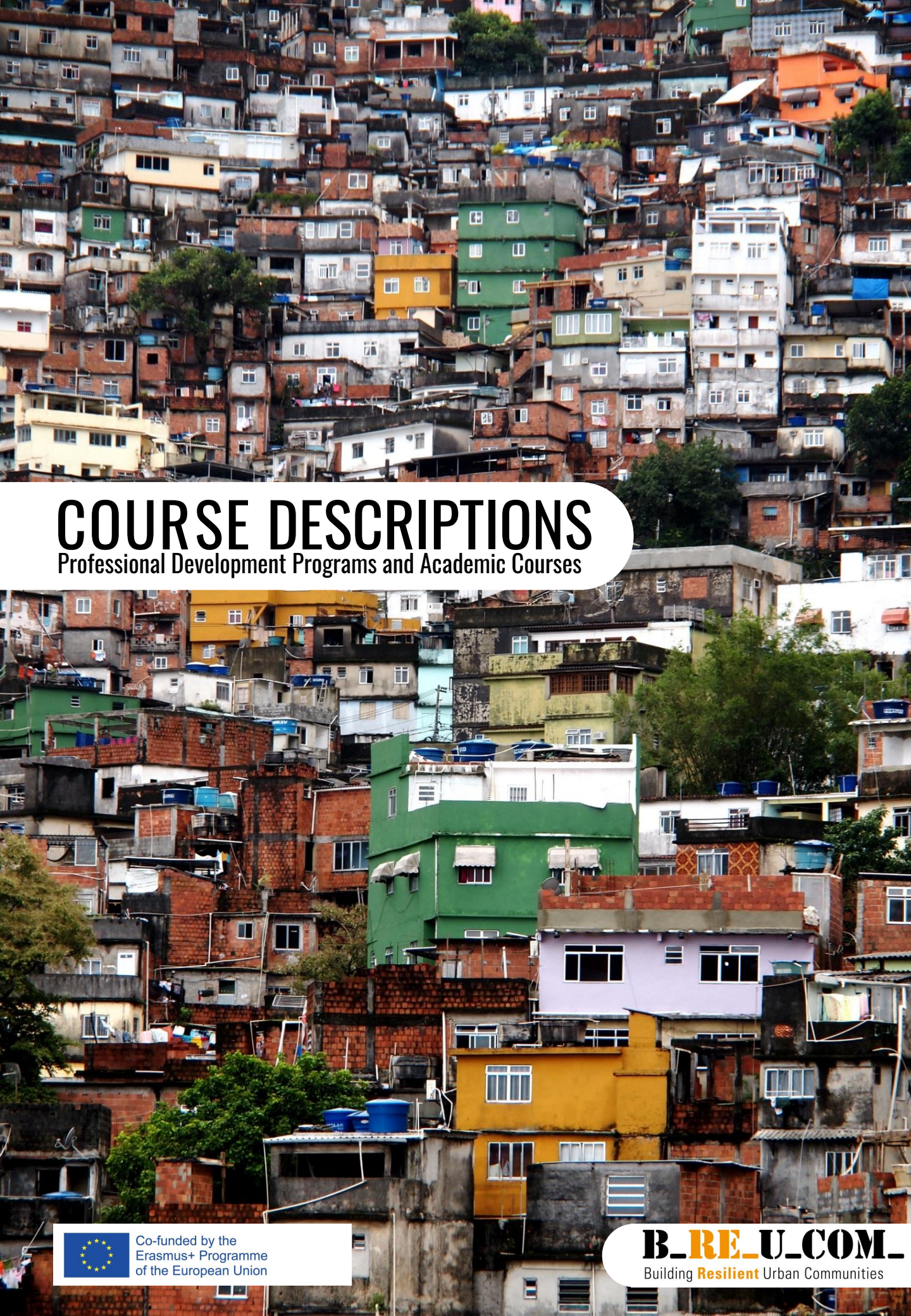

COURSE DESCRIPTIONS

Professional Development Programs and Academic Courses

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B_RE_U_COM_
Building Resilient Urban Communities

This document is a compilation of the Academic Courseworks and Professional Development Programmes developed under the Building Resilient Urban Communities (BReUCom) Project by the partner institutions.

The work has been compiled by KRVIA, Mumbai as part of the Work Package Lead for 'WP3: PDP and Course Development Work Package' of the BReUCom Project

This document is prepared as an open source reference manual to be used for Capacity Building in higher education.

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Krems, Austria | Mumbai, India December 2021

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European Commission. This communication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

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B_RE_U_COM_

Building **Resilient** Urban Communities

A project funded under EU Erasmus+ Program in the field of Capacity Building in Higher Education

Increased frequency of natural hazards and sea level rise are expected impacts of climate change in India. Marginalised urban settlements are often vulnerable to disaster due to their location in hazardous areas and the use of non-durable building materials. Their inhabitants are therefore strongly affected by climate change. But amidst strives to meet climate targets, the poor's needs are mostly overlooked.

In this context, there is an urgent need for paradigmatic shift in the education of graduate students in spatial planning and design as well as training of urban professionals from different backgrounds in order to confront upcoming challenges related to climate change impacts on urban informal settlements.

The BReUCom project with its project partners has conceived 20 short terms **Professional Development Programs (PDPs)** targeted at real world problems. It has also produced Open Educational Resources by developing **10 comparative case studies** and **15 new academic courses (Courses) for graduate students** in existing programs, following the MIT's Open Course Ware (OCW) model. The courses are being piloted in the existing curricula for graduate students and are being modified to suit the contemporary realities.

The Professional Development Programs (PDPs) are designed to function as modules on urban resilience for urban professionals from different backgrounds and working experiences, pilot modules including internships with NGOs in India and Europe.

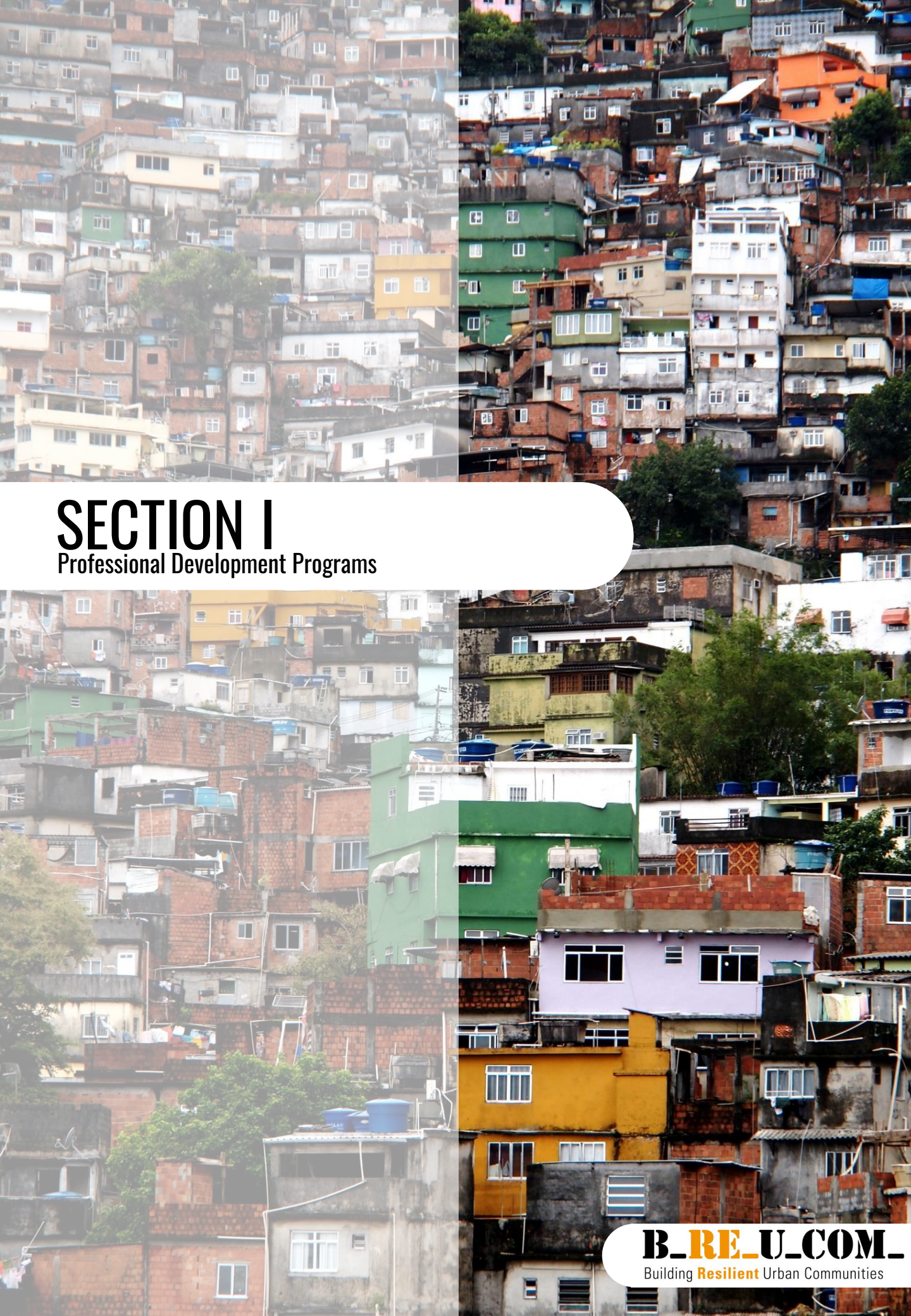
The Project partners for the BReUCom project include

Indian Institutions of Higher Education
Kamla Raheja Vidyanidhi Institute for Architecture and Environmental Studies, Mumbai
School of Planning and Architecture, Bhopal
School of Planning and Architecture, Vijayawada
National Institute of Technology, Hamirpur

Indian Non-Governmental Organisations
Society for Promotion of Area Resource Centers, Mumbai (SPARC)
Centre for Urban and Regional Excellence, New Delhi (CURE)

European Institutions of Higher Education
Danube University Krems, Austria
University of Twente - ITC, Netherlands

For more information: ***https://www.breucom.eu***



SECTION I

Professional Development Programs

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Building Resilient Urban Communities

CONTENTS:

PROFESSIONAL DEVELOPMENT PROGRAMMES

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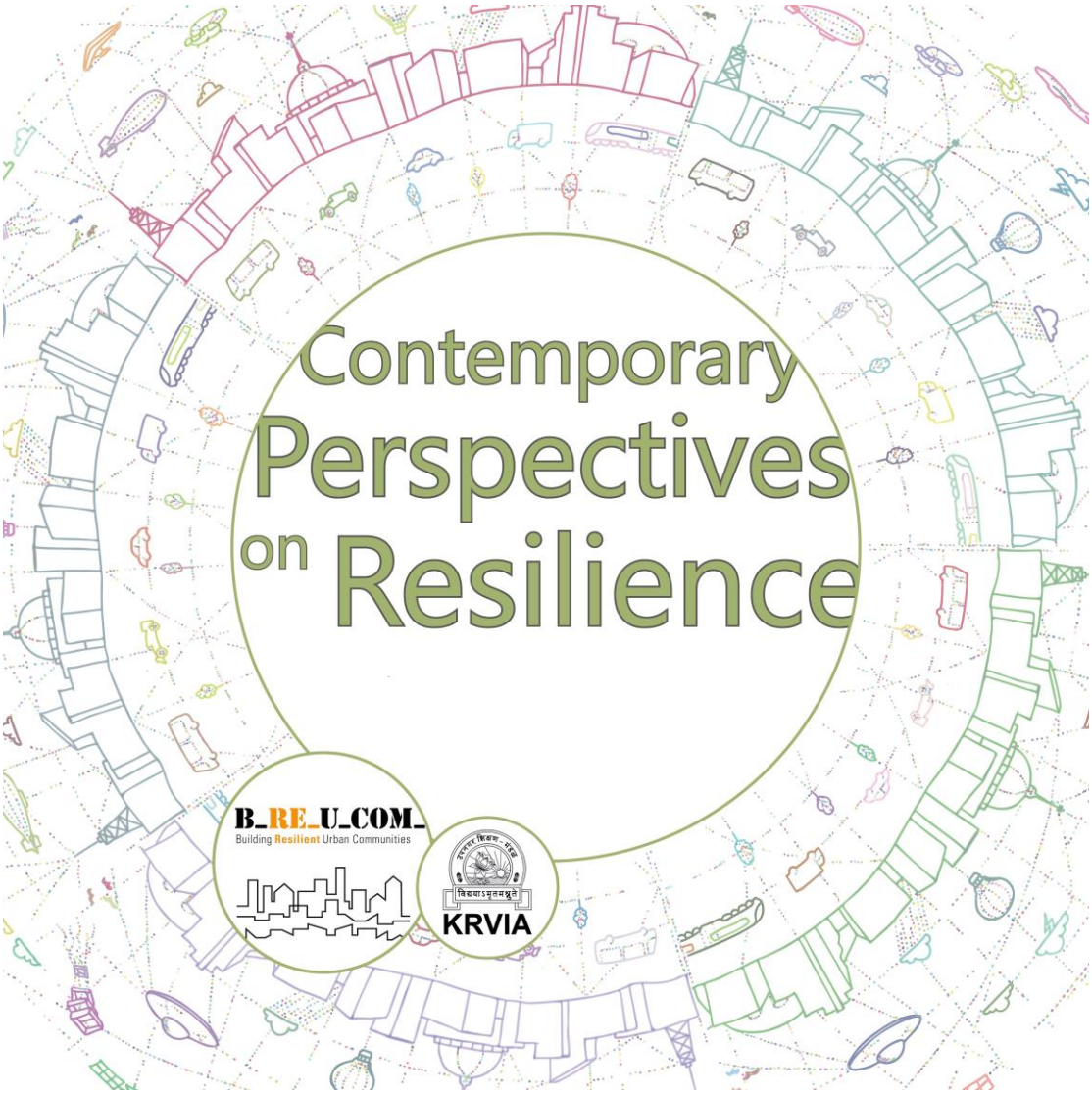
Contemporary Perspectives on Resilience



Description of course

Aim:

The program titled "Contemporary Perspectives on Resilience" aims to expose the participants to various paradigms of Resilience in modern-day urban settings. These range from Socio-ecological and Cultural aspects, to contemporary definitions of the issue of Resilience.

Course Objectives:

The PDP shall engage with various contemporary perspectives on resilience, with lectures thematized as follows:

1. Geographies and Cultural Quarters
2. Perceived Cities
3. Conservational Resilience

Learning Outcomes:

It is expected that at the end of the PDP, participants are made aware of the implications of the idea of resilience in various aspects of urban planning and design. The overarching intent is to articulate the various relationships that urban systems systems have, that enable resilience in a city.

Course Structure

Course Duration:

20 Hours (spread over 3 day sessions)

Course Frequency:

Once a Year

Course Format:

The programme is designed as a series of online lectures by the instructors, followed by a discussion with the participants.

Participants are encouraged to interact with the instructors during the interactive session.

Course Content

Prerequisites for Participation:

The participants with a Bachelors degree in Architecture. Participants enrolled in Postgraduate programs in Architecture, Urban Design, Urban Planning, Conservation, or related fields will be given priority. Other applicants with a keen interest in Urban Studies can also apply.

Course Syllabus:

The programme is envisioned as a lecture series, thematized as following:

1. *Geographies and Cultural Quarters*
    a. *Cultural Territories and Resilience*
    b. *Resilience in Contested Geographies*
    c. *Topographies of Vulnerability- Ecological Resilience Thinking in the Tropics*
2. *Perceived Cities*
    a. *Representing Resilience*
    b. *Cloud City- Resilience through Networked Geographies*
    c. *Sociological and Cultural Perspectives on Resilience*
3. *Conservational Resilience*
    a. *Resilience in Cultural Heritage- An Introduction*

b. *Water Resilience in Historic Cities*
c. *Augmenting Resilience in Historic Urban Cores*

Course Assignments:

Set of Multiple Choice Questions for each theme at the end of each program day.

Expected Time Spent on Course:

Time spent in hours: 12 hours of lectures and interaction

Time spent in ECTS (European Credit Transfer and Accumulation System): < 1 ECTS = 25 hours > 1

Course Grading

Assessment Criteria and Distribution of Marks:

Stages & Details	***Percentage of Total Marks***
Multiple Choice Questions	*75%*
Feedback participation	*25%*
Total	***100%***

Course Evaluation

Evaluation Procedure & Criteria:

Deans and Academic advisors evaluate and comment upon the course structure before the course in conducted.
After the course, participant evaluation feedback analysis obtained through ERP is made available to individual
faculty.

