

School of Planning and Architecture (SPA) Vijayawada
Institute of National Importance, Ministry of Education, Govt of INDIA.
Department of Architecture

...urban Infill...

a strategy for urban growth while minimising the urban sprawl...?

Master of Urban Design
Studio (III Sem): 2023-24
SPA, Vijayawada.

Studio Mentors
Anil Kumar Chilakapati &
Shravan Kumar Nagabandi



Introduction

The expansion of communities beyond the boundaries of the city has led to a growing preference for suburban living among middle-class and upper-class residents. This shift has brought attention to two significant issues: the optimization of existing public spaces and the development of vacant land within the urban regions. The presence of empty land and urban deterioration has urged the adoption of

“The right to the city is far more than the individual liberty to access urban resources: it is a right to change ourselves by changing the city”. David Harvey

infill development as a countermeasure to urban sprawl. This approach seeks to not only accommodate population growth but also to rejuvenate deprived neighborhoods and promote sustainable urban design. Through a balanced mix of land uses that supports public transit and a diverse range of services and amenities, infill development has the potential to dramatically impact urban density and reshape the urban fabric. It is a defining characteristic of infill development that it encompasses a harmonious blend of land uses that not only facilitate transit but also provide an extensive array of services and amenities that enrich community life. The core objective of this approach is to counteract the harmful effects of urban sprawl by harnessing available space and revitalizing dilapidated neighborhoods within the existing urban areas.

Context

River cities in India possess distinctive characteristics, as their development is intricately tied to the presence of water bodies. However, due to various factors, certain areas within these cities have been neglected or are not optimally utilized. This studio acknowledges the importance of addressing these neglected spaces, given their potential to transform the urban landscape and enhance overall urban livability.

Aim

The primary goal of this studio is to develop an extensive urban design program that is dedicated to the transformation of overlooked or underutilized land within the urban areas of river cities in India. These cities face unique challenges, including inactive landscapes, geographical and ecological constraints, and complexities related to land use and social dynamics within the urban fabric. The main aim is to tackle these issues head-on and create purposeful spaces that significantly contribute to the enrichment of the urban environment.

Scope

The studio's scope encompasses observing and studying various components of the urban structure, including networks, building compositions, open spaces and its integrations, and infrastructure services. It also involves examining the growth and patterns of morphological processes, land use and zoning within the nexus conditions of the urban structure. Additionally, the studio aims to explore the architectural and cultural heritage of the area, as well as the sites that hold religious and tourist significance. By examining these factors, the studio seeks to gain comprehensive insights into the urban landscapes and its configurations with their socio-cultural & spatial relationships.

Urban Design Response

- a. **Repurposing and Activating Underutilized Spaces:** The studio's primary objective is to identify and repurpose underutilized buildings, natural open spaces, and public areas, infusing them with missing land use or typology elements. By creatively reimagining these spaces, the aim is to enhance their functionality and seamlessly integrate them within the urban context, fostering vibrant and purposeful environments.
- b. **Harmonious Preservation and Revitalization:** The studio places strong emphasis on preserving historical buildings within their respective cultural contexts. Simultaneously, it seeks to envision and revitalize the surrounding areas by competently combining various land uses in a contextually harmonious manner, resulting vibrant and orderly engaging environment.
- c. **Equitable and Efficient Network Design:** Central to the design approach is the reconfiguration of diverse networks to ensure equitable distribution of landscapes and spaces that cater to both vehicular and pedestrian movements. This involves crafting safe and accessible pathways that prioritize pedestrians while also effectively accommodating vehicular traffic.
- d. **Eco-Conscious Infrastructure Management:** An integral aspect of the studio focuses on comprehending and managing solid waste and rainwater/surface runoff infrastructure at the local level. The objective is to develop ecological strategies that facilitate efficient waste management and sustainable water practices, minimizing environmental impact, and elevating the overall quality of urban living.

