices

- Circular economy, Green economy, Blue economy, Creative economy, Sharing economy, Digital economy
- Climate-resilient livelihoods, Nature-based livelihoods, Social enterprises
- Local economic development (LED)
- Case studies: Self-Help Groups (SHGs), Kudumbashree, SEWA, RURBAN Mission, Aajeevika Mission, International livelihood initiatives.

Assessment Details (both CIE and Viva)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) - Viva 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% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation (CIE) The assessment shall comprise the following components:

Two Assignments – Total: 25 marks

One Skill Development Activity (SDA) – 25 marks

The total CIE shall be evaluated out of 50 marks. Assessment methods shall be designed to evaluate the attainment of Course Outcomes (COs) and Programme Outcomes (POs) across different levels of Bloom's Taxonomy through assignments, presentations, case studies, reports and practical exercises, as appropriate to the course. Deliverables may be linked to the design brief of Habitat Design Studio-I (2MAHD101) so that analytical outputs feed back into the studio.

Suggested Learning Resources:

Text Books

- O'Sullivan, Arthur. *Urban Economics*. McGraw-Hill Education.
- Levy, John M. *Contemporary Urban Planning*. Routledge.
- Todaro, Michael P. & Smith, Stephen C. *Economic Development*. Pearson.
- Ellis, Frank. *Rural Livelihoods and Diversity in Developing Countries*. Oxford University Press.
- Rakodi, Carole & Lloyd-Jones, Tony (Eds.). *Urban Livelihoods: A People-Centred Approach to Reducing Poverty*. Earthscan.
- Chambers, Robert & Conway, Gordon. *Sustainable Rural Livelihoods: Practical Concepts for the 21st Century*. IDS Discussion Paper.

Reference Books

- Alonso, William. *Location and Land Use*. Harvard University Press.
- Harvey, David. *Social Justice and the City*. University of Georgia Press.
- Jacobs, Jane. *The Economy of Cities*. Vintage Books.
- Sen, Amartya. *Development as Freedom*. Oxford University Press.
- Sachs, Jeffrey D. *The Age of Sustainable Development*. Columbia University Press.
- UN-Habitat. *World Cities Report*.
- World Bank. *World Development Report* (Latest Edition).
- Ministry of Housing and Urban Affairs (MoHUA). *Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines*, 2015.

- Ministry of Rural Development. *National Rural Livelihood Mission (NRLM) Framework*.
- United Nations. *Transforming Our World: The 2030 Agenda for Sustainable Development (SDGs)*.

Web links and Video Lectures (e-Resources):

1. <https://unhabitat.org/wcr>
2. <https://mohua.gov.in>
3. <https://niua.in>
4. <https://aajeevika.gov.in>
5. <https://www.niti.gov.in>
6. <https://nptel.ac.in>
7. <https://www.worldbank.org/en/topic/urbandevelopment>

Skill Development Activities Suggested

1. Household livelihood survey and socio-economic profiling.
2. Preparation of livelihood maps using GIS.
3. Comparative analysis of formal and informal economic sectors.
4. Cost-Benefit Analysis of a habitat development project.
5. Assessment of government livelihood programmes in a selected settlement.
6. Preparation of a Local Economic Development (LED) strategy.
7. Case study on climate-resilient livelihoods and circular economy practices.

Course outcome (Course Skill Set)

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

Sl. No.	Description	Blooms Level
C01	Explain the principles of habitat economics, economic systems, and livelihood frameworks influencing human settlements.	II
C02	Analyze the relationship between economic development, employment, housing, land markets, and spatial transformation.	IV
C03	Apply economic evaluation methods, livelihood assessment techniques, and policy analysis to habitat planning.	III
C04	Evaluate economic policies, financing mechanisms, and livelihood strategies for sustainable and inclusive habitat development.	V
C05	Develop innovative habitat development proposals integrating local economies, resilience, circular economy, and sustainable livelihood systems.	VI