Faculty Evaluation:

Informal interactions in the studio by way of review of daily progress along with formal evaluation by way of juries as per the above provided course grading.

Student Evaluation:

Standard format by way of a questionnaire is available for the students to suggest their learnings as well as areas in which the course can improve.

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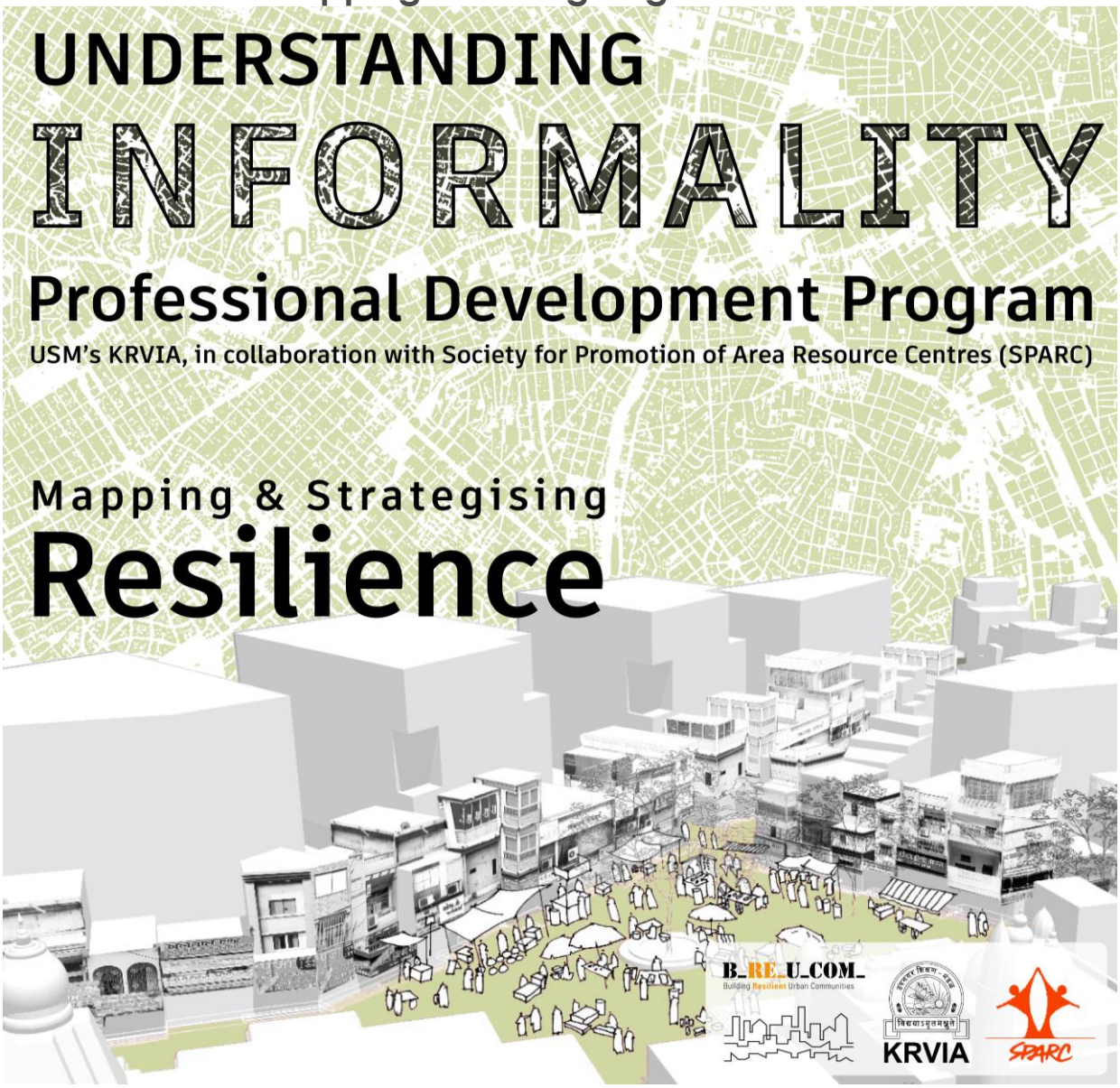
Understanding Informality:
Mapping & Strategizing Resilience



Description of course

Aim:

Urban challenges are diverse, and they exist in different forms and with different severity across the world (Schneider 2002). Among other urban challenges, the issue of urban informality and its infrastructure is significant, and has a profound impact on slums dwellers and liveability index.

Urban informality is an interdisciplinary concept, and it often refers to issues such as the informal sector, the informal economy, informal settlements and squatter settlements, to name just a few. Urban informality can be broadly defined as the living condition (settlement, economic, commercial, and physical conditions) of urban dwellers and their activities that are non-regularised and non-taxed and are often characterised by different challenges.

The professional development program deals with the dissemination of knowledge related to urban informality and its central and peripheral issues, with respect to risk and resilience.

Course Objectives:

The course shall disseminate conceptual frameworks on understanding informality through various case studies. It shall also enable participants to develop their own frameworks to study the implications of informality in the urban context.

Learning Outcomes:

Conceptual frameworks that engage with informality and resilience, holistic strategies to work with informality and development of frameworks for the same.

Course Structure

Course Duration:

25 Hours (spread over 3 day sessions)

Course Frequency:

Every year

Course Format:

Lectures + Workshop

Course Content

Prerequisites for Participation:

The participants with a Bachelors degree in Architecture. Participants enrolled in Postgraduate programs in Architecture, Urban Design, Urban Planning, Conservation, or related fields will be given priority. Other applicants with a keen interest in Urban Studies can also apply.

Course Syllabus:

Lectures:

- Can we transform planning to befit the 21st century?
- The Resilience of Informal Typo-morphologies
- Local Area Planning for Informal Settlement Upgradation: An Approach
- Mapping and Representing Informality: Case of Gazdhar Bandh
- Governance + Informality = Divided City
- Project Dharavi: An Inventory of Processes

Workshop:

Mapping Informality: Strategizing Resilience

The participants shall work together with the mentors, to conceptualize the investigative and mapping process of various forms of informality and strategize on building resilience in the given situations, in selected sites, across the country.

Course Assignments:

Presentation by participants on the third day after will work closely with two-three mentors per group, to conceptualize the mapping process of various forms of informality and strategize on building resilience in the given situations, in selected sites, across the country.

Expected Time Spent on Course:

Time spent in hours: 2 Lecture days - 3 hours each, Workshop day – 1 hour of brainstorming with mentors (3 teams) with 6 hours of team work on presentations.

Time spent in ECTS (European Credit Transfer and Accumulation System): < 1 ECTS = 25 hours >

Course Grading

Assessment Criteria and Distribution of Marks:

Stages & Details	***Percentage of Total Marks***
Presentation by participants on third day	100
Total	***100%***

Course Evaluation

Evaluation Procedure & Criteria:

Deans and Academic advisors evaluate and comment upon the PDP structure before the course in conducted. After the PDP, participant evaluation feedback analysis obtained through the feedback forms is made available to the PDP team.

Faculty Evaluation:

Interaction during the presentation by the mentors.

Student Evaluation:

Standard format by way of a questionnaire is available for the students to suggest their learnings as well as areas in which the course can improve.

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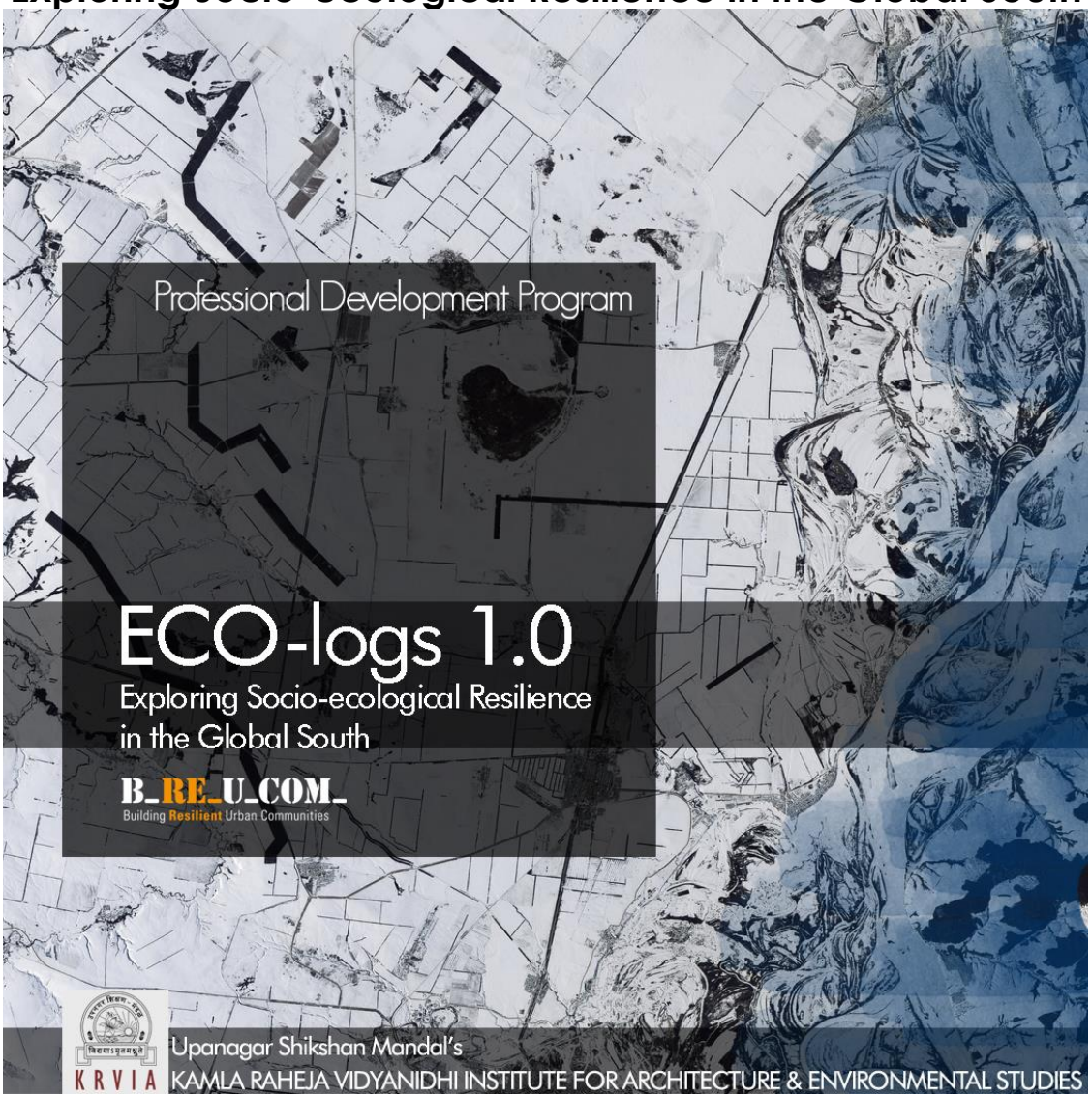
Eco-LOGS 1.0

Exploring Socio-ecological Resilience in the Global South



Description of course

Aim:

To sensitize the participants to concepts of socio-ecological resilience in the light of increased flooding and other climate catastrophes in the cities of the global south and introduce them to the possibilities of employing open source geospatial technologies for documenting and analyzing the learnings from the site.

Course Objectives:

To sensitize participants regarding the concept of socio-ecological resilience
To equip participants a basic understanding of mapping vulnerabilities in the cities and peri-urban areas of the global south
To provide an international perspective to mapping vulnerabilities using open-source technologies
To introduce participants to using open source geospatial mapping technologies.

Learning Outcomes:

The participants will be able to:

Discern the socio-ecological dependencies while reading the urban landscape
Articulate the concepts of socio-ecological resilience
Appreciate the role of open-source technologies in decision making
Assess the repercussions of stakeholders in ensuring community resilience

Course Structure

Course Duration:

10 hours spread over 2 days

Course Frequency:

Once a Year

Course Format:

The programme is designed as a series of online lectures by the instructors, followed by a discussion with the participants.

Participants are encouraged to interact with the instructors during the interactive session

Course Content

Prerequisites for Participation:

The participants with a Bachelor's degree in Architecture/Planning. Participants enrolled in Postgraduate programs in Architecture, Landscape Architecture, Urban Design, Urban Planning, Conservation, or related fields will be given priority. Other applicants with a keen interest in Urban Studies can also apply.

Course Syllabus:

The Couse is designed as a series of lecture presentations followed by interactions with the participants:

a. *Introductory Lecture: Contemporary Thoughts on Socio-ecological Resilience*

b. *KRVIA Academic Explorations with Urban Flooding- Post graduate Participant presentations of successful use of GIS based ecological Studies as part of the studio.*

   1. *Urban Flooding, Mumbai Suburban, Maharashtra*
   2. *Wetland Ecosystem: Aluva, Kerala*

c. *International Perspectives: Mapping Vulnerabilities – Presentations by Faculty from ITC | Faculty of Geo-information Science and earth Observation, University of Twente, Netherlands*
d. *Open Source Geographical Information Systems: Perspectives and Applications.*

e. *Application of GIS for Urban Waters and related Heritage Conservation.*

Course Assignments:

The participants were encouraged to conduct research on the topics presented during the presentations and discuss them in the concluding session.

Expected Time Spent on Course:

Time spent in hours: 12.5 hours

Time spent in ECTS (European Credit Transfer and Accumulation System): 0.5 ECTS

Course Grading

Assessment Criteria and Distribution of Marks:

Class Discussions on the last session based on the research the participants were asked to conduct and attendance of all sessions.

Course Evaluation

Evaluation Procedure & Criteria:

Deans and Academic advisors evaluate and comment upon the course structure before the course in conducted.
After the course, participant evaluation feedback analysis obtained through ERP is made available to individual
faculty.

Faculty Evaluation:

Interaction during the presentation by the mentors

Participant Evaluation:

Standard form has been made available at the end of the session for the participants to fill it and to suggest their learnings as well as regarding the points of improvements for the course.

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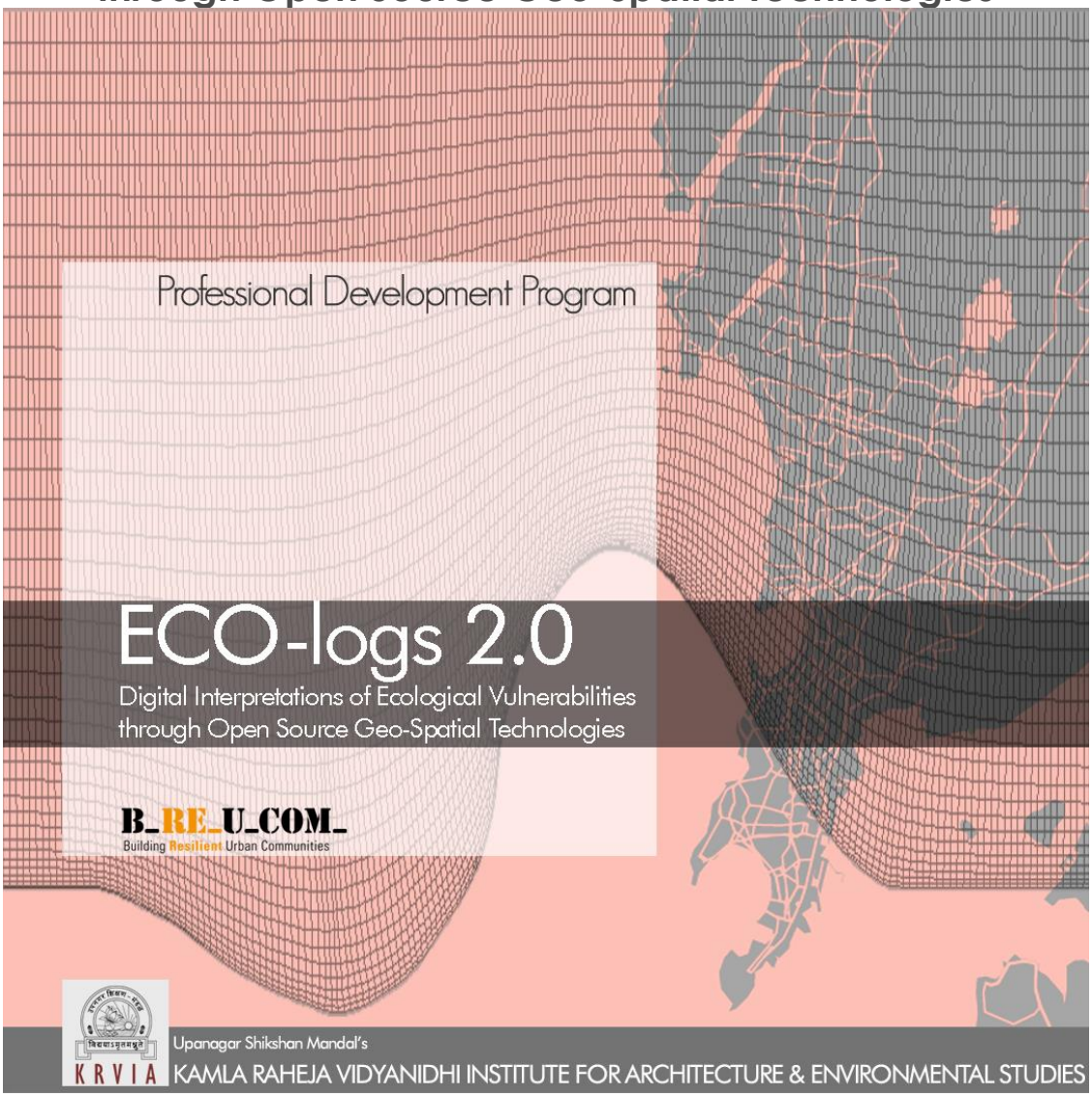
ECO-Logs 2.0

Digital Interpretations of Ecological Vulnerabilities through Open Source Geo-Spatial Technologies



Description of course

Aim:
To focus on visualizing, analyzing and interpreting environmental data using the open source platform Q GIS (Geographical Information System).