Study Methodology

To facilitate a streamlined process and foster collaborative engagement from diverse perspectives, students are recommended to form four groups, each dedicated to studying and analyzing a specific River City during the urban precinct assessment phase. Once this stage is completed, students can pursue individual interventions. (This approach simplifies the overall process and creates a conducive environment for the incorporation of various viewpoints and expertise from each group.)

Identification of Precincts/Sites and their Requisite Features: Students are tasked with analytically identifying potential sites or precincts suitable for infill development within the

municipal limits of the river city. These selected sites should exhibit strong connectivity and well-established infrastructure systems. The criteria for site selection encompass the presence of a predominant land use or building typology, along with the inclusion of two additional supporting land uses or building typologies.

Critical Aspects for Site Study:

- Contextual Analysis: Students are encouraged to conduct a comprehensive examination of the historical and present context of their selected Precincts. Special attention should be given to identifying unique features that contribute to their sustainable character.
- Detailed Study of Smaller Pockets: Additionally, students should carry out in-depth studies of smaller pockets within the scope of redesign or infill development. This focused analysis allows for a thorough understanding of specific areas that require targeted attention and intervention.

The study groups will concentrate on various aspects of the city's development, aiming to identify areas for individual proposals that question:

- What are the different uses and functions that contribute to defining the urban-social character of the pockets/sites?
- In what ways can new interventions be proposed to fill gaps within the existing urban fabric?

The studio exercises encompass the following stages of development:

1. **Experiential Mapping**: This initial stage involves creating vivid visual, auditory, and sensory illustrations of the area to capture its unique qualities. The emphasis is on experiencing the site without adhering to a specific logic or sequence.
2. **Historical Mapping**: In this stage, secondary data collection and analysis are conducted to gain insights into the historical evolution of the site and its relationship to the city's development over different time periods.
3. **Physical Components Mapping**: Primary data collection and urban analysis are performed, categorizing the sites based on various elements such as land use, open spaces, transportation, infrastructure, public spaces, and heritage. Subcategories are explored to understand the interconnectedness and impact of different city systems at the local site level.

4. **Issue Identification / SWOT Analysis:** This step involves evaluating areas based on their potential for continuity or preservation while also addressing and mitigating negative externalities.
5. **Individual Site or Precinct Selection:** Strategies for urban infill development are planned and tailored to specific sites, considering their unique characteristics and requirements.
6. **Case Studies and Best Practices:** Drawing from existing knowledge systems and successful examples, suitable case studies are examined to understand the scope of design and gain insights applicable to the project.
7. **Design Development and Schematic Drawings:** This stage focuses on the development of conceptual designs and the creation of schematic drawings, outlining the proposed interventions for the site.
8. **Framework and Structure Plan:** This stage culminates in a comprehensive Structure Plan followed by an Urban Design Infill framework, providing a cohesive developed plan with report for the project's implementation.

Studio Stages & Reporting

| S. No. | Stages/ Tasks | Rationale | Reporting Period |
|--------|---|--|---------------------|
| 1 | Background Study | Understanding the urban infill development as a strategy for urban sprawl | (27-28) July 2023 |
| 2 | Literature Study & its Review Selection of case study and requisite preparations | Guidelines for urban infill development designs, successful case studies in relevant, principles, criteria, and strategies, etc. | (10-11) August 2023 |
| 3 | Precinct/ Site Studies – (Empirical) | Site Appraisal / Case Studies | (19-25) August 2023 |
| 4 | Precinct studies and Data Synthesis | According to the Survey data & Working model illustrations | (7-8) Sept 2023 |
| 5 | Data Analysis (SWOT) | Understanding the Positive and Negative aspects analytically and framing the interventions with the support of working models. | (14-15) Sept 2023 |
| 6 | Vision statement, Aim and Objectives & Framework | confining the vision & interventions within the scope, aim & objectives of the context. | (21-22) Sept 2023 |