Program Outcome of this course

Sl. No.	Description	Pos
1	Develop a comprehensive understanding of habitat economics, livelihood systems, economic principles, and their influence on human settlements through critical analysis and application of economic concepts in habitat planning.	1,2
2	Apply research methods, spatial analysis, economic evaluation techniques, GIS, and contemporary technological tools to assess livelihood systems and support evidence-based habitat planning and decision-making.	2,3,4
3	Evaluate urban and regional economic systems, land markets, financing mechanisms, government policies, and institutional frameworks to formulate sustainable and inclusive habitat development strategies.	2,5,6,7,8

4	Recommend innovative, resilient, and economically viable habitat planning solutions by integrating environmental sustainability, social equity, climate resilience, and interdisciplinary collaboration in professional practice.	4,5,6,7,8,9,10
5	Demonstrate lifelong learning, professional ethics, collaborative leadership, and adaptability to emerging technologies and global best practices for sustainable habitat development.	6,9,10

Mapping of COS and POs										
	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010
C01	3	3	2	-	-	-	2	1	-	1
C02	2	3	2	1	-	2	2	2	1	1
C03	2	3	3	3	2	1	2	2	1	1
C04	2	3	2	2	3	2	2	3	2	1
C05	2	2	2	3	3	2	2	3	2	3
Average	2.2	2.8	2.2	1.8	1.6	1.4	2	2.2	1.4	1.4

Graduate Attributes										
Knowledge	Analytical Skills	Application of Research	Application of latest Technolog y/ Tools	Generate Designs/ Solutions	Ethics	Societal Concern	Environment al Concern	Collaborative aptitude	Opportunity for Continued Learning	
P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	

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

I Semester

TRANSFORMATIVE HABITAT DEVELOPMENT			
Course Code	2MAHD107A	CIE Marks	50
Teaching Hours/Week (L:T:S:P)	14:0:28:0	SEE Marks(Viva)	50
Total Hours of Pedagogy	3	Total Marks	100
Credits	3	Exam Hours	-
Course Learning objectives: To understand habitat transformation through social, economic, spatial, and ecological perspectives; examine the processes and impacts of habitat restructuring at local and regional scales; and analyse development plans, policies, and strategies to evaluate their short- and long-term implications for sustainable, inclusive, and resilient habitat development.			
Syllabus Outline: Foundations Of Transformation - To understand the Long-term vs short-term impact on the habitat system, resultant of an urban project. - Systems thinking for Equity, inclusion, justice. Drivers Of Transformation - Influence of Economic Development on Habitat Transformation Induced by Projects - Project-Induced Infrastructure Change and Its Impact on Habitat Development. - The policies- transform cities and how the country and the habitats- people, environment get affected. Climate & Ecological Transformation - Impacts of Habitat Transformation on Climate and the Environment: Opportunities, Challenges, and Consequences - Human Dimensions of Climate and Ecological Transformation. Economic Transformation & Livelihood Systems - Effects on Informality & Inclusive Development - Gentrification and displacement - Mixed-use economies and their effects on habitats. Policy, Governance & Implementation - Role of governance in urban projects. - Policies shaping transformation of urban habitats - Implementation challenges.			
Assessment Details (Continuous Internal Evaluation – CIE) The course shall be assessed entirely through Continuous Internal Evaluation (CIE) carrying 100 marks. The minimum passing mark is 50% of the maximum marks (50 out of 100). Continuous Internal Evaluation (CIE) The assessment shall comprise the following components: - Two Assignments – 25 marks each (Total: 50 marks) - One Skill Development Activity (SDA) – 50 marks - The total CIE shall be evaluated out of 100 marks. - Assessment methods shall be designed to evaluate the attainment of Course Outcomes (COs) and Programme Outcomes (POs) across different levels of Bloom's Taxonomy through assignments, presentations, case studies, reports, and practical exercises, as appropriate to the course.			