Course Objectives:

To introduce participants to using open source geospatial mapping technologies.
To equip participants a basic understanding of mapping vulnerabilities in the cities and peri-urban areas of the global south
To map ecological vulnerability as a sample output for use in spatially-oriented adaptation planning

Learning Outcomes:

The participants will be able to:

- use open-source technologies to map the urban landscape
- organize the concepts of working with layers and attributes
- analyse the mapped data to generate logical learnings from the site

Course Structure

Course Duration:

14.5 hours spread over 2 days

Course Frequency:

Once a Year

Course Format:

The programme is designed as a series of online lectures by the instructors, followed by a discussion with the participants.

Participants are encouraged to interact with the instructors during the interactive session.

Course Content

Prerequisites for Participation:

The participants with a Bachelor's degree in Architecture/Planning. Participants enrolled in Postgraduate programs in Architecture, Landscape Architecture, Urban Design, Urban Planning, Conservation, or related fields will be given priority. Other applicants with a keen interest in Urban Studies can also apply.

Course Syllabus:

The participants shall work together with the mentors, to conceptualize the investigative and mapping process of ecological vulnerabilities and strategize on building resilience in the given situations, in selected sites.

Session 1 Introduction to Q GIS-Fundamentals
Session 2 Q GIS-Basics operations
Session 3 Introduction to Case Sites & Working Session
Session 4 Mapping Workshop
Session 5 Final presentation by participants and Concluding Session

Course Assignments:

The participants are expected to work hands-on in smaller groups on the Open Source Q-GIS Platform with the base data provided by the institution to come up with layered geo referenced maps which the participants will use to analyze and get answers.

Expected Time Spent on Course:

Time spent in hours: 12 hours 30 minutes
Time spent in ECTS (European Credit Transfer and Accumulation System): 0.5 ECTS

Course Grading

Assessment Criteria and Distribution of Marks:

The final presentations by the participants and the work they conducted and their understanding of the topics discussed are assessed

Course Evaluation

Evaluation Procedure & Criteria:

Deans and Academic advisors evaluate and comment upon the PDP structure before the course is conducted after the PDP, participant evaluation feedback analysis obtained through the feedback forms is made available to the PDP team.

Faculty Evaluation:

Interaction during the presentation by the mentors

Participant Evaluation:

Standard form has been made available at the end of the session for the participants to fill it and to suggest their learnings as well as regarding the points of improvements for the course.

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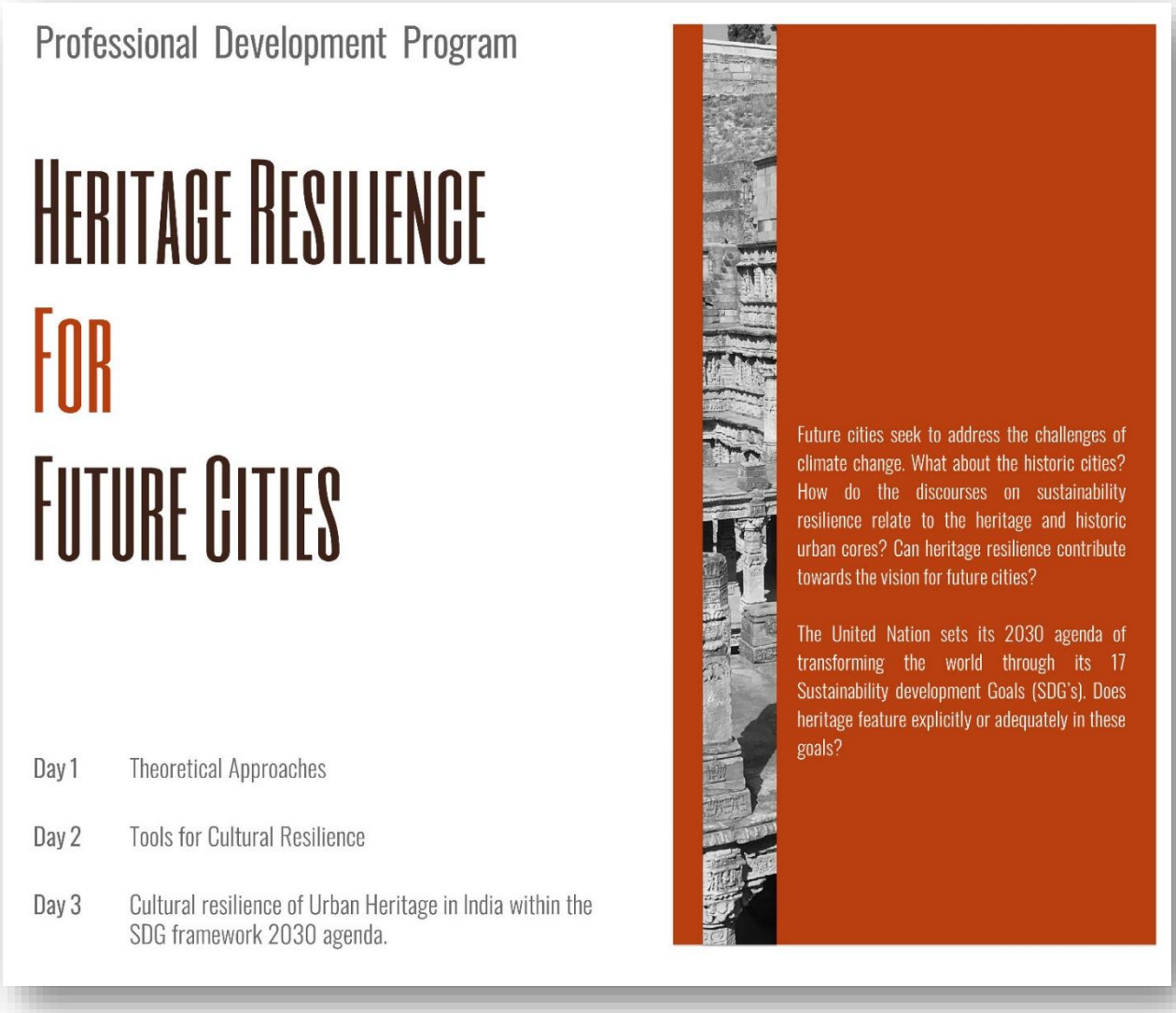
Heritage Resilience for Future Cities



Description of course

Aim:

The professional development program explores the theoretical frameworks of conservation, resilience and sustainability as shifts in paradigms necessary for future of historical cities/ cores.

Course Objectives:

1. The PDP seeks to articulate the theoretical frameworks of conservation, resilience and Sustainability
2. Through case studies, it will also explore the tools of conservation related to Ecological as well as Built Heritage, legislative and participatory tools required while addressing urban growth as well as Infrastructure up gradation.
3. Lastly, it will deliberate on "A white paper for Cultural resilience of Urban Heritage in India within the SDG framework 2030 agenda."

Learning Outcomes:

- Participants will be able to grasp the theoretical concepts of conservation, resilience and sustainability.
- They will be able to identify overlaps of these three theoretical frameworks in the context of urban development and future cities.
- They will be aware of the tools of conservation that are required when addressing urban growth.
- They will be able to articulate some of their ideas for incorporating cultural resilience of urban heritage in India within the sustainability Development Goal framework 2030 agenda.

Course Structure

Course Duration:

3 Days

Course Frequency:

Every year depending on the response of this PDP

Course Format:

1. Illustrated On line lectures using case examples with discussions and Question Answer session.
2. Day long workshop deliberations with deliverables presented for evaluation at the end of session

Course Content

Prerequisites for Participation:

Participants should have completed their undergraduate program preferably in architecture/ planning/ social sciences/ Environmental sciences or any of the urban environment related studies. While the lectures will be available to a maximum of 100 participants who register, the last days workshop can accommodate only 40 participants.

Course Syllabus:

Day 1 Theoretical Approaches using Case Studies

1. *Talk 1: Resilience and Conservation:Theoretical Approaches... living heritage and historic native towns*
2. *Talk 2: Sustainability and Cultural Heritage*
3. *Talk 3: Cultural heritage Resilience in times of Pandemics*
4. *Curated discussion*
5. *QnA*
6. *Introduction to 3 Day Working Session*

Day 2 Tools for Cultural Resilience using Case Studies

1. *Talk 1: Historic water Infrastructure and its future*
2. *Talk 2: Urban Growth, Infrastructure and Heritage*

3. *Talk 3: People, participation and Urban Heritage*
4. *Curated discussion*
5. *QnA*

Day 3 Working Sessions and Presentations

1. *Working session: Deliberations on "**A white paper for Cultural resilience of Urban Heritage in India within the SDG framework 2030 agenda**."*
2. *Participants presentation*
3. *Closing session*

Course Assignments:

Group exercise leading to "**A Draft white paper for Cultural resilience of Urban Heritage in India within the SDG framework 2030 agenda**."

Expected Time Spent on Course:

Time spent in hours: 3 hours of online interaction + 16 hours over 3 days in exploring by self.

Time spent in ECTS (European Credit Transfer and Accumulation System): < 1 ECTS = 25 hours > 1ECTS

Course Grading

Assessment Criteria and Distribution of Marks:

Stages & Details	***Percentage of Total Marks***
1. Day 1 Theoretical Frameworks- Multiple Choice Questions	*20%*
2. Day 2 Theoretical Frameworks- Multiple Choice Questions	*20%*
3. Day 3 Contributions to the white paper	*50%*
4. Attendance and Punctuality	*10%*
Total	***100%***

Course Evaluation

Evaluation Procedure & Criteria:

Deans and Academic advisors evaluate and comment upon the PDP structure before the course in conducted. After the PDP, participant evaluation feedback analysis obtained through the feedback forms is made available to the PDP team.

Faculty Evaluation:

Interaction during the presentation by the mentors.

Participant Evaluation:

Standard format by way of a questionnaire is available for the participants to suggest their learnings as well as areas in which the course can improve.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Heat Stress and Thermal Comfort

Image Source: Photo by Sreehari Devadas on Unsplash

Description of course

Aim:

The course will enable participants to understand some of the state-of-the-art tools and techniques that are used in thermal comfort and heat stress related studies in an urban setting. In India, the planning and design of low-income housing or resettlement of colonies has historically been dominated by politics with cost of the unit and quantity being prioritized over quality and comfort. In a country that experiences different climatic conditions throughout the year, buildings need to be responsive to the local climate that helps in improving the thermal comfort of the inhabitants. For understanding, mapping and drawing planning & design guidelines for accessing and improving the thermal conditions of a low-income rehabilitated housing settlement. This course shall overlay the approach to investigate in development of comprehensive methodology for carrying out thermal comfort studies with a focus on resettlement colonies.

Course Objectives:

The main objective of the six day online 'Professional Development Programme (PDP)' was to update and develop capacities of professionals and researchers working in the field of thermal comfort studies in urban setting.

Learning Outcomes:

The participants can expect a stimulating, intellectual and enriching technical experience aimed at augmenting their skills and capacities on Heat Stress, thermal comfort models, modeling techniques etc

Course Structure

Course Duration:

Six-Day programs, with two sessions per day

Course Frequency:

Yearly and as per the demand

Course Format:

Course format includes Lectures, Workshops, Lab and Short-term Project

Course Content

Prerequisites for Participation:

Architects, Urban Designers, Energy Analysts are eligible

Course Syllabus:

Introduction to Building Physics characteristics, traditional wisdom Thermal comfort and adaptation strategies for mitigating adverse heat waves. Construction techniques, sensitive planning and design of buildings and settlements etc.

1. *Comfort Models and techniques of study*
2. *Heat stress -Urban Heat Island modeling approaches*
3. *Quantitative tools and techniques for thermal comfort study*
4. *Instruments and field measurements protocols and emerging techniques*
5. *Case Studies*

Course Assignments:

Reading published resources on thermal comfort study and Hands on experiments with thermal comfort related instruments.

Expected Time Spent on Course:

Time spent in hours: Minimum of 40 hours

Time spent in ECTS (European Credit Transfer and Accumulation System): No Credit

Course Evaluation

Evaluation Procedure & Criteria:

Predesigned feedback forms from the participants shall be evaluated at the end of the course.

Faculty Evaluation:

Interaction during the presentation by the mentors.

Participant Evaluation:

The participant evaluation shall be done by the mentors.

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Traditional knowledge in Urban Resilience

Image Source: Photo by rhoda alex on Unsplash

Description of course

Aim:

The aim is to enable participants to understand some of the state-of-the-art tools and techniques that stand chances of replication in planning and administration of cities, in order to address the challenges of traditional knowledge in a systematic manner. Urban dynamics through system-based modelling, use of geo-informatics and statistical and computing tools to address directly special planning concepts related to traditional knowledge shall be discussed over these sub-themes covering - Sustainable Urban fabric, Factors influencing resilience in hills, Energy auditing for Built Environment, Learning from conventional construction in Hills, Role of disaster management in community, Planning of Green Architecture, Traditional practices of Hills, Evaluation methods for resilience, Social implication of resilience, Virtual site Visit, Energy conservation, Role of rating systems in building resilience, Role of GIS in planning.

Course Objectives:

This course shall pave the way to explore the traditional wisdoms and best practices which can be applied in contemporary world with respect to adaptation to disasters and climate change with a focus on built environment.

- To impart the important of traditional wisdom and knowledge, and its relevance today

Learning Outcomes:

Participants shall learn the traditional concepts and techniques from various cases studies across the country for understanding the traditional concepts for coping up with sustainability issues.

Course Structure

Course Duration:

Six-Day programs, with two sessions per day

Course Frequency:

Yearly and as per the demand

Course Format:

Course format includes Lectures, Workshops, Lab and Short-term Project

Course Content

Prerequisites for Participation:

Architects, Urban Planners, Civil Engineers, Historians are eligible

Course Syllabus:

1. *Socio-cultural aspects in the spatial formation of traditional buildings*
2. *Indigenous knowledge, antiquity and Indian vernacular architecture concepts*
3. *Sustainable Architectural concepts in history*
4. *Traditional wisdom and sustainable concepts for planning and design*

Course Assignments:

Reading published resources on traditional knowledge and indigenous practices.

Expected Time Spent on Course:

Time spent in hours: Minimum of 40 hours

Time spent in ECTS (European Credit Transfer and Accumulation System): No Credit

Course Evaluation

Evaluation Procedure & Criteria:

Predesigned feedback forms from the participants shall be evaluated.

Faculty Evaluation:

Interaction during the presentation by the mentors.

Participant Evaluation:

Predesigned feedback forms from the participants shall be evaluated.

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Urban Dynamics and Climate Resilience

Image Source: Photo by Kim Eang Eng on Unsplash

Description of course

Aim:

The PDP is envisioned to bringing together a select combination of eminent experts representing the leading think-tanks of planning academia and practice, who shall share some of their application-oriented professional and research works. This shall enable participants to understand some of the state-of-the-art tools and techniques that stand chances of replication in planning and administration of cities, in order to address the challenges of Climate Change in a systematic manner.