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|---|--|--|-----------------------|
| 7 | Design Proposals | Preliminary UD proposals. Freezing the UD frameworks along with developed models | (5-6) Oct 2023 |
| 8 | Design Development | Frameworks, Structure Plan, Models and Schemes | (12-13) Oct 2023 |
| 9 | Design Illustrations along with research report. | Representation of Design via theoretical & Physical models, Walk throughs, VR Presentations. | (17-18) November 2023 |

Suggested Readings

1. Title: **"The Urban Design Handbook: Techniques and Working Methods"** Author: Urban Design Associates Publication Year: 2003 Description: This comprehensive handbook covers various urban design techniques, including urban infill strategies, with practical case studies and working methods.
2. Title: **"Infill: New Houses for Urban Sites"** Author: Adam Mornement, Ann Ross, and Terry Pawson Publication Year: 2007 Description: This book showcases innovative examples of infill housing projects, exploring how architects and designers creatively use small urban sites for new residential developments.
3. Title: **"The Infill Handbook: A Guide to Reducing Urban Sprawl through Infill Development"** Author: National Resources Defense Council (NRDC) Publication Year: 2005 Description: This handbook focuses on the benefits and challenges of infill development, providing insights into smart growth strategies and sustainable urban planning.
4. Title: **"Infill Development for Sustainable Urban Regeneration"** Authors: Ute Meyer, Michael Scharpf, and Reinhard König Publication Year: 2015 Description: This book delves into the role of infill development in sustainable urban regeneration, emphasizing social, economic, and environmental aspects. While not explicitly focused on river cities, this book explores the role of infill development in sustainable urban regeneration, which can be adapted to the unique context of riverfront areas.
5. Title: **"The Smart Growth Manual"** Authors: Andres Duany, Jeff Speck, and Mike Lydon Publication Year: 2009 Description: While not solely focused on infill development, this book offers valuable insights into smart growth principles, which often intersect with infill strategies.
6. Title: **"Infill: New Houses for Urban Sites"** Author: Sue Roaf, Sarah Broadbent, and Nicola Tuner Publication Year: 2004 Description: This book presents a collection of innovative infill housing projects, focusing on sustainable design principles and the integration of green building practices.
7. Title: **"Urban Infill Housing: A Review of Urban Infill Housing Delivery in Australian Capital Cities"** Author: Australian Housing and Urban Research Institute (AHURI) Publication Year: 2017

Description: This report provides a review of urban infill housing delivery in Australian cities, examining policy frameworks, challenges, and best practices.

8. Title: "**Infill Development Toolkit**" Author: Denver Department of Community Planning and Development Publication Year: 2018 Description: This toolkit offers practical guidance and resources for municipalities and developers on implementing successful infill development projects.
9. "**Sustainable Urban Development Reader**" edited by Stephen M. Wheeler and Timothy Beatley: This compilation includes various articles on sustainable urban development, including topics related to infill development, riverfront revitalization, and sustainable city planning.
10. "**Waterfronts in Post-Industrial Cities**" edited by Grady Clay and Robert G. Shibley: While not solely focused on infill, this book explores the revitalization of riverfront areas in post-industrial cities, providing valuable lessons and case studies relevant to river cities infill.
11. "**Urban Infill: A Strategy for City Renewal**" by Erhard An-He Kinzelbach: This book discusses urban infill as a strategy for renewing cities, which can be relevant in the context of river cities seeking to utilize underutilized spaces.

..... Best Wishes.....



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(An institution of National Importance under the Ministry of Education, Govt. of India)
S.No. 4/4, I.T.I Road, Vijayawada – 520 008, Andhra Pradesh, India

Department of Architecture

Course: MUD213; Urban Design Research Lab-II **Class:** MUD II yr III SEM
Instructors: Dr. G.KartEEK **Internal Assessment:** 50
External Jury: 50
Contact Periods/ week: 4 periods, 1 Lecture + 2 Research **Total Marks:** 100
Time Table: Wednesday 4 hours **Credits:** 4
Attendance: Min 75% **Min. Passing Marks:** 40% each in Internal & External Assessment, 40% in Aggregate

Objective:
 To allow students to explore research areas which are contemporary and can address global as well as local issues, critical analysis and interpretation of urban phenomena and data. It will guide both studio and non-studio based enquiries of students towards structured, systematic and targeted research yielding qualitative and quantitative outputs.