Suggested Learning Resources**Books**

- Cities as Sustainable Ecosystems: Principles and Practices, Newman, P., & Jennings, I. (2008)
- Urbanism in the Age of Climate Change, Calthorpe, P. (2011)
- The Resilient City, Vale, L. J., & Campanella, T. J. (2005)
- Landscape Ecology Principles, Forman, R. T. T.
- Nature-Based Solutions to Address Global Societal Challenges, Cohen-Shacham, E., et al. (2016)

Web links and Video Lectures (e-Resources)

- Johan Rockström – *Let the Environment Guide Our Development*
https://www.ted.com/talks/johan_rockstrom_let_the_environment_guide_our_development
<https://www.youtube.com/watch?v=RgqtrlixYR4>
- Amanda Burden – *How Public Spaces Make Cities Work*
https://www.ted.com/talks/amanda_burden_how_public_spaces_make_cities_work
- Kent Larson – *Brilliant Designs to Fit More People in Every City*
https://www.ted.com/talks/kent_larson_brilliant_designs_to_fit_more_people_in_every_city
- IUCN (International Union for Conservation of Nature)
<https://www.iucn.org>
<https://www.youtube.com/IUCN>

Skill Development Activities Suggested

1. Conduct Climate Risk Assessments
2. Use GIS, remote sensing, and digital mapping to evaluate climate and ecological indicators.
3. Compare national and international best practices.

Course outcome (Course Skill Set)

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

Sl. No.	Description	Blooms Level
CO1	Explain the principles, theories, and contemporary approaches to transformative habitat development in response to social, economic, environmental, and technological changes.	I
CO2	Critically analyse habitat systems using spatial, ecological, socio-economic, and governance perspectives to identify opportunities and challenges for transformation.	II
CO3	Evaluate national and international policies, planning frameworks, and case studies that promote sustainable, inclusive, climate-responsive, and resilient habitat development.	V
CO4	Formulate strategic implementation frameworks and policy recommendations for transformative habitat development through multidisciplinary and evidence-based approaches.	IV
CO5	Develop innovative habitat planning and design strategies that integrate resilience, inclusivity, ecological sustainability, and smart technologies.	III

Program Outcome of this course

Sl. No.	Description	Pos
1	Demonstrate advanced knowledge of habitat planning, urban systems, sustainability, resilience, and transformative development within the built environment.	1,2,3,4,6,9,10
2	Analyse complex habitat challenges by integrating social, environmental, economic, spatial, and technological dimensions using evidence-based methods.	1,2,4,5,7,8
3	Develop creative, sustainable, and context-sensitive solutions for habitat planning, design, regeneration, and management.	1,3,4,9,10
4	Evaluate governance systems, planning regulations, institutional frameworks, and public policies to formulate strategic implementation approaches for habitat transformation.	1,2,3,4,6,9,10

Mapping of COS and POs

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010
C01	3	2	2	1	–	1	–	–	1	2
C02	2	3	2	2	2	–	3	3	–	1
C03	3	3	3	2	2	2	2	3	1	2
C04	3	3	3	3	2	2	2	2	2	3
C05	3	2	2	3	3	1	2	3	3	3
Average	2.8	2.6	2.4	2.2	1.8	1.2	1.8	2.2	1.4	2.2

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
P01	P02	P03	P04	P05	P06	P07	P08	P09	P010

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

I Semester

CULTURAL LANDSCAPES AND LIVING HERITAGE SYSTEMS			
Course Code	2MAHD107B	CIE Marks	50
Teaching Hours/Week (L:T:S:P)	14:0:28:0	SEE Marks (Viva)	50
Total Hours of Pedagogy	3	Total Marks	100
Credits	3	Exam Hours	-
Course Learning objectives: To understand cultural landscapes and living heritage as dynamic socio-ecological systems; examine the interrelationships between communities, traditions, ecology, and habitat; familiarise students with international heritage frameworks and their application to conservation; develop skills in documenting, mapping, and interpreting tangible and intangible heritage; and formulate culturally responsive strategies for habitat planning, conservation, and sustainable development.			
Syllabus Outline			
Syllabus Outline: Foundations of Cultural Landscape & Living Heritage • Evolution of the concepts of cultural geography and cultural landscapes. • UNESCO classifications of cultural landscapes. • Charters and legislation. • Living heritage systems: relationships between people, place, ecology, and culture. • Traditional knowledge systems and landscape identity. • Cultural landscapes as socio-ecological systems. Ecology, Traditional Knowledge & Heritage Systems • Traditional ecological knowledge and indigenous resource management. • Sacred landscapes, sacred groves, rivers, forests and pilgrimage landscapes. • Agricultural heritage systems, pastoral landscapes and productive cultural landscapes. • Cultural ecosystem services and biocultural diversity. • Climate resilience embedded within traditional landscape practices. Cultural landscape mapping and documentation techniques • Delineation and Mapping parameters for cultural landscape properties. • Tools and techniques for mapping and documenting cultural landscape sites. Cultural Landscapes in Habitat Design • Integrating heritage values into habitat planning. • Designing with living traditions and local identity. • Landscape regeneration through culture-led planning. • Tourism, heritage economies and sustainable livelihoods. • Studio-based framework for cultural landscape conservation and management plans.			
Assessment Details (both CIE and Viva) The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) - Viva 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% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.			
Continuous Internal Evaluation (CIE) The assessment shall comprise the following components: Two Assignments – Total: 25 marks One Skill Development Activity (SDA) – 25 marks			