Urban dynamics through system-based modelling, use of geo-informatics, and statistical and computing tools to address direct spatial planning concerns related to climate change shall be discussed over four sub-themes covering – Energy, Heat Stress, Flooding, Local Climate Change and Emerging Techniques.

Course Objectives:

The main objective of the six day online 'Professional Development Programme (PDP)' was to update and develop capacities of professionals and researchers working in the field of urban planning, climate resilience and environmental management. The programme also aimed to bring together a selected combination of eminent experts representing the leading think-tanks of planning academia and practice, who shared some of their application-oriented professional and research works.

Learning Outcomes:

The participants can expect a stimulating, intellectual and enriching technical experience aimed at augmenting their skills and capacities on Heat Stress, Flooding, Local Climate Change, Energy, and Emerging Techniques.

Course Structure

Course Duration:

Six-Day programs, with two sessions per day

Course Frequency:

Yearly and as per the demand

Course Format:

Course format includes Lectures, Workshops, Lab and Short-term Project

Course Content

Prerequisites for Participation:

Architects, Urban Planners, Civil Engineers, Energy Analysts are eligible

Course Syllabus:

1. *Climate Change and Planning- Overview*
2. *Flooding and Cities*
3. *Heat, Emissions and Co-Benefits*
4. *System Dynamics, Energy and Cities*
5. *Emerging Techniques and Tools*
6. *Transport and Climate Change*

Course Assignments:

Reading published resources on climate change and Hands on Short Project

Expected Time Spent on Course:

Time spent in hours: Minimum of 40 hours

Time spent in ECTS (European Credit Transfer and Accumulation System): No Credit

Course Evaluation

Evaluation Procedure & Criteria:

Predesigned feedback forms from the participants shall be evaluated.

Faculty Evaluation:

Interaction during the presentation by the mentors.

Participant Evaluation:

Predesigned feedback forms from the participants shall be evaluated.

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Applications of GIS in Urban Resilience Planning

Image Source: Photo by NASA on Unsplash

Description of course

Aim:

Geographic Information Systems (GIS) is an increasingly sought-after tools in the field of Urban Planning and Management. This Professional Development Program (PDP) gives an overview of the required skills needed to successfully use the GIS software for decision making. The program provides insights on analyzing spatial data, using cartographic techniques to communicate results in maps, and accordingly collaborate with professionals and decision makers. Furthermore, there is a growing demand for the usage of geo-spatial tools in India due to its applications in urban planning. Currently, the use of GIS is predominately limited to mapping. However, capacity building programs such as this, would help the professionals understand the analytical aspects of GIS through comprehensive webinar series that sheds light on various methods to create a professional GIS portfolio, using a combination of data identification, collection, and analysis techniques. The Participants will be exposed to various case studies in order to gain experience and skills related to geographic information systems from the experts in the field. Each session is designed to demonstrate specific urban/regional problem; currently being faced in India and the applications of GIS in addressing the same. This course shall help the participants in developing skills to use geo-spatial decision support tools like GIS for urban resilience planning. These skills are required to process

the complex spatial dataset available to understand the dynamics of urban growth and resilience planning.

Course Objectives:

This course shall help the participants in developing skills in using geospatial decision support tools like GIS for resilience planning. These skills are required to process the complex spatial dataset available to understand the dynamics of urban growth and resilience planning.

- To train the professionals with state-of-the-art decision support tool such as GIS

Learning Outcomes:

Application of GIS for Environmental Sustainability, Socio-Environment Resilience, Settlement, and Building Physics characteristics, Communities, and Resilience, Mapping tools, and techniques

Course Structure

Course Duration:

Six-Day programs, with two sessions per day

Course Frequency:

Yearly and as per the demand

Course Format:

Course format includes Lectures, Workshops, Lab and Short-term Project

Course Content

Prerequisites for Participation:

Limited participants as it involves hands-on training, a basic understanding of GIS is required, Architects, Urban Planners are eligible

Course Syllabus:

1. *Applications of GIS in Urban Planning: GIS as a tool in Urban planning, analysis and decision*
2. *Geo-spatial data structure, system requirements and tools: Data and systems requirements and Open source GIS*
3. *Geo-spatial applications in environmental planning and urban climate studies: GIS application in environmental planning and urban climate studies - Case studies*
4. *Geo-spatial Applications in Disaster Planning and Management: GIS application in disaster planning and management - Case studies*
5. *Current Research in Geo-spatial Applications in Urban Planning, Management and Resilience: Recent trends, 3D GIS Mapping, Modeling Tools*

Course Assignments:

Data procurement from opens source platforms, case area identification, mapping of the case area etc.

Expected Time Spent on Course:

Time spent in hours: Minimum of 40 hours

Time spent in ECTS (European Credit Transfer and Accumulation System): No Credit

Course Evaluation

Evaluation Procedure & Criteria:

Predesigned feedback forms from the participants shall be evaluated.

Faculty Evaluation:

Interaction during the presentation by the mentors.

Participant Evaluation:

Predesigned feedback forms from the participants shall be evaluated.


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Settlement Planning and Design in Hilly Terrain

Image Source: Photo by Chaitanya Rayampally on Unsplash

Description of course

Aim:

Planning and designing of buildings in a hilly terrain are tedious and difficult task due to complicated terrain, steep gradient, adverse climatic conditions, rich flora and proneness to natural hazards. In response to these harsh development situations, numerous vernacular practices and styles have evolved with local materials and indigenous techniques to fulfil the needs of people, which cause minimal damage to environment and are sustainable. But, in spite of numerous benefits of these vernacular practices, these are often not used for new development due to increased demand for more built spaces due to rapid growth, availability of new construction materials and techniques and reluctance of residents to adopt vernacular practices. This course is looking forward to sensitize the professionals with an importance of Vernacular practices in modern Architecture practices for designing in Hilly terrain and process can be integrated to strengthen the planning of settlement.

Course Objectives:

This course shall pave the way to explore the sustainability settlement concepts and best practices which can be applied in contemporary world with respect to adaptation to disasters and climate change with a focus on built environment.

- To impart the important of sustainable settlement planning in hilly terrain.

Learning Outcomes:

Participants shall learn the traditional concepts and techniques from various cases studies across the country for understanding the traditional concepts for coping up with sustainability issues pertaining to settlement planning and design in hilly region.

Course Structure

Course Duration:

Six-Day programs, with two sessions per day

Course Frequency:

Yearly and as per the demand

Course Format:

Course format includes Lectures, Workshops, Lab and Short-term Project

Course Content

Prerequisites for Participation:

Architects, Urban Planners, Civil Engineers, Historians are eligible

Course Syllabus:

1. *Sustainable planning principles in hilly region*
2. *Spatial planning tools and techniques.*
3. *Environmental issues and hilly terrain*
4. *Traditional wisdom and sustainable concepts for planning and design*

Course Assignments:

Reading published resources on traditional knowledge and indigenous practices.

Expected Time Spent on Course:

Time spent in hours: Minimum of 40 hours

Time spent in ECTS (European Credit Transfer and Accumulation System): No Credit

Course Evaluation

Evaluation Procedure & Criteria:

Predesigned feedback forms from the participants shall be evaluated.

Faculty Evaluation:

Interaction during the presentation by the mentors.

Participant Evaluation:

Predesigned feedback forms from the participants shall be evaluated.

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Urban Resilience and Transforming Communities

Image Source: Photo by Charl Folscher on Unsplash

Description of course

Aim:

The PDP aimed to disseminate knowledge on the concept of urban resilience, particularly in the context of Indian cities due to rapidly changing urban environment, that has gained prominence in the recent times. The prime intent of the PDP was to disseminate knowledge (both theoretical and practical) through a combination of innovate pedagogical methods. The PDP also aimed at integrating the contents with the sustainable development goals SDG 11 (Sustainable Cities and Communities) and SDG 13 (Climate Action) to address the various challenges and threats due to the socio-economic, environmental and climate related issues in the urban areas, which continue to exist.

Course Objectives:

1. To understand and address the chronic stresses and acute shocks due to urbanisation, climate change, urban poverty, etc., highlighting the need to confront present and upcoming related urban challenges by building resilience and developing solutions for a sustainable transformation of communities.
2. To disseminate knowledge and to strengthen adaptability assessment and resilience in the urban communities including the marginalised

Learning Outcomes:

The participants not only gained the formal modern knowledge but also gained the tacit knowledge related to the urban resilience. Through these innovative teaching methods, the knowledge was imparted for addressing the various challenges and threats due to the socio-economic and environmental issues in the urban areas. The PDP enabled the participants to understand various aspects of sustainable urban communities and adaptive systems for the urban resilience.

Course Structure

Course Duration:

Five Days

Course Frequency:

As per the demand

Course Format:

The PDP was disseminated through a combination of lectures, group discussions, work sessions, and assignments. The case studies conducted as a part of BReUCom were presented and discussed with the participants in the work sessions. These case participants helped the participants to understand the resilient issues in different climatic zones of India.

Course Content

Prerequisites for Participation:

The PDP was open to the professionals, researchers and participants from various backgrounds such as planning, architecture, civil engineering, etc. The participants of undergraduate, postgraduate and doctoral programmes participated in the PDP.

Course Syllabus:

• The main theme of the PDP 'Urban Resilience and Transforming Communities' dealt with various dimensions of urban resilience. Four sub-themes were designed. They were climate change and resilience, marginalized communities, institutional resilience, pandemic and resilience.

• Under these sub-themes, various relevant government policies and programmes, adaptive measures or systems were discussed to address the challenges of urban resilience. Also the theme focused on how the resilient cities can be better positioned or equipped in comparison to the other cities in terms of enhancement of the quality of life, improved urban environment and better mechanism to address such challenges.

• New perspectives were covered related to the theme. The PDP content covered was specific to the overall theme and was very much educative in nature. Moreover, the content dealt with landuse from

spatial and planning perspectives, water issues, and related challenges at all levels, starting from micro to macro levels i.e., from neighbourhood level to ward level to city level to the regional level

Course Assignments:

• The participants were divided into four groups and each of the groups was given one sub-theme. Each group worked on the identified city in India. The discussion on their work was conducted through online interactive exercises using Jam Board during the work sessions. All the participants actively participated and appreciated these interactive and dynamic exercises. Besides, the participants also said that they liked the creative use of digital platforms, education, conversation and content of the PDP.

• Besides, recent and emerging relevant knowledge related to the transformation of urban communities in the context of the climate change and urban resilience was also prioritised.

• The case studies of various Indian cities helped in dissemination of such knowledge. The course contents were delivered through a combination of online lectures, group discussions, work sessions, and assignments. This interaction acted as an interface between the participants, the experts and organising members of the BReUCom team.

Expected Time Spent on Course:

Time spent in hours:

Time spent in ECTS (European Credit Transfer and Accumulation System):

Course Grading

Not applicable, as no specific criteria were followed. However, inputs were provided to the participants to improve their works.

Course Evaluation

Evaluation Procedure & Criteria:

Based upon the common evaluation proforma prepared by WP4 leader institutes

Faculty Evaluation:

Feedback attached and submitted for the course to WP3 and WP4 leader institutes

Participant Evaluation:

Based upon the common evaluation proforma

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Marginalized Communities and Resilience

Image Source: Photo by Alfarnas Solkar on Unsplash

Description of course

Aim:

The idea of this PDP was to develop a holistic understanding of how climate change affects the marginalized one in an urban environment. The course will sequentially explore the stages of analysis to compressively map the communities and their spatial relationship.

Course Objectives:

To make professionals aware about Innovative urban practices that include co-design through existing networks and systems, community-based initiatives, ungendered design, and local governance to address the climate change and marginalized. The aim of this program is also to train the professionals for in-depth qualitative assessment of preparedness, communication, adaptability, and resilience in marginalized communities

Learning Outcomes:

Through a total of five lecture sessions, an attempt was made to cover the multidisciplinary perspectives addressing the placing of the marginalized communities in current discourse of climate change and resilience. The PDP addressed the marginalized communities in the background of homelessness, climate change, urban poverty, gender studies etc., highlighting the need for professional to find out and adapt to new practices of mapping, documenting the marginalized communities in cities and contextualizing the resilience as a strategy.

Course Structure

Course Duration:

Five Days

Course Frequency:

As per the demand

Course Format:

The Programme was conducted through a combination of lectures, group discussions, work sessions, and 3 major assignments. The professional development programme covered the concept of urban resilience and marginalized communities. Through sharing of BreUCom case studies of SPA Bhopal, participants were introduced to various methods of qualitative, narrative methods of identifying and documenting the issues related to marginalized communities in both spatial and non-spatial contexts.

Course Content

Prerequisites for Participation:

The PDP was designed for professionals, academicians and participants with a background from architecture, planning, science, economics, sociology. Members of govt. bodies and NGO's working in the field of capacity building, disaster management and resilience, and planning also participated in this PDP.

Course Syllabus:

A total of 20 participants from various backgrounds such as planning, architecture, sociology, etc. participated in the programme. The resource persons gave special inputs on migration, poverty, and resilience, changed weather patterns & climate and its impact on livelihoods and resilience of the communities, and gendered vulnerabilities of homeless people. Participants responded to the assignments by making actor-network diagrams based on lectures and BreUCom case studies. They brought in the perspectives of their own cities and issues therein.

Course Assignments:

Participants responded to the assignments by making actor-network diagrams based on lectures and BreUCom case studies. Last day of the programme saw presentations made by participants through posters designed on various selected themes

Expected Time Spent on Course:

Time spent in hours:

Time spent in ECTS (European Credit Transfer and Accumulation System):

Course Grading

Not applicable, as no specific criteria were followed. However, inputs were provided to the participants to improve their works.

Course Evaluation

Evaluation Procedure & Criteria:

Based upon the common evaluation proforma prepared by WP4 leader institutes

Faculty Evaluation:

Feedback attached and submitted for the course to WP3 and WP4 leader institutes

Participant Evaluation:

Based upon the common evaluation proforma

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Institutional Resilience for Informed Decisions

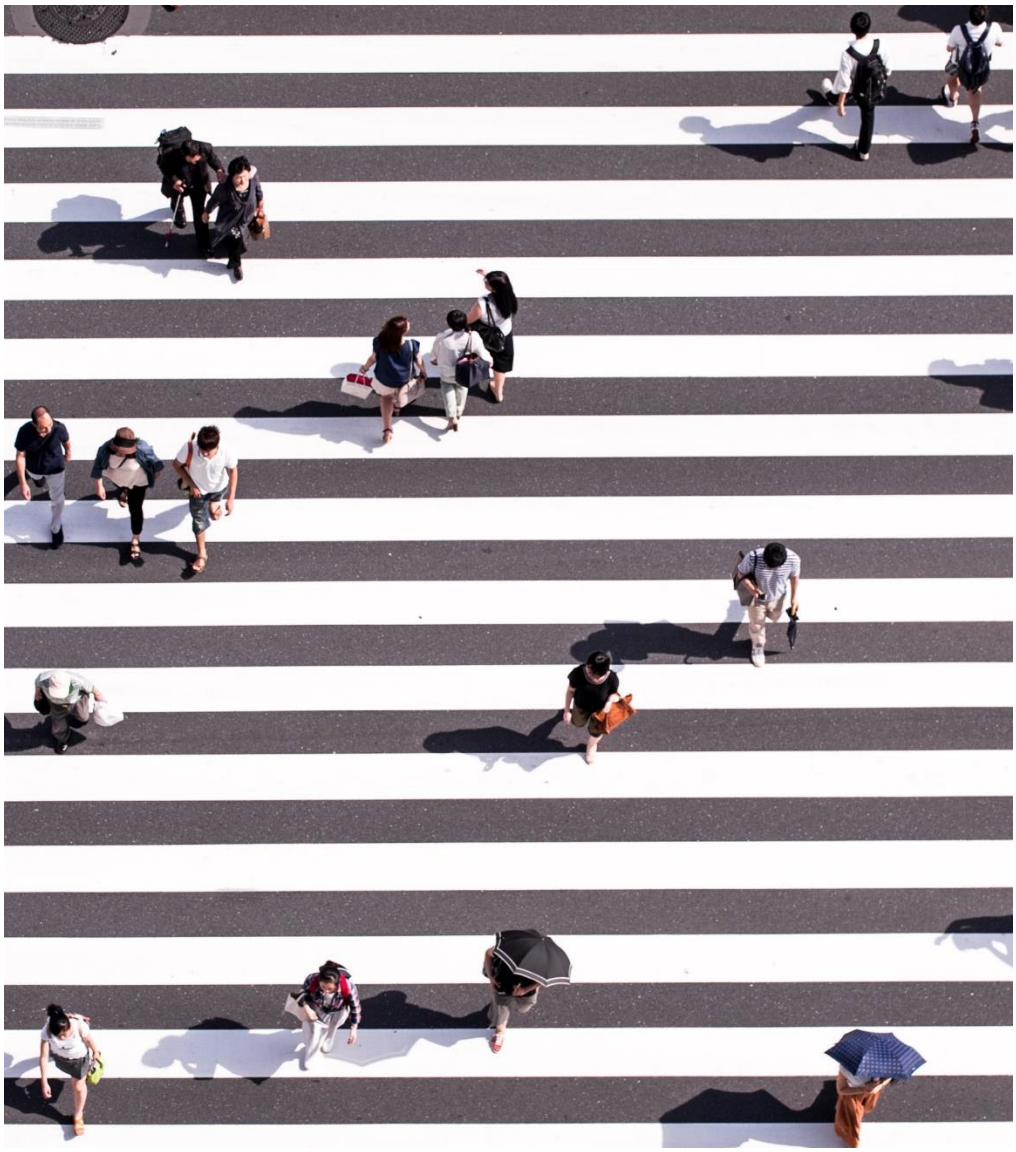

Image Source: Photo by Ryoji Iwata on Unsplash

Description of course

Aim:

The PDP aimed at building an understanding of the nuances of institutional resilience regarding the ability to manage challenges in a more effective manner amongst the professionals in the field.