Course Content:
 - The research topic/areas shall have direct linkage with the studio program.
 - The students shall be allowed to have free experimentation and in-depth inquiry into the patterns and processes of urbanism as well as the connected production of urban form and space.
 - The lab is also aimed to provide research platforms for inter/multi-disciplinary engagement of participants from varying backgrounds towards engaging with selected aspects of built environment conditions and/or project future scenarios of urban form.
 - The expected outcome might be in form of research papers/ research projects with active engagement with the research organisations or alike.
 - Students shall be encouraged to collaborate with National and international agencies who work on research related with Urban studies like UN-HABITAT, Centre for Policy Research (CPR), India Institute of Human Settlement (IIHS, DUSP/MIT) etc. to see the current trend of research and streamline their work accordingly.

LECTURE PLAN

| WEEK | WEEK/DATE | TOPIC OF CLASS LECTURE & DISCUSSION | TOPIC OF STUDIO WORK& ASSIGNMENTS / REMARKS |
|------|-----------|--|---|
| 1 | Week-1 | Introduction to Urban Design Research | Lecture by Faculty |
| 2 | Week-2 | Identifying research domains and Review of Urban Design Research in India and abroad | Tutorial and discussions |
| 3 | Week-3 | Lecture session- Experimentation and In depth enquiry | Lecture and Discussions on Tutorial exercises |
| 4 | Week-4 | Study Tour | Scheduled as per Calendar |
| 5 | Week-5 | Study Tour | Scheduled as per Calendar |
| 6 | Week-6 | Research Collaborations- Establishing platform for Multi-disciplinary research | Lecture and Discussions on Tutorial exercises |
| 7 | Week-7 | MID TERM Assignment Submission | |
| 8 | Week-8 | Discussions on Lab exercise | Completion of Assessment- I |
| 9 | Week-9 | Discussions on Lab exercise | Discussions on Tutorial exercises |
| 10 | Week-10 | Exploring research tools | Lecture and Discussions on Tutorial exercises |
| 11 | Week-11 | Discussions on Lab exercise | Lecture and Discussions |
| 12 | Week-12 | Exploring research Methods, techniques, use of softwares for analysis and validation | Lecture and Discussions |
| 13 | Week-13 | Discussions on Lab exercise | Discussions on Tutorial exercises |
| 14 | Week-14 | FINAL DRAFT of Lab work | Discussions on Tutorial exercises |
| 15 | Week-15 | FINAL SUBMISSION of Research Assignment | Completion of Assessment- II |
| 16 | Week-16 | Submission of marks/Attendance and revision | |

| S. No. | Stages of Evaluation | Weightage |
|--------|-------------------------|-----------|
| 1 | Assessment-I (Mid Term) | 40% |
| 2 | Assessment-II | 100% |
| 3 | Internal Assessment | 50 |
| 4 | External Jury | 50 |

Reference Books:

- Batty, M. (2001). "Exploring isovist fields: space and shape in architectural and urban morphology," Environment and Planning B: Planning and Design 28, 123-150.
- Becker, Lucinda M. (2015). Writing Successful Reports and Dissertations. Los Angeles. SAGE
- Gaur, Ajai S (2011). Statistical Methods for Practice and Research: A Guide to Data Analysis Using SPSS. Response books, New Delhi
- Hillier, B. & Hanson, J. (1984). The social logic of space. Cambridge: Cambridge University Press.
- McClelland D. (2003). Photoshop 7 Bible Professional Edition. New York Wiley Publishing.
- Tal, Daniel. (2009). Google SketchUp for site design: a guide for modeling site plans, terrain and architecture. John Wiley

Source Instructors:
(Dr. KartEEK G)

Head of Department:
Uma Sankar)

(Dr.