The total CIE shall be evaluated out of 50 marks. Assessment methods shall be designed to evaluate the attainment of Course Outcomes (COs) and Programme Outcomes (POs) across different levels of Bloom's Taxonomy through assignments, presentations, case studies, reports and practical exercises, as appropriate to the course. Deliverables may be linked to the design brief of Habitat Design Studio-I (2MAHD101) so that analytical outputs feed back into the studio.

Suggested Learning Resources:

Books

1. Carl O. Sauer – *The Morphology of Landscape*
2. Ken Taylor, Archer St. Clair & Nora Mitchell – *Conserving Cultural Landscapes*
3. UNESCO – *Operational Guidelines for the Implementation of the World Heritage Convention*
4. Rössler, M. – *World Heritage Cultural Landscapes: A UNESCO Flagship Programme*
5. Oliver Rackham – *The History of the Countryside*
6. Ian Rotherham – *Cultural Severance and the Environment*
7. Laurajane Smith – *Uses of Heritage*
8. Tim Ingold – *The Perception of the Environment*

Reports & Guidelines

1. UNESCO Recommendation on the Historic Urban Landscape (2011)
2. UNESCO World Heritage Centre Publications
3. ICOMOS Cultural Landscapes Charter
4. IUCN Nature-Culture Journey Reports
5. Ministry of Culture, Government of India
6. INTACH Heritage Manuals

Web links and Video Lectures (e-Resources):

1. UNESCO World Heritage Centre
2. UNESCO Intangible Cultural Heritage Portal
3. ICOMOS
4. ICCROM
5. INTACH
6. Archaeological Survey of India
7. NPTEL: Heritage Conservation and Urban Planning

Skill Development Activities Suggested

Students shall undertake one or more of the following:

1. Cultural Landscape Mapping of a selected settlement.
2. Documentation of intangible cultural practices associated with a landscape.
3. GIS-based inventory of heritage assets.
4. Oral history documentation and community interviews.
5. Preparation of a Cultural Landscape Character Assessment.
6. Comparative analysis of UNESCO Cultural Landscape case studies.
7. Preparation of a heritage-sensitive habitat planning proposal.
8. Documentation of sacred natural sites and their ecological significance.

Course outcome (Course Skill Set)

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

Sl. No.	Description	Blooms Level
C01	Understand the concepts and evolution of cultural landscapes and living heritage systems.	2
C02	Analyse interactions between ecology, culture, traditional knowledge and habitat systems.	4
C03	Apply cultural mapping, documentation and digital techniques for heritage landscapes.	5
C04	Evaluate international and national heritage policies for cultural landscape conservation.	5
C05	Develop culturally responsive habitat planning and conservation strategies integrating living heritage values.	6

Program Outcome of this course		
Sl. No.	Description	Pos
1	Develop understanding of cultural landscapes as integrated ecological, social and spatial systems.	1, 2, 3, 7, 9
2	Strengthen competency in documenting and interpreting tangible and intangible heritage.	1, 2, 3, 4, 6
3	Promote heritage-sensitive habitat planning through policy and conservation frameworks.	1,3,4,7,8,9
4	Build capacity to integrate community participation, traditional knowledge and cultural identity into sustainable habitat design.	1,2,4,6,7,8,9,10