Course Objectives:

The training programme focused on developing a holistic understanding of institutional resilience through exploring the links between the society, community, and the environment in terms of dealing with disasters and building resilience.

Learning Outcomes:

The participants gained an understanding on the nuances of institutional resilience through the case studies, the lecture series, and the discussions. The assignment enabled the participants to apply the gained knowledge in understanding the cases better and triggered the critical thinking. Through the various groups, and exchange of knowledge, the participants presented PowerPoints on the respective cities [Mumbai, Gurugram, Gorakhpur, Jabalpur], linking with institutional resilience.

Course Structure

Course Duration:

Five Days

Course Frequency:

It will be conducted as and when required for dissemination

Course Format:

The Programme was conducted through a combination of lectures, group discussions, work sessions, and one major assignment. The professional development programme covered the concept of Institutional resilience. Through various expert lectures as elaborated in the next section the various aspects of formal and informal institution were discussed. Participants were introduced to various methods related to understanding and identifying the various actors involved related to the issues confronted by the cities. The interlinkages between various actors (both formal and informal) were further explored for addressing the identified issues.

Course Content

Prerequisites for Participation:

The PDP was designed for professionals, academicians and participants with a background from architecture, planning, science, economics, sociology. Members of govt. bodies and NGO's working in the field of capacity building, disaster management and resilience, and planning also participated in this PDP.

Course Syllabus:

The programme initiated by the inaugural address given by Prof. N. Sridharan, director SPA Bhopal. The keynote address to start off the session was given by Dr. Marie Helene Zerah, Research Director with the French National Research Institute or Sustainable Development (IRD).

Dr. Marie Helene Zerah- Beginning with the program, Dr Zerah in her discourse gave a backdrop about resilience as a way of thinking about the complexities of building communities. She presented through the several nuances of resilience including urban infrastructure resilience, the issues that need to be addressed, the prevalent gaps, and building collective action framework towards resilience. She sets out the highlights of her fieldwork in Mumbai's Sanjay Gandhi National Park. It concluded by building a

framework for collaborative action and emphasizing the importance of continuous engagement and exchange of knowledge between the various stakeholders involved in the urban system.

D. K. Bhalla retired IAS, advisor and consultant with Nagaland House, Government of Nagaland succeeded the program with his insightful lecture on the local self-governance in the Northeast of India, with the case of Nagaland. He outlined Nagaland's timeline in terms of administration and governance. He enlightened the participants about the uniqueness, legal status, and the establishment of village councils in Nagaland. With the Area Council Act into action, the Village Development Boards were formed and the devolution of power to the villages. With the Area Council Act into action, the Village Development Boards were formed and the devolution of power to the villages. He elaborated by examples of participatory democracy and how it reflects on the local needs and interests of the decentralized system and the village councils. It also concentrated on its advantages with the communalization of public and institutional services as a good practice in the villages of Nagaland.

Carsten Butsch, post-doctoral researcher at the university of Cologne in Germany, delivered a talk on 'Disaster and Resilience-Geographic Perspectives'. Presenting Risk Governance analysis in the Megacity (Mumbai, India) - A Dynamic Adaptive Structure Perspective, Butsch stressed synergies between the environment and the various stakeholders. Drawing a background about climate change, increased risk vulnerability, and hazards through the context of mega-cities, he informed about the Complex Adaptive System perspective and the complex but comprehensive multi-stakeholder risk framework for it. The presentation focused on the three configurations, pre-disaster, aftermath, and recovery from hazards. Through an engaging quiz with the participants about the Mumbai flood scenario, he explained the complexities of threats and risk control with support and local participation.

Maria Lobo, associated with the Society for the Promotion of Area Resource Centres (SPARC) presented on 'Community as Institutions- Concepts of Resilience'. By raising the questions like what resilience is and how communities deal with it, the lecture focused on the several dimensions of communities linked with other stakeholders and the systems and processes interlinked with policy and planning. By explaining the sustainable slum planning and the grassroot facilitators involved in it, the presentation stressed on formation of partnerships at various scales. Lobo also emphasized about the processes at grassroot level as means to creating sustainable slum planning methods. The processes include community mobilization and capacity building and building partnerships for social inclusion and ultimately effecting policy change.

Rama U. Pandey- The case of BReUCom project in Jodhpur, Rajasthan on Community and Institutional Resilience was presented by Dr. Rama Pandey. The case presented was about Resilience to Climate Change Impacts: Water and Heat Stress. It aimed at understanding the perspectives of the locals with respect to the stresses caused by climate change in the city and studying the traditional methods of construction to cope with the heat stress. With the local knowledge as the backdrop for the issues and stresses, the emphasis was given on building resilience with the local communities as an integral part.

Natraj Kranthi- The research on Pandemic and Institutional Resilience through the lens of Spatial Convergence was presented by Natraj Kranthi. Through the research of COVID-19 pandemic spread in India the research identified the spatial planning factors associated with it. With the details of four Metropolitan cities, the results related to these factors and the suggestions and conclusions were discussed. The risk spatial factors were identified based on the risk zone mapping, and suggestions regarding built up density, shared facilities, and strict compliance to standards was provided. The study presented aimed at identifying the risk spatial factors directly or indirectly instrumental in spread of COVID-19 and the results showcased the 14 spatial factors identified.

N. M. Prusty- N. M. Prusty, Director, Chief Mentor cum Director at Centre or Development and Disaster Management Support Services (CDMASS), New Delhi, presented on Urban Resilience in the context of Disasters Risk Reduction. With a focus on DRR in urban systems, the lecture drew onto the basics of

resilience, adaptive capacity, preparedness, and response to hazards. After briefly explaining the NDMA Plan 2016, he explained the Local Resilience Action Plan for identifying priorities of action and designing feasible programs with financing strategies. He also emphasized on the elements of resilience in urban disasters, phases of the disaster, and preparing the organisations for response.

Barsha Poricha- Barsha Poricha associated with Centre for Urban and Regional Excellence (CURE) with her insightful presentation talked about Informed decision making and enhanced Resilience in urban informal settlements from the civil society perspective. Through her presentation on Empowered People/ Resilient Habitats Strengthening Institutional and Community Resilience, she gave a background to the areas of work undertaken by CURE. Furthermore, she added onto the aspects of capacity building, data and maps, and multisectoral partnerships in terms of institution and policy frameworks for resilience. Poricha established that the work can be undertaken by mainstreaming resilience into policies, infrastructure investment, city planning processes, and prioritizing and budgeting for resilience activities by local governments. She also emphasized the need to informing decision making through data and map-based governance.

Post the guest lectures, the case BReUCom case studies of Mumbai and Ziro Valley were presented by Anand Wadwekar and Saurabh Tewari respectively.

Anand Wadwekar- Presenting the case study of Mumbai, Gazdhar Bandh in particular, Wadwekar emphasized on the dimensions of resilience associated with the community, such as mixed uses, socio-cultural setup, flexibility, redundancy, and everyday adaptability. Along with resilience, he also touched upon aspects such as ecological ignorance, unawareness about climate change, individual approach rather than collective efforts, that makes the community vulnerable. Drawing upon the analysis, the discussion concluded with the linkages between risk, exposure, and vulnerability in terms of socio-economic dimension, infrastructure and environment.

Saurabh Tewari- Presenting the case study, Culture and Urban Resilience drawn from the experiences rom Ziro Valley, Tewari discussed the potential to advance the tenets of resilience thinking in terms of environmental, socio-economic, and cultural aspects in the next paradigm of urban resilience. With the study of Apatanis and their background, the conceptual framework of Craft-Culture-Community was developed. The case study offered opportunities to investigate cultural aspect through its integrated resilience practices and continuums to evolve.

Mihir Bhatt- Mihir Bhatt, Director, All India Disaster Mitigation Institute, Ahmedabad shared his insights on Informal institutions and their role in building institutional resilience. Linking institutional resilience to climate change uncertainty, the presentation advanced towards specific case of institutional resilience and air pollution and resilience in the future. Drawing onto his personal experience, Bhatt established the changing dynamics of institutions, resilience, being informed and addressing this rapidly changing context. He highlighted the importance of not just institutional resilience, but resilience that is transformative and for the institution as well. He also touched upon the need to move towards community-led institutional resilience and not only at the grassroot level but also at several levels. He discussed the work of AIDMI with the marginalised communities of Kutch, Mumbai, and the Sunderbans for showcasing the need to integrate various perspectives of uncertainty. He concluded by throwing a light on not letting the idea of institutional resilience be appropriated with neo-liberalism and to be informed by participation and engagement of empowered citizens.

Bala Prasad- The sessions of lecture series concluded by Bala Prasad, retired Special Secretary at Ministry of Panchayati Raj, Government of India, on Panchayati Raj and Institutional Resilience. Through his highly insightful presentation, he explained the Panchayati Raj institutions, preparation of Gram Panchayat Development Plans, Block and District Development Plans, disasters occurring in India, the disaster management plan of Ministry of Panchayati Raj. Furthermore, he added onto how institutional resilience can be achieved through Panchayati Raj system in the rural counterparts for managing disasters comprehensively.

The resource persons gave special inputs on migration, poverty, and resilience, changed weather patterns & climate and its impact on livelihoods and resilience of the communities, and gendered vulnerabilities of homeless people. Participants responded to the assignments by making actor-network diagrams based on lectures and BreUCom case studies. They brought in the perspectives of their own cities and issues therein.

Course Assignments:

The thrust of the assignment was to develop the holistic understanding for Institutional Resilience through exploring the various linkages between structures, processes, and actors. The participants were encouraged to highlight the role of various formal and informal institutions in addressing the challenges pertaining to urban areas. Through tasks such as reviewing case studies and conducting a study of a particular city to understand the nuances, the assignment was conducted.

The assignment also pushed towards exploring the several stakeholders and actors in a particular system and highlight the weak and strong institutional linkages and possibilities for addressing the stresses and filling the gaps identified. Furthermore, the possibilities of transferring SDGs at local level for addressing the stresses were also explored

Expected Time Spent on Course:

Time spent in hours: 6 hours per day for five days

Time spent in ECTS (European Credit Transfer and Accumulation System): 1 ECTS

Course Grading

This was five days PDP wherein participants understanding was assessed based on application of the concepts discussed during presentation of the assignment on the last day.

Course Evaluation

Evaluation Procedure & Criteria:

Based upon the common evaluation proforma prepared by WP4 leader institutes

Faculty Evaluation:

Based upon the common evaluation

Participant Evaluation:

Participants were evaluated based upon their performance in the assignment and discussion during question-and-answer sessions.

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Visioning Resilient Jodhpur

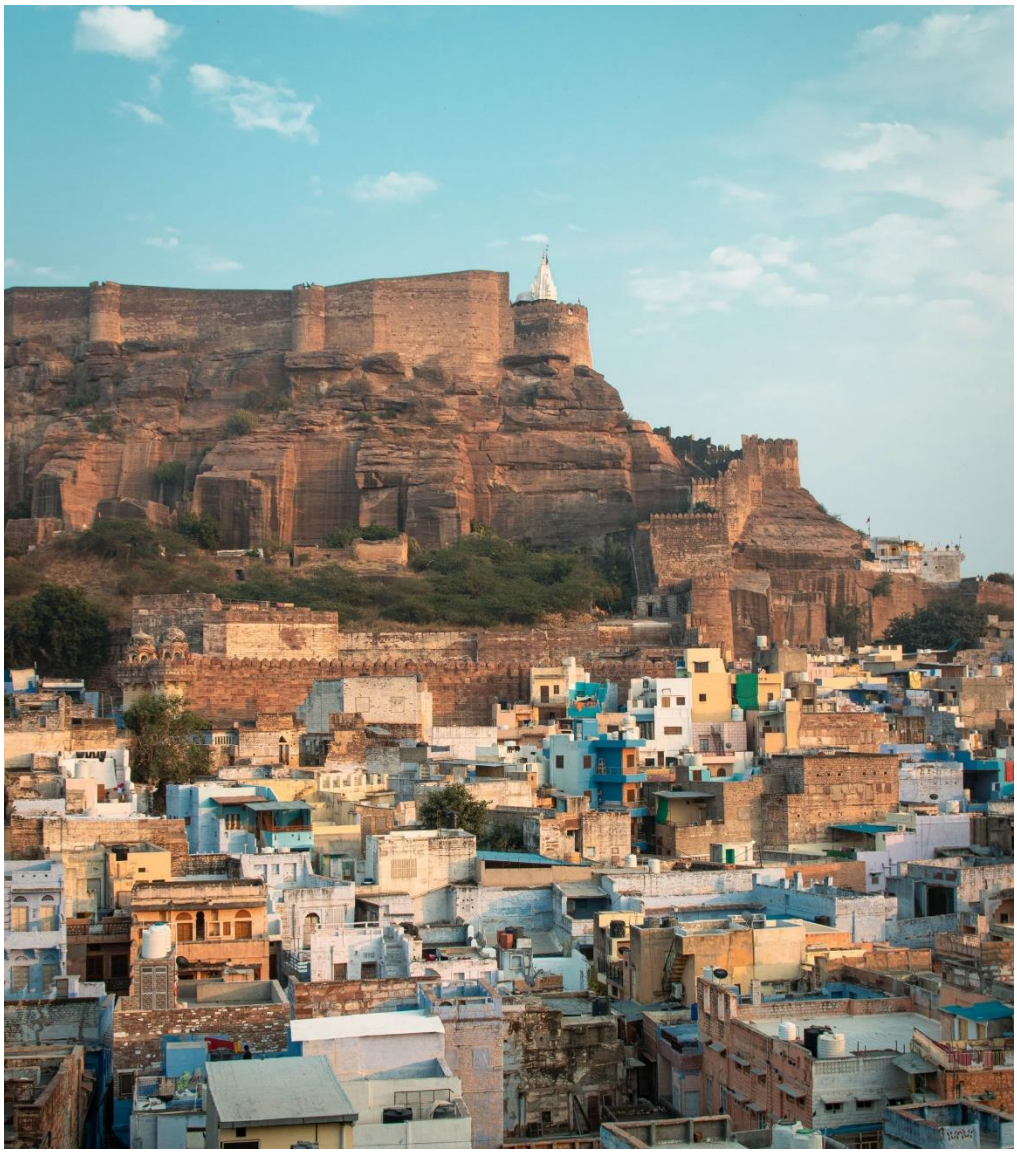

Image Source: Photo by Giuliano Gabella on Unsplash

Description of course

Aim:

Aim of this PDP is developing the holistic understanding for enhancing resilience of built environment through exploring the various linkages between built structures, natural resources, socio-economic conditions, technology, traditional knowledge practices, and community.

Course Objectives:

Understanding the concerns of the people related to the built spaces and their level of interactions with the surrounding natural environment in adopting the people centric approaches for designing or planning at a local level. The focus was through understanding the few representative-built typology of a city the participants would be able to come up with a vision for the selected area of their city by defining the strategies for the future development that will make the city resilient towards the stresses they are confronting.