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(An institution of National Importance under the Ministry of Human Resource Development, Govt. of India)
Survey No.4/4, ITI Road, Vijayawada-520008, Andhra Pradesh, India

Department of Architecture

Course: MUD 214 Thesis Methodologies

Class: MUD I YEAR I SEM A.Y. 2023-24

Instructors: Mr. Deepak Kumar

Internal Assessment: 50

External Jury Exam: 50

Contact Periods/ week: 03 periods.(50 min each)

Total Marks: 100

Time Table: Thursday 09:00am-11:45am

Credits: 3

Attendance: Min 75%

Min. Passing Marks: 50% each in Internal & External Assessment, 50% in Aggregate

Objective: The course aims to equip students with methodological and management tools to undertake an individual, self-driven design/research exploration on a thesis topic of their choice as an assimilation of the learning process in the urban design program.

Learning outcome: Students are equipped with the necessary tools and methodological processes for exploring and defining individual thesis inquiries and writing an informed proposal for the same.

LECTURE PLAN

| WEEK | DATE | TOPIC OF CLASS LECTURE & DISCUSSION | List of articles to be read |
|------|---------|---|--|
| 1 | Week-1 | Establishing need for research: Exploring and articulating areas of topical interest, raising questions for design and research inquiry, Establishing relevance and need. | Wesener, A Urban Design Research and Application |
| 2 | Week-2 | Discussion individually about their area of interest. | |
| 3 | Week-3 | Developing a Research Question Making a research question that will direct the entire project. Consider the following when developing your research question: | Donald, A Urbanism: Utopian and Scientific... |
| 4 | Week-4 | Discussion individually about their area of interest. | |
| 5 | Week-5 | Literature study: Identifying and reviewing connected literature and case examples | Work on the topic of research |
| 6 | Week-6 | Individual discussions | |
| 7 | Week-7 | Selecting a topic: Choose a topic that aligns with your interests and skills while addressing a significant urban problem. | Work on the Topic finalization and site identification |
| 8 | Week-8 | Site identification: Identifying physical, social and cultural features of the site. | Work on the Topic finalization and site identification |
| 9 | Week-9 | Case studies identification: Identify desktop as well as live case study similar to the chosen topic. | Wiedemer, G The Role of Research, Arts and Architecture in Becoming Aware of a City |
| 10 | Week-10 | Critical Analysis: Developing critical positions on urban conditions concerning the chosen interest area | Developing Urban design framework |

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|----|---------|---|---|
| 11 | Week-11 | Methodology Formulation: Articulating a well-established case for urban design engagement and connected outcomes, Formulating a methodological path for conducting the thesis, defining the scope and objectives | Taufique, KZH & Saha, D & Biswas, S In Search for a New Urban Design Research Methodology |
| 12 | Week-12 | Group discussions | |
| 11 | Week-13 | Detailed proposal writing: Writing a detailed thesis proposal for consideration and approval | Work on the finalization of proposal |
| 12 | Week-14 | Individual discussions | |
| 13 | Week-15 | Final Presentation and finalization of topic | Work on the final presentation |
| 14 | Week-16 | FINAL PRESENTATION AND MARKING | |

| S. No. | Stages of Evaluation | Weightage |
|--------|--|-----------|
| 1 | First stage: Assessment –1 | 15 |
| 2 | Second stage: Mid-semester Examination | 20 |
| 3 | Third stage: Assessment –3 | 15 |
| | Total | 50 |

Course Instructors:

sd/-
(Deepak Kumar)

Head of Department (I/C):

sd/-
(Dr. Uma Sankar Basina)

LECTURE PLAN
MUD 217 – Urban Policy and management

SUBJECT : MUD 217
TEACHER : Dr. Srinivas. D
DEPT.: B. Architecture
PROG. MARKS: 50
CONTACT Hrs.: 03
ASSIGNMENTS/ TUTORIALS / TEST: 3 NOs.
OBJECTIVE:

CLASS: III Sem 2023-24 A.Y

TOTAL MARKS: 50
Hours per week Credits: 3
DURATION OF EXAM: 3 Hrs.