Mapping of COS and POs										
	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010
C01	3	2	2	-	-	-	3	2	2	-
C02	3	3	2	2	-	2	3	2	2	2
C03	2	3	3	3	-	3	2	1	3	2
C04	2	3	2	2	-	2	3	3	2	2
C05	3	3	3	3	-	2	3	3	3	3
Average	2.6	2.8	2.4	2.5	0	2.25	2.8	2.2	2.4	2.25

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
P01	P02	P03	P04	P05	P06	P07	P08	P09	P010

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

I Semester

ADAPTIVE AND RESILIENT HABITAT SYSTEMS			
Course Code	2MAHD107C	CIE Marks	50
Teaching Hours/Week (L:T:S:P)	14:0:28:0	SEE Marks(Viva)	50
Total Hours of Pedagogy	3	Total Marks	100
Credits	3	Exam Hours	-

Course Learning objectives:

To understand the principles of disaster risk mitigation, risk reduction, and vulnerability assessment within habitat systems; examine the social, environmental, spatial, and infrastructural factors that influence the resilience of settlements and communities; analyse the impacts of natural and human-induced hazards on buildings, neighbourhoods, and urban systems; explore adaptive planning, resilient design, and nature-based strategies for reducing risk; and develop context-responsive approaches for creating safe, inclusive, adaptable, and resilient habitats capable of responding to changing environmental and socio-economic conditions.

Syllabus Outline:

Foundations of Habitat Systems

- GDP and Resilient Habitat Systems: The economic system is associated with adaptive capacity.
- GDP shocks (pandemic, recession) - impact on habitats
- Informal economies as resilience buffers.
- Mixed-use environments vs mono-functional zones

Understanding Risk, Vulnerability & Resilience

- Introduction to Natural and man-made disasters.
- Hazard & Vulnerability identification in Urban Context.
- Urban disaster risks, perspectives and approaches.
- Vulnerability Mapping and Assessment.
- Use of technology in disaster mitigation and management. Role of various agencies such as NDMA, NIUA, and SIUD

Climate Responsive & Ecological Systems

- Understanding the Urban heat island effect, the Ecological network system and its effects.
- Rules and regulations associated with the system, organisation, and climatic control and mitigation

Adaptive Design Strategies

- Translates analysis into design, to create habitats that respond to environmental, social, and economic change.
- To explore flexible strategies such as modular design, mixed-use development, climate-responsive systems, and incremental housing. Emphasis is on designing for uncertainty—addressing risks like flooding, heat, and economic shifts—while ensuring inclusivity.

Public Space as a Resilience Infrastructure

- Role of public/open spaces in social and ecological resilience.
- Role of international bodies (IUCN) in guiding habitat conservation policy.
- Linking conservation science to the built environment.

Assessment Details (Continuous Internal Evaluation – CIE)

The course shall be assessed entirely through **Continuous Internal Evaluation (CIE)**, which carries **100 marks**. The **minimum passing mark is 50% of the maximum marks (50 out of 100)**.

Continuous Internal Evaluation (CIE)

The assessment shall comprise the following components:

1. Two Assignments – 25 marks each (Total: 50 marks)
2. One Skill Development Activity (SDA) – 50 marks

3. The total CIE shall be evaluated out of 100 marks.
4. Assessment methods shall be designed to evaluate the attainment of Course Outcomes (COs) and Programme Outcomes (POs) across different levels of Bloom's Taxonomy through assignments, presentations, case studies, reports, and practical exercises, as appropriate to the course.