Learning Outcomes:

The participants through the learnings from the field experience were able to document the transformation in the study area and could identify the challenges. They developed the skills to interact and conduct interviews with the local community. They could highlight the interrelationship of community with the identified challenges. The participants through attending the presentation of other groups learnt about the varied challenges faced by the people of their city in different localities.
The PDP certainly has inculcated the critical thinking process in the participants. They now can think for the future of cities. They will try to foresee the repercussions of the project designed/ planned today by them in terms of its sustainability in the future

Course Structure

Course Duration:

Five Days

Course Frequency:

It will be conducted as and when required for dissemination

Course Format:

The Program was conducted through a combination of lectures, group discussions, work sessions, and field visits. The professional development program covered formulation of 'vision' for future developments for making settlements resilient. We emphasized on understanding and gaining knowledge through field experience, so focus was on experiential knowledge.

Through various expert lectures as elaborated in the next section the basic understanding was developed for various aspects of resilience. The case studies undertaken for BReUCom project were also used to introduce various methods related to understanding and identifying the various challenges confronted by the cities.

Course Content

Prerequisites for Participation:

The PDP was designed for professionals and participants with a background from architecture and planning. PDP was designed for consultants, faculty members and participants of the Architecture. Emphasis was on to train budding professionals so that they start understanding the concept of resilience for consideration in their upcoming projects.

Course Syllabus:

Overview of BReUCom case studies for methods used to explore various aspects of resilience in varied context.

Local experts deliberated on 'Enhancing resilience through water management'. Case examples from the live experiences from the field for addressing water stress were shared with the participants. Dr. Prakash Tyagi, Executive Director of GRAVIS, NGO in Jodhpur along with his team had interacted with the participants.

Participants were introduced with various Geo-spatial technologies that can be used in working for Urban Resilience.

The key terms 'visioning' and 'resilience' were elaborated through lecture and case examples to make participants understand the related nuances. They were further given specific inputs on how to formulate 'Vision' for the field-based exercise.

Course Assignments:

For assignment five distinct residential areas showcasing varied urban morphology were selected with the inputs from participants and faculty members of the MBM college. The identified areas were of

- Plotted development in an Industrial area.
- Organic development in Old city core
- Slum settlement
- Peri-urban areas (Village settlement)
- Mixed land use

Participants were to document the transformation over time with respect to physical (built and natural environment) and socio-economic characteristics. Identify the marginalized groups, NGO's or community leaders working for the welfare of the society (if any) in their respective sites. Identify the challenges and explore the possibilities be possible changes in the built environment to address the identified challenges for enhancing resilience. They were asked to explore the use of latest technological advancement and the innovations in enhancing the energy efficiency of the area. Work out who will undertake the responsibilities of all the suggested strategies be it- community leaders; Political leader; outsiders (consultants/ NGOs not based in Jodhpur). How it will be sustained for long.

Expected Time Spent on Course:

Time spent in hours: 6 hours per day for five days

Time spent in ECTS (European Credit Transfer and Accumulation System): 1 ECTS

Course Grading

This was five days PDP wherein participants understanding was assessed based on application of the concepts discussed during presentation of the assignment on the last day.

Course Evaluation

Evaluation Procedure & Criteria:

Based upon the common evaluation proforma prepared by WP4 leader institutes

Faculty Evaluation:

Based upon the common evaluation

Participant Evaluation:

Participants were evaluated based upon their performance in the assignment and performance in the assignment and presentation of poster.

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Resilient Ziro 2041

Image Source: Photo by Steve Douglas on Unsplash

Description of course

Aim:

The PDP aims to construct knowledge from the traditional lifestyle in the Ziro valley for the greater benefit of Urban Resilience and Climate Change literature.

Course Objectives:

To bring together the natives, residents, urban professionals, academics, researchers and other stakeholders in visioning the resilient future of the Ziro Valley in Arunachal Pradesh.

Learning Outcomes:

The valley which is on the UNESCO Tentative List of World Heritage Sites is the living laboratory of sustainable practices in the domains of community, craft and culture. Several threads of Tacit and Traditional Knowledge can be drawn from the lifestyle in the valley for the greater benefit of Urban Resilience and Climate Change literature. The valley can also symbiotically benefit from the state of the art of practices, case studies, technology and literature in the field.

Course Structure

Course Duration:

Five Days

Course Frequency:

It will be conducted as and when required for dissemination

Course Format:

The Programme will be conducted through a combination of lectures, group discussions and hands on work sessions.

Course Content

Prerequisites for Participation:

- Natives of Ziro Valley (Apatani Community)
- Residents
- Urban Professionals (Architects, Planners, Environmentalists, Activists)
- Researchers and Participants (Mostly from RGU, Itanagar)

Course Syllabus:

Modules of Presentation, Case Study and FGD:

1. Ziro 2041: Cultural Continuity and Climate Change (Discussion on threads on Urban Health, Socio-cultural Institutions, Food Systems, and Spatial Planning and Building Design with respect to Culture)

2. Ziro 2041: Gender Roles and Urban Resilience (Discussion on threads on Urban Health, Socio-cultural Institutions, Food Systems, and Spatial Planning and Building Design with respect to Gender)

3. Ziro 2041: Community Planning and Policy Aspects in Climate Change and Urban Resilience (Discussion on threads on Urban Health, Socio-cultural Institutions, Food Systems, and Spatial Planning and Building Design with respect to Planning and Policy Actors).

Course Assignments:

1. Site visit to villages for learning from the lifestyle

2. On-site Events for participants at Ziro

3. Site Visits to District Craft and Industries Centre

4. FGD with locals for visioning of Resilient Ziro.

Expected Time Spent on Course:

Time spent in hours: 6 hours per day

Time spent in ECTS (European Credit Transfer and Accumulation System): 1 ECTS

Course Grading

The participants' understanding was assessed based on application of the concepts discussed during presentation of the assignment on the last day.

Course Evaluation

Evaluation Procedure & Criteria:

Based upon the common evaluation proforma prepared by WP4 leader institutes

Faculty Evaluation:

Based upon the common evaluation

Participant Evaluation:

Participants were evaluated based upon their performance in the assignment and performance in the assignment and presentation of poster.

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Socio-ecological Resilience in Hills

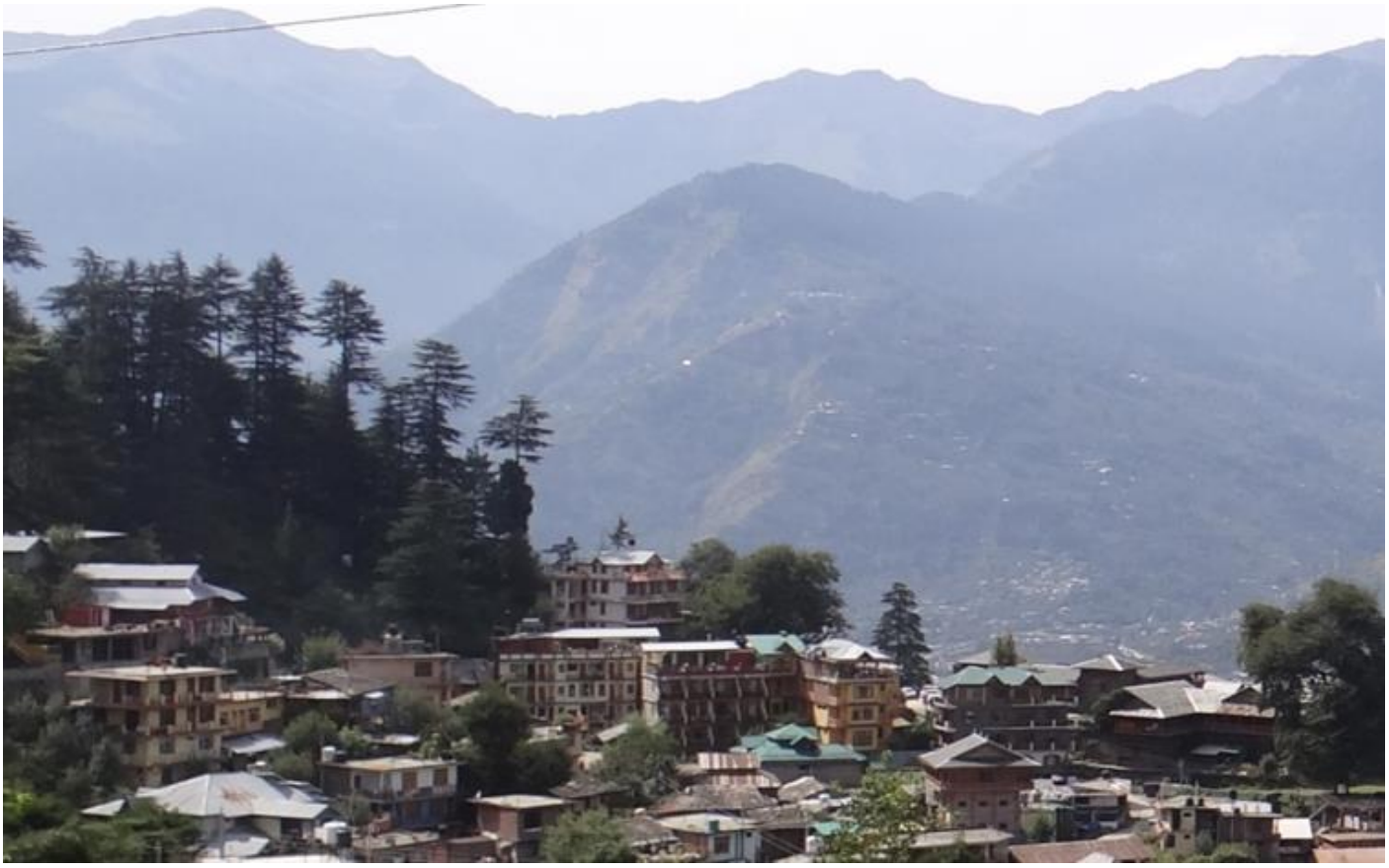

Image Source: NITH

Description of course

Aim:

To disseminate the importance of Socio-ecological Resilience in Hills

Course Objectives:

To disseminate the knowledge with respect to social and ecological parameters of resilience.

To edify a group of professional about community Resilience.

Learning Outcomes:

Upon successful completion of the course, the participants will be able to

Understanding the fundament of social ecological resilience and related risk

Risk assessment and vulnerability in Hills

Role of Watershed Management in Social ecological resilience

Course Structure

Course Duration:

05 days

Course Frequency:

The course is designed for professionals in the field of architecture and planning and is part of the resilient dissemination series through five distinct conceptualized PDP's.

Course Format:

Sl No	Topic to be covered	Remarks
1	Lecture series and group discussions on types of resilience.	4 hours
2	Lecture series and group discussions on vulnerability analysis of Himachal.	4 hours
3	Lecture series and group discussions on Building construction techniques.	4 hours
4	Lecture series and group discussions on community resilience in Himachal	4 hours
5	Lecture series and group discussions on community resilience in Himachal	4 hours

Course Content

Prerequisites for Participation:

Professional, academicians and participants from the reputed institutes and industry. Members of govt. bodies and NGO's working in the field of capacity building, Disaster management and resilience.

Course Syllabus:

Sl No	Day	Topic
1	Day 1	Role of Watershed Management in Social ecological Resilience
2		Understanding Resilience-The Social Construct
3	Day 2	Social Economic Assessment of Buildings
4		Hazard Vulnerability of Himachal Pradesh
5	Day 3	Role of Disaster Management in Community Resilience
6		Membrane Technology for Water Treatment and Reclamation
7	Day 4	Natural Order, Integral Humanism and Socio-economic Resilience

8		Virtual Site Visit-Community Participation
9	Day 5	Impact of Tourism on Ecological Resilience
10		Feedback and Discussion Session

Course Assignments:

There are no course assignments for this PDP. Participation and learning are the key outcomes

Expected Time Spent on Course:

Time spent in hours: 25 hours

Time spent in ECTS (European Credit Transfer and Accumulation System): 1 ECTS

Course Grading

Assessment Criteria and Distribution of Marks:

Participation and learning were the key factors considered for the PDP.

There were no marked assignments/ exercise as part of the PDP.

Course Evaluation

Evaluation Procedure & Criteria:

Based upon the common evaluation Performa prepared by WP4 leader institutes

Faculty Evaluation:

Feedback attached and submitted for the course to WP3 and WP4 leader institutes

Participant Evaluation:

There was no evaluation in this course. The participants were encouraged to participate and learn.

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Traditional Knowledge in Urban Resilience

Image Source: Photo by ALLEN JOB on Unsplash

Description of course

Aim:

To disseminate traditional knowledge of Resilient Vernacular Construction in Hills

Course Objectives:

To disseminate the traditional wisdom of architectural practices in Himachal.

To edify a group of professional about community Resilience.

Learning Outcomes:

Upon successful completion of the course, the participants will be able to

Understand the Vernacular practices in Himachal Pradesh.

Understand to resilience of vernacular construction techniques.

Course Structure

Course Duration:

05 days

Course Frequency:

The course is designed for professionals in the field of architecture and planning and is a part of resilient dissemination series through five distinct conceptualized PDP's.

Course Format:

Date	Topic to be covered	Remarks
1	**Lecture series and group discussions on types of resilience.**	4 hours
2	**Lecture series and group discussions on vulnerability analysis of Himachal.**	4 hours
3	**Lecture series and group discussions on Building construction techniques.**	4 hours
4	**Lecture series and group discussions on community resilience in Himachal**	4 hours
5	**Lecture series and group discussions on community resilience in Himachal**	4 hours

Course Content

Prerequisites for Participation:

Professional, academicians and participants from the reputed institutes and industry. Members of govt. bodies and NGO's working in the field of capacity building, Disaster management and resilience.

Course Syllabus:

Sl No	Day	Topic
1	Day 1	Community Resilience Framework
2		Factors influencing resilience in Hills
3	Day 2	Planning for Green Architecture
4		Learnings from conventional construction in Hills
5	Day 3	Traditional Practices of Hills
6		Evaluation methods for Resilience

7	Day 4	Virtual Site Visit
8		Energy Conservation and Resilience
9	Day 5	Role of GIS in Planning
10		Feedback and Discussion Session

***Course Assignments**:*

There are no assignments conceived for this course. Participation and active involvement in the lectures are sought.

Expected Time Spent on Course:

Time spent in hours: 25 hours

Time spent in ECTS (European Credit Transfer and Accumulation System): 1 ECTS

Course Grading

Assessment Criteria and Distribution of Marks:

There was no course grading proposed for this PDP.

Course Evaluation

Evaluation Procedure & Criteria:

Based upon the common evaluation Performa prepared by WP4 leader institutes

Faculty Evaluation:

Feedback attached and submitted for the course to WP3 and WP4 leader institutes

Participant Evaluation:

There was no course grading proposed for this PDP.

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Resilient and Sustainable Built-Environment in Hills

Image Source: Photo by Teji on Unsplash

Description of course

Aim:

To disseminate knowledge of Resilient and sustainable construction in Hills

Course Objectives:

To bring together leading academicians, industrialists and researchers to exchange and share their experiences and knowledge related to Resilience and Sustainability
To provide a platform to present and discuss the most recent innovations, trends, and concerns as well as practical challenges encountered and solutions adopted in the fields of RSBE
To disseminate the traditional wisdom of architectural practices in Himachal and share the acquired skills and challenges encounter for developing climatic responsive designs

Learning Outcomes:

Upon successful completion of the course, the participants will be able to
CO1: Learners will be able to analyse resilient design and sustainable energy flow system in architectural buildings

CO2: Participants will be comprehended recent innovations, trends, and concerns as well as practical challenges encountered and solutions adopted in the fields of RSBE
CO3: Participants will acquire skills and challenges encounter during development of climatic responsive designs

Course Structure

Course Duration:

05 days

Course Frequency:

The course is designed for professionals in the field of architecture and planning and is a part of resilient dissemination series through five distinct conceptualized PDP's.

Course Format:

Day	Topic to be covered	Remarks
1	Lecture series and group discussions on types of resilience	4 hrs
2	Lecture series and group discussions on vulnerability analysis of Himachal	4 hrs
3	Lecture series and group discussions on Building construction techniques	4 hrs
4	Lecture series and group discussions on community resilience in Himachal	4 hrs
5	Lecture series and group discussions on community resilience in Himachal	4 hrs

Course Content

Prerequisites for Participation:

Professional, academicians and participants from the reputed institutes and industry. Members of govt. bodies and NGO's working in the field of capacity building, Disaster management and resilience.