This course aims to inform the student about the process of formulation of urban design policies, integration and implementation of same in city planning, to inform the student about the process of formulation of urban design policies, integration and implementation of the same in city planning.

| S.NO | Date/Week | Topic of Unit/class/lecture & Discussion | Nature of class, teaching aid & Assignments |
|------|-----------|---|---|
| 1 | Week 1 | Unit-I Role of Urban Design in city planning <ul style="list-style-type: none"> • Historical overview • Case examples of policy | Lecture 3 |
| 2 | Week 2 | Role of Urban Design in city planning <ul style="list-style-type: none"> • Visioning process • Urban design plans | Lecture 3 |
| 3 | Week 3 | Role of Urban Design in city planning <ul style="list-style-type: none"> • Urban design policies and developmental strategies | Lecture 3 |
| 4 | Week 4 | Unit II Conservation & Development <ul style="list-style-type: none"> • Urban conservation in India | Lecture 3 |
| 5 | Week 5 | Unit II Conservation & Development <ul style="list-style-type: none"> • Urban conservation in India • Conservation principles, Charters and legislations | Lecture 3 |
| 6 | Week 6 | Unit II Conservation & Development <ul style="list-style-type: none"> • Conservation led regeneration and regeneration strategies of inner cities • Overview of urban renewal and conservation | REVIEW 3 |
| | | Assignment – 1 | |

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|--|---------------------|--|-----------|
| 7 | Week 7 | Unit III Impacts of development controls <ul style="list-style-type: none"> • Case studies of impact of development controls and zoning | Lecture 3 |
| 8 | Week 8 | Unit III Impacts of development controls <ul style="list-style-type: none"> • Analysis of urban design issues • Current innovations in development regulations • Alternative types of zoning | Lecture 3 |
| 9 | Week 9 | Unit IV Urban design plan implementation <ul style="list-style-type: none"> • Implementation of urban design plans, policies & concepts • Tools & Methods | REVIEW 3 |
| 10 | Week 10 | Unit IV Urban design plan implementation <ul style="list-style-type: none"> • Local level plans • Design guidelines • Design review | Lecture 3 |
| 11 | Week 11 | Unit IV Urban design plan implementation <ul style="list-style-type: none"> • Design review and concept of design review boards | Lecture 3 |
| 12 | Assignment-2 | | |
| 13 | Week 13 | Unit V Participatory Design <ul style="list-style-type: none"> • Role of Government, Private parties and other stakeholders | Lecture 3 |
| 14 | Week 14 | Unit V Participatory Design <ul style="list-style-type: none"> • Participatory design approaches and case studies • Students presentation on Case studies (Assignment-3) | Lecture 3 |
| 15 | Week 15 | Unit V Participatory Design <ul style="list-style-type: none"> • Participatory design approaches and case studies • Students presentation on Case studies (Assignment-3) | Lecture 3 |
| 16 | Week 16 | <ul style="list-style-type: none"> • Revision & discussion on overall learnings | Lecture 3 |
| <ul style="list-style-type: none"> • Additional class will be taken to cover the syllabus if required | | | |

References:

1. Barnett, Jonnathan. Introduction to Urban Design, Icon (Harpe); 1st edition, 1982, ISBN: 978-0064303767
2. Barnett, Jonnathan. Urban Design as public policy, McGraw-Hill Inc., US, 1974, ISBN: 978-0070037663
3. Bureau of indian Standards, National Building Code, 2010
4. Gerald E, Frug. City making: Building Communities without building walls, Princeton University Press, 1999, ISBN: 978-0691007410



Dr. Srinivas Daketi

Professor and Head