Suggested Learning Resources

Books

- C.S. Holling — Resilience and Stability of Ecological Systems (Annual Review of Ecology and Systematics, 1973) — the foundational paper introducing ecological resilience theory
- Robert Kronenburg — Flexible: Architecture that Responds to Change (Laurence King, 2007)
- Ian Davis — Shelter After Disaster (Oxford Polytechnic Press) — a classic reference on post-disaster habitat
- Timothy Beatley — Resilient Cities: Responding to Peak Oil and Climate Change (Island Press)
- 100 Resilient Cities program reports (Rockefeller Foundation legacy documents, now under Resilient Cities Network) — practical city-level case studies
- Yang, Yang, Zhao & Yang (2022) — "Study on Urban Resilience from the Perspective of the Complex Adaptive System Theory", International Journal of Environmental Research and Public Health — applies adaptive cycle models to real urban agglomeration case studies.

Web links and Video Lectures (e-Resources)

1. CSE India's "Climate-Resilient Cities: Adaptive and Mitigative Approaches for a Warming Habitat" training programme (covers RS/GIS heat mapping, low-carbon materials, cooling masterplans)
2. https://www.iccaua.com/PDFs/ICCAUA2024/Book_Chapter_Architecture2024/N4ICCAUA2024IN0353_Vani%20Goel,%20Noel%20John.pdf- Adaptive Architecture: Nature's Blueprint" (biomimicry + resilient built habitat).
3. https://link.springer.com/content/pdf/10.1007/978-981-19-5566-2_13.pdf- Adaptive Architecture — A Pathway to Resilient Communities" (Springer, case study on Sikkim earthquake-resilient school)
4. <https://www.acsa-arch.org/chapter/adaptive-architecture-towards-resiliency-in-the-built-environment/>- Adaptive Architecture: Towards Resiliency in the Built Environment.
5. CSE India's "Climate-Resilient Cities: Adaptive and Mitigative Approaches for a Warming Habitat" training programme

Skill Development Activities Suggested

Vulnerability & Risk Mapping Exercise — Select a habitat/settlement prone to a specific hazard (flood, earthquake, cyclone) and prepare a vulnerability map using GIS, overlaying hazard zones with population density, building typology, and infrastructure.

Adaptive Reuse Design Studio Exercise — Select an existing building/settlement and propose an adaptive reuse or retrofit design that enhances its resilience to a specific stress (climate, structural, functional obsolescence).

Adaptive Cycle Model Application — Apply Holling's adaptive cycle (growth–conservation–release–reorganisation) to analyse the evolution of a real settlement or neighbourhood over time, identifying phases of resilience and collapse

Course outcome (Course Skill Set)

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

Sl. No.	Description	Blooms Level
CO1	Students will be able to explain the theoretical foundations of resilience	II
CO2	Students will be able to critically evaluate vernacular, traditional, and contemporary adaptive design solutions and extract transferable design principles for resilient habitat design	III
CO3	Students will be able to plan and simulate stakeholder engagement processes for resilience planning, integrating social/community resilience with technical solutions	IV
CO4	Find gaps and mitigate the associated risks.	I
CO5	Map and assess habitat vulnerability	V

Program Outcome of this course

Sl. No.	Description	Pos
1	Demonstrate advanced knowledge of adaptive and resilient habitat systems by integrating ecological, social, economic, and technological dimensions into planning and design.	1,2,3,4,6,9,10

2	Develop innovative planning and design solutions that enhance resilience, sustainability, inclusivity, and long-term adaptability of settlements across multiple scales.	1,2,4,5,7,8
3	Integrate disaster risk reduction, climate adaptation, resource efficiency, circular economy principles, and ecosystem-based planning into habitat development strategies.	1,3,4,9,10
4	Engage in independent learning, critical reflection, innovation, and lifelong professional development to respond to emerging challenges in adaptive and resilient habitat systems.	1,2,3,4,6,9,10

Mapping of COS and POs

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010
C01	3	2	2	1	–	1	2	2	–	2
C02	2	3	2	2	1	–	3	3	1	2
C03	3	3	3	2	2	2	3	3	–	2
C04	3	3	3	3	2	2	2	2	2	3
C05	3	2	2	3	3	1	3	3	2	3
Average	2.8	2.6	2.4	2.2	1.6	1.2	2.6	2.6	1.0	2.4

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
P01	P02	P03	P04	P05	P06	P07	P08	P09	P010

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

SEMESTER - II