Course Syllabus:

Sl No	Day	Topic
1	Day 1	Water Resilient Cities
2		Urban Water Management
3	Day 2	Planning in the Hill Settlements
4		Disaster and built form

5	Day 3	Structural safety in hill towns
6		Cultural landscape & resilience
7	Day 4	Impact of urbanization on resilience
8		Social implication of resilience
9	Day 5	Role of GIS in vulnerability assessment
10		Evaluation methods for resilence.

Course Assignments:

There are no assignments conceived for this course. Participation and active involvement in the lectures are sought.

Expected Time Spent on Course:

Time spent in hours: 25 hours

Time spent in ECTS (European Credit Transfer and Accumulation System): 1 ECTS

Course Grading

Assessment Criteria and Distribution of Marks:

There was no course grading for this PDP.

Course Evaluation

Evaluation Procedure & Criteria:

Based upon the common evaluation Performa prepared by WP4 leader institutes

Faculty Evaluation:

Feedback will be attached and submitted for the course to WP3 and WP4 leader institutes

Participant Evaluation:

There was no Participants Evaluation conducted as part of the PDP.

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Learnings from Vernacular Hill Settlements

Image Source: Photo by Nomad Bikers on Unsplash

Description of course

Aim:

To disseminate traditional knowledge of Resilient Vernacular Construction in Hills

Course Objectives:

To edify a group of professional about community Resilience.

To disseminate the knowledge related to sustainable planning and designing of built environment in context to hill regions.

Understanding forces that are affecting our built form with changing societies.

To edify participants with issues in site development and built form (with focus on residential buildings) in the present context.

Making participants aware of stakeholders and their expectation in order to find solutions for future development in hill regions responsive to local socio-cultural context.

Learning Outcomes:

Upon successful completion of the course, the participants will be able to

The course can contribute in making people responsive to decisions related to site selection, land suitability analysis, socio-cultural aspects and their role in shaping the built form in context with hill regions of Himachal Pradesh.

Understand to resilience of vernacular construction techniques.

Course Structure

***Course Duration**:*

05 days

***Course Frequency**:*

The course is designed for professionals in the field of architecture and planning and is a part of resilient dissemination series through five distinct conceptualized PDP's.

***Course Format**:*

Day	Topic to be covered	Remarks
Day 1	Lecture series and group discussions on hill regions	4 Hours
Day 2	Lecture series and group discussions on built form in relation to hill areas	4 Hours
Day 3	Lecture series and group discussions on response of built form(residential) to the socio-cultural aspects of hill regions	4 Hours
Day 4	Lecture series and group discussions on analysis and assessment of existing built form	4 Hours
Day 5	Lecture series and group discussions on skill development and role of stakeholders	4 Hours

Course Content

***Prerequisites for Participation**:*

Professional, academicians and participants from the reputed institutes and industry. Members of govt. bodies and NGO's working in the field of capacity building, Disaster management and resilience.

Course Syllabus:

Sl No	Day	Topic
1	Day 1	Traditional Settlements in the Natural Landscapes of the Hills
2		Role of GIS in Construction Management
3	Day 2	Methods of Enhancing Tourism in Hill Areas
4		Spatial Planning in Hill Areas through GIS
5	Day 3	Understanding Socio-cultural Response of Built up Spaces in Himachal Pradesh
6		Geospatial applications for Planning and Designing in Hills
7	Day 4	Analysis of Land Use and Land Cover Change using GIS
8		Understanding the Built Form in Response to Hill Areas
9	Day 5	Response of Built Form in context of Indigenous communities
10		Vernacular Architecture and Planning Laws in Hill Regions

Course Assignments:

There are no assignments conceived for this course. Participation and active involvement in the lectures are sought.

Expected Time Spent on Course:

Time spent in hours: 25 hours

Time spent in ECTS (European Credit Transfer and Accumulation System): 1 ECTS

Course Grading

There is no course grading /marking for this course.

Course Evaluation

Evaluation Procedure & Criteria:

Based upon the common evaluation Performa prepared by WP4 leader institutes

Faculty Evaluation:

Feedback will be attached and submitted for the course to WP3 and WP4 leader institutes

Participant Evaluation:

There is no participant evaluation conceived for this course. Awarding the course completion certificate is based on both regular attendance and participation in the lectures.

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Climatic resilience and Building Energy

Photo Source: Photo by satyaprakash kumawat on Unsplash

Description of course

Aim:

To disseminate knowledge of Climatic resilience and Building Energy

Course Objectives:

To edify a group of professional about climatic Resilience

To bring together leading academicians, industrialists and researchers to exchange and share their experiences and knowledge related to Energy Efficient Building Technology

To provide a platform to present and discuss the most recent innovations, trends, and concerns as well as practical challenges encountered and solutions adopted in the field

To explore various simulations techniques regarding reverse engineering and rapid prototyping techniques

Learning Outcomes:

Upon successful completion of the course, the participants will be able to

Learners will be able to identify the various simulations techniques, regarding reverse engineering and rapid prototyping in buildings

Learners will be able to analyze architectural design and energy flow system in architectural buildings

Participants will acquire skills and challenges encounter during development of climatic responsive designs

Course Structure

Course Duration:

05 days

Course Frequency:

The course is designed for professionals in the field of architecture and planning and is a part of resilient dissemination series through five distinct conceptualized PDP's.

Course Format:

Day	Topic to be covered	Duration
Day 1	Lecture series and group discussions on hill regions	4 Hours
Day 2	Lecture series and group discussions on built form in relation to hill areas	4 Hours
Day 3	Lecture series and group discussions on response of built form(residential) to the socio-cultural aspects of hill regions	4 Hours
Day 4	Lecture series and group discussions on analysis and assessment of existing built form	4 Hours
Day 5	Lecture series and group discussions on skill development and role of stakeholders	4 Hours

Course Content

Prerequisites for Participation:

Professional, academicians and participants from the reputed institutes and industry. Members of govt. bodies and NGO's working in the field of capacity building, Disaster management and resilience.

Course Syllabus:

S. No.	Field of Interest/ Specialization	Proposed Topic to be delivered
1.	Architecture	Climatic responsive design

2.	Sustainability	Energy and building bye laws
3.	Energy	Renewable Energy
4.	Thermal engineering	Roof top solar panel
5.	Rapid Prototyping	Rapid Prototyping for architectural models
6.	Thermal engineering	Refrigeration and Air conditioning
7.	Architecture	Urban climate
8.	Thermal engineering	Recent development in solar receiver
9.	Energy and environment	Energy audit of buildings
10.	Urban Design	Passive design technology

***Course Assignments**:*

There are no assignments conceived for this course. Participation and active involvement in the lectures are sought.

Expected Time Spent on Course:

Time spent in hours: 25 hours

Time spent in ECTS (European Credit Transfer and Accumulation System): 1 ECTS

Course Grading

Assessment Criteria and Distribution of Marks:

This course will not be graded.

Course Evaluation

Evaluation Procedure & Criteria:

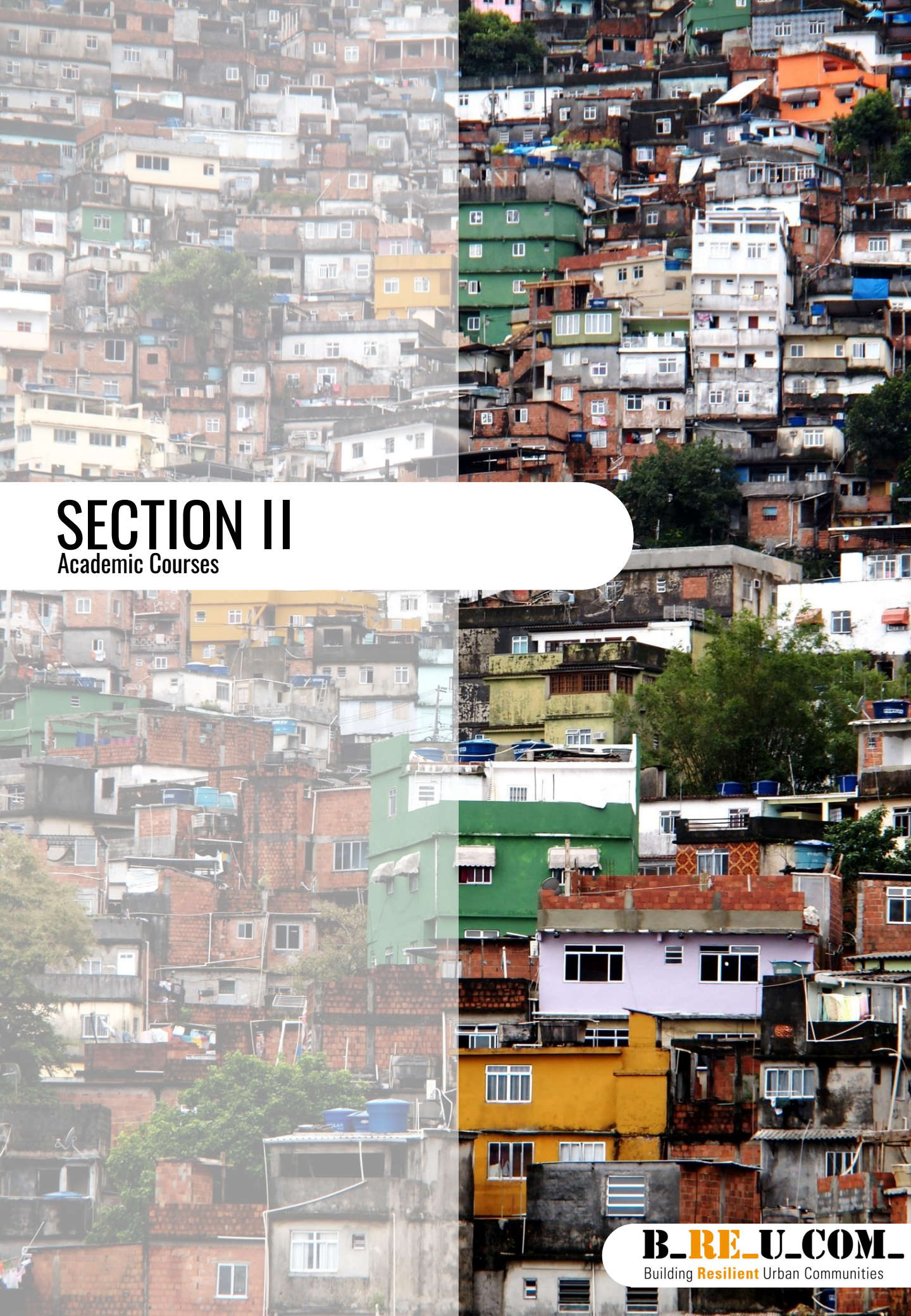
Based upon the common evaluation Performa prepared by WP4 leader institutes

Faculty Evaluation:

Feedback will be attached and submitted for the course to WP3 and WP4 leader institutes

Participant Evaluation:

There was no Participants Evaluation conducted as part of the PDP.



SECTION II
Academic Courses

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CONTENTS:

ACADEMIC COURSES

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Water stress and Urban Resilience in Historic Tier II Cities

Image Source: Photo by Sanjeev Malhotra on Unsplash

Description of course

Aim:

Training Urban design and urban conservation professionals in understanding water vulnerabilities and making urban tier II cities water resilient.

Course Objectives:

To understand historic tier II cities with relation to their water resources, catchment areas and urbanization patterns thereby intervening in a manner to make them self-sufficient in water and climate resilient through appropriate urban infrastructure, planning and policy.

Learning Outcomes:

Understanding the water stresses/conditions or water-based stresses that may impact the city's water basin or its urban fabric and architecture.

Assess the resilience of the city's water basin, and its geographical and intervened edge conditions

Generate and appraise interventions that yield greater resilience for the city's water basin/ conditions and its geographical and intervened edge conditions.

Course Structure

Course Duration:

15 weeks, 3.5 hrs studio twice a week.

Course Frequency:

Every Semester

Course Format:

16 weeks Studio program or Short-term Elective

Course Content

Prerequisites for Participation:

A minimum of 10 students from the Post-graduate Program of Urban Design or Urban Conservation.

Course Syllabus:

Lectures on the following topics:

- Personal, Family & Society Water footprint.
- Historical Water Infrastructures across historic Indian cities and towns.
- Disparities of water footprints amongst various stakeholders in the city across economic classes, gender and locales.
- Pollution: Causes underlying Urbanisation stresses; Science of Eutrophication and Regeneration.
- Understanding Urban scarcity and Flooding in the context of Climate Change; Need for Ecological Restoration; Challenges to Ecological Restoration.
- Constitutional provisions- Legislative, Executive and Judiciary at Center, State, Municipal and Ward levels. Institutional structures- MoEF; CPCB; NEERI; Jal Pradhikaran; Water Board
- Building Peoples Participation- Socio- Cultural & Political dimensions- Drawing relationship between personal water footprint and Urban River Ecologies.

Course Assignments:

- Site visit, research, historic evolution with appropriate documentation
- Resilience framework and identification/ documentation of vulnerabilities
- Strategies/ Structure Plan at macro and micro level (region, city, precinct, site)
- Design/Policy level Interventions using stakeholders such as administration/ communities/ institution

Expected Time Spent on Course:

Time spent in hours: Studio: 100 hours,7 hours a week for 12/ 15 weeks, Short term courses: 35 hours, 7 hours for 5 days of a week

Time spent in ECTS (European Credit Transfer and Accumulation System): Studio: 4 ECTS, Short-term course: 1.4 ECTS

Course Grading

Assessment Criteria and Distribution of Marks:

Stages & Details	***Percentage of Total Marks***
Site visit, research, historic evolution with appropriate documentation	*20%*
Resilience framework and identification/ documentation of vulnerabilities	*20%*
Strategies/ Structure Plan at macro and micro level (region, city, precinct, site)	*20%*
Design/Policy level Interventions: Internal assessment	*20%*
Design/Policy level Interventions: External assessment	*20%*
Total	***100%***

Course Evaluation

Evaluation Procedure & Criteria:

Initially a pilot project was conducted with partner institution SPA Bhopal under BreUcom with joint visit and review with Dean and Director of both the institutes only to find the project of interest to the students and relevant to both the course and the institute.

Faculty Evaluation:

Informal interactions in the studio by way of review of daily progress along with formal evaluation by way of juries as per the above provided course grading.

Student Evaluation:

Standard format by way of a questionnaire is available for the students to suggest their learnings as well as areas in which the course can improve.

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Enhancing Resilience of Historic Cores

Image Source: Photo by Charu Chaturvedi on Unsplash

Description of course

Aim:

Training Urban Design, Planning and Conservation professionals towards building resilience of native historic cores.

Course Objectives:

To sensitise students to the diverse factors affecting resilience of native historic cores,

To train participants to identify potentials and vulnerabilities of the historic core.

To encourage participants to develop intervention strategies for strengthening community resilience in the historic cores.

Learning Outcomes:

Students will be able to appreciate the relationship between historic built urban scape and the community living & livelihood.

Students will be able to articulate their understanding of the place using perceptual drawings, diagrams and images, videos, annotations etc.

Students will be able to generate maps and infographics used for giving an overview of the of the historic core- its evolutionary timeline, present status and future trajectories.

Students will be able to identify issues affecting the vulnerability of the town and also the potential for developing resilience of the historic core.

Students will be able to apply principles of urban design and conservation for comprehension as well as proposing interventions within the historic core and drafting guidelines for the same.

Course Structure

Course Duration:

15 weeks

Course Frequency:

Every year

Course Format:

Lectures/ Field work/ Studio/ Workshops

Course Content

Prerequisites for Participation:

The course is designed for 3rd semester M Arch students of Urban Design and Conservation. It can also be taken up for Urban planning and related fields. The participants are expected have skills in recording their perceptions, detail mapping (prior knowledge of GIS is advised), architectural documentation and info graphics (prior knowledge of BIM is encouraged, sound knowledge of CAD and vector and graphic representation softwares is required)

Course Syllabus:

- *Interpretation of 'Resilience' &'vulnerabilities' within the context of a historic core.*
- *Ecological resilience- understanding ecological vulnerabilities including those related to climate, topography, hydrology, water, sanitation and health*
- *Economic resilience or Resilience of Community towards livelihood.*
- *Vulnerabilities and Conservation of the Built Heritage towards resilience of Historic core*
- *Interactions with various stakeholders within and related to the historic core and recording these interactions.*
- *Assessment of the potentials and vulnerabilities.*
- *Strategies for developing resilience- interventions and guidelines*

Course Assignments:

- *Field works- documentation of urban space and architectural heritage/ built form, perceptual mapping, interactions with stakeholders,*
- *Tracing a timeline using historical records and archival maps.*
- *Mapping urban morphology -architectural fabric, land/ building use, pedestrian and vehicular traffic, topography and hydrology, activities and livelihood, ecology etc.*
- *Case studies and application of theoretical frameworks- ICOMOS charters, Urban Design theories*
- *Develop strategies of interventions- and propose guidelines for reinforcing resilience of the historic core.*

Expected Time Spent on Course:

Time spent in hours: 150 hours (90 Hours within the studio and balance 60 hrs on field and home assignments.)

Time spent in ECTS (European Credit Transfer and Accumulation System): 6 ECTS

Course Grading

Assessment Criteria and Distribution of Marks: ***Stages & Details***	***Percentage of Total Marks***
1. Observation and perception studies; Articulation of Heritage significance and Resilience framework	*15%*
2. Representation of Built Fabric, Urban Morphology, Built use	*10%*
3. Analysis of Mobility; Economy; Livelihood; Everyday & Festive Activities;	*10%*
4. Analysis of Policies, Legislations, Administration and Governance and its spatial manifestation	*10%*
5. Identification of Intervention Area &	*5%*
Midterm assessment (subtotal 50%)	
6. Detail Documentation and Studies of Intervention Areas	*15%*
7. Developing draft proposals	*10%*
8. Finalisation of draft proposals	*10%*
9. Final portfolio assessments	*15%*
Total	***100%***

Course Evaluation

Evaluation Procedure & Criteria:

Deans and Academic advisors evaluate and comment upon the course structure before the course in conducted. After the course, student evaluation feedback analysis obtained through ERP is made available to individual faculty.

Faculty Evaluation:

Faculty evaluations are informal and interactive between the faculty conducting the program.

Student Evaluation:

Student Evaluation forms are collected and responses are collated.

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Water Resilience in Historic Cities

Image Source: Photo by Shantanu Goyal on Unsplash

Description of course:

Aim:

Training Urban design and urban conservation professionals in understanding water vulnerabilities and making urban centres water resilient.

Course Objectives:

To understand historic cities with relation to their water resources, catchment areas and urbanization patterns thereby intervening in a manner to make them self-sufficient in water and climate resilient through appropriate urban infrastructure, planning and policy.

Learning Outcomes:

Understanding the water stresses/conditions or water-based stresses that may impact the city's water basin or its urban fabric and architecture.

Assess the resilience of the city's water basin, and its geographical and intervened edge conditions

Generate and appraise interventions that yield greater resilience for the city's water basin/ conditions and its geographical and intervened edge conditions.

Course Lectures Schedule:

Sl.No	Lecture Titles	Lecture Description
1	Introduction and one's water foot print	Understanding consumption of water at personal and society level to analyse consumption of treated domestic water versus flushing and secondary use of water
2	Water infrastructure across Historic Indian cities	Understanding various typologies of both water supply as well as water disposal systems adopted in historic Indian cities with the success and failures
3	Water stress	Vulnerabilities of Indian cities be it shortage of water supply, drying of subterranean waters, flooding, climate change, pollution, etc.
4	Disparity of access to clean water	Disparities of water footprints amongst various stakeholders in the city across economic classes, gender and locales.
5	Water pollution	Causes underlying Urbanisation stresses; Science of Eutrophication and Regenerations
6	River training : Boon or Bane Guest Lecture	Understanding Urban Flooding in the context of Climate Change; Need for Ecological Restoration; Challenges to Ecological Restoration.
7	Constitutional provisions/ policies	Legislative, Executive and Judiciary at Center, State, Municipal and Ward levels. Institutional structures- MoEF; CPCB; NEERI; Jal Pradhikaran; Water Board
8	Stake holder participation using urban design/ planning	Socio- Cultural & Political dimensions- Drawing relationship between personal water footprint and Urban River Ecologies using stakeholder participation using community and institutional interventions

Course Structure

Course Duration:

8 weeks, Once a week.

Course Frequency:

Every Year

Course Format:

Elective/Lectures/ Presentation

Course Content

Prerequisites for Participation:

A minimum of 10 students from the Post graduate Program of Urban Design or Urban Conservation.

Course Syllabus:

Lectures on the following topics:

Personal, Family & Society Water footprint.

Historical Water Infrastructures across historic Indian cities and towns.

Disparities of water footprints amongst various stakeholders in the city across economic classes, gender and locales.

Pollution: Causes underlying Urbanisation stresses; Science of Eutrophication and Regeneration. Understanding Urban scarcity and Flooding in the context of Climate Change; Need for Ecological Restoration; Challenges to Ecological Restoration.

Constitutional provisions- Legislative, Executive and Judiciary at Center, State, Municipal and Ward levels. Institutional structures- MoEF; CPCB; NEERI; Jal Pradhikaran; Water Board

Building Peoples Participation- Socio- Cultural & Political dimensions- Drawing relationship between personal water footprint and Urban River Ecologies.

Course Assignments:

Study and presentation of a paper of various historical cities in India, and mapping of water stresses/vulnerabilities and how the urban centres can be made resilient through policy and design interventions using community and institution stakeholders.

Expected Time Spent on Course:

Time spent in hours: 24 hours

Time spent in ECTS (European Credit Transfer and Accumulation System): 2 ECTS

Course Grading

Assessment Criteria and Distribution of Marks:

Stages & Details	***Percentage of Total Marks***
Initial assessment based on topic, paper outline and research conducted	*50%*
Final Assignment submissionof paper	*50%*
Total	***100%***

Course Evaluation

Evaluation Procedure & Criteria:

Deans and Academic advisors evaluate and comment upon the course structure before the course in conducted. After the course, student evaluation feedback analysis obtained through ERP is made available to individual faculty.

Faculty Evaluation:

Informal interactions in the class/ online by way of review of daily progress along with formal evaluation by way of a paper as per the above provided course grading.

Student Evaluation:

Standard format by way of a questionnaire is available for the students to suggest their learnings as well as areas in which the course can improve.

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Living in Flux:
Landscapes as Transformative Response to Climate Change

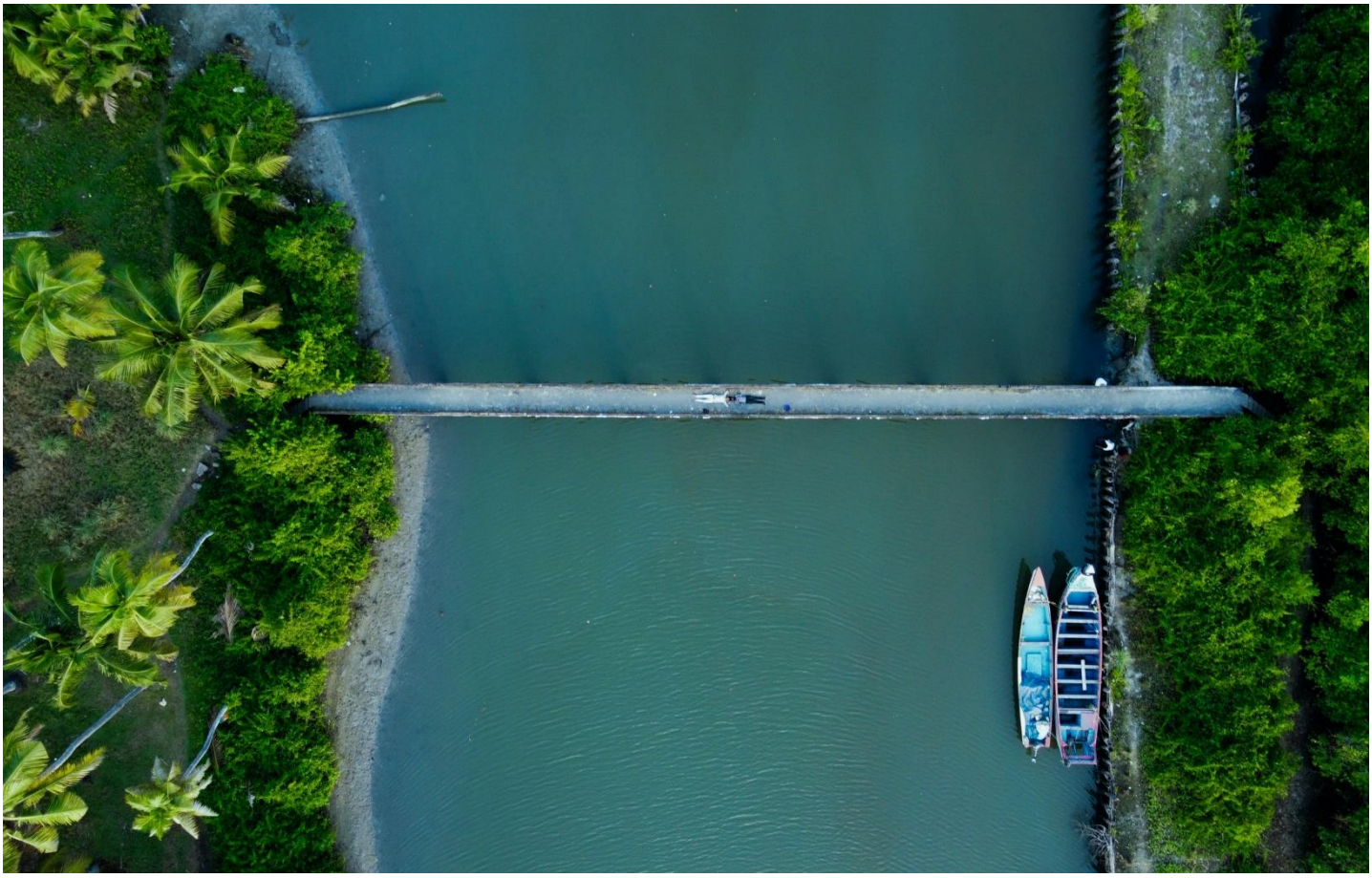

Image Source: Photo by Anantha Krishnan on Unsplash

Description of course

Aim:

The course deals with the holistic understanding of urban landscapes as complex ecological systems which encompass the dynamic relation between resilient ecology and space. The course is designed to provide exposure to the students regarding the latest studies, theory and research outcomes of climate change and socio-ecological resilience for human settlements. The students are encouraged to understand advanced concepts and explore relevant contextual frameworks and approaches for the planning and design of urban landscapes.

Course Objectives:

a. To introduce students to the concept of 'Anthropocene' as a global epoch.

b. To introduce students to advanced principles, concepts and methods of understanding socio-ecological resilience.

c. To enable students to understand and discern the natural processes in the environment and their implications in the urban design and planning.

d. To demonstrate landscape approaches in the planning, design and management of the greenfield and brownfield sites through the help of socially and environmentally appropriate case studies of projects.

Learning Outcomes:

The students will be able to:

a. discern relationships between various ecological systems and their interdependence

b. articulate state of the art concepts of ecology and resilience studies

c. use these concepts to develop their studio projects as well as find a trajectory in their future praxis.

d. understand various modes of urban landscape interventions which are less intrusive than the conventional modes of handling sites.

e. identify threats to urban landscapes due to developmental pressures.

f. appreciate the ideas of sustainability and be able to align their thoughts in line with the UN Sustainable Development Goals.

Course Structure

Course Duration:

16 weeks

Course Frequency:

The Course is designed for the Final Year Postgraduate Students to be conducted every year once. (Semester 3 in the Indian Postgraduate system of two years)

Course Format:

The course is formatted as an Elective Course including Lectures/ Site Visits and Graded Assignments. Elective via Lectures and Presentations (Recorded and streamed online due to the current Covid Pandemic Crisis)

Course Content

Prerequisites for Participation:

The course is designed for Post Graduate Students in Architecture, Urban Studies (Urban Design, Urban Planning or any other allied stream), Landscape Architecture, Landscape Urbanism and Sustainability Studies.

A basic knowledge of urbanism and climate sciences would be beneficial for grasping the course but is not mandatory.

Course Syllabus:

Week No	Lecture Themes	Lecture Theme and Description
Week 1	Understanding Anthropocene	**Introduction** to the course and bridge with Sem 1 Course content **Anthropocene: A Global Epoch**: Lecture + Presentation
Week 2	Paradox of Infinite Growth-I	**Ecological Footprint and Bio capacity:** Lecture + Presentation Introduction of Assignment 1: Mapping + formulating ones 'Ecological Footprints'- Pre and Post Covid Lockdown (Footprint calculator link will be provided during the lecture)
Week 3	Paradox of Infinite Growth-II	**Planetary Boundaries**: Lecture with Presentation
Week 4	Understanding Climate Crisis	**'Climate Crisis' and 'Ecological Resilience':** Lecture on Coping, Adapting and Transforming in the changing climatic future Assignment 2: Discerning ecological resilience in Mumbai
Week 5	Southern Cities	**'Climate Crisis' and 'Ecological Resilience':** Lecture on Coping, Adapting and Transforming in the changing climatic future Assignment 2: Discerning ecological resilience in Mumbai

Week 6	Urban Wildlife	**'Urban Wildlife: Retrofitting Ecological Corridors in the city'** Lecture and Presentation on urban wildlife and coexisting with other species.
Week 7	Pandemics and Urban transformations	**Climate Change, Pandemics and Urban Transformations:** Recorded Lecture + Presentation Lecture on how pandemics have shaped city life and urban design.
Week 8	Resilient Urbanism	**Climate Change + Urban Resilience: Dealing with Urban Streams** Recorded Presentation + Lecture Urban Regeneration via scientific understanding of hydrology and ecological landscaping Assignment 3: Group Research work and preparation for presentation: 'Eco-City Resume: Mapping Mumbai's Ecology'
Week 9	Resilient Urbanism	**Climate Change + Urban Resilience: Dealing with Urban Streams** Recorded Presentation + Lecture Understanding Fluvial morphologies and Riverine urbanism in the times of the climate crisis Room for the River Project, Netherlands
Week 10	Resilience+ Climatic Response	**Climate Change + Urban Resilience: Urban landscapes as Green Infrastructure** to combat Urban Flooding- Lecture + Presentation Sustainable Urban Drainage Systems (SUDS)
Week 11	Connectivity and Transit as indicators of everyday resilience	**Energy Demands + Urban Transportation:** Lecture + Presentation Alternative ideas: Tactical Urbanism and other urban 'acupunctures' Case Example- Curitiba
Week 12	Eco-Restoration	**Ecological Restoration of Derelict Landscapes for Resilient Cities**: Lecture + Presentation Landfill sites and management. Scientific restoration of Fresh Kills, Peri urban communities Urban wildlife
Week 13	Urban Regeneration	**Regenerating the Southern City:** Lecture + Presentation

		Urban Transportation, Transit Oriented Development, Urban Design and Conservation possibilities Responding to Natural processes
Week 14	Landscapes as Resilient Living Machines	**Food and its implication on Urbanism** Local/Introduced Crops and its implications, Globalised Food supply Chains, Changing consumption patterns, Urban Agriculture Case Study: East Kolkata Wetland Bio-Region
Week 15	Urban Regeneration	**Place Making as an Urban Regeneration tool: Highline Park, New York** : Lecture + Presentation Eco-restoration of an urban blight, experimenting with urban flora, Concepts of Crime Prevention through Environmental Design (CPTED)
Week 16		Students' Research work Submission and Presentation: **'Eco-City Resume: Mapping Mumbai's Ecology'** Final Marking and Discussion

Course Assignments:

Online Footprint calculator to calculate one's ecological footprint, Research paper and Group Research work culminating in a Research Presentation on the city's ecological resume.

Expected Time Spent on Course:

Time spent in hours: 32 hours of class +28 hours of researchwork

Time spent in ECTS (European Credit Transfer and Accumulation System): < 1 ECTS = 25 hours > 2

Course Grading

Assessment Criteria and Distribution of Marks:

Stages & Details	***Percentage of Total Mark***
Mapping + formulating ones 'Ecological Footprints'- Pre and Post Covid Lockdown (Footprint calculator link will be provided during the lecture)	*20%*
Research Paper: Discerning ecological resilience in Mumbai	*30%*
Group Research work and preparation for presentation: 'Eco-City Resume: Mapping Mumbai's Ecology'	*50%*
Total	***100%***

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Course Evaluation

Evaluation Procedure & Criteria:

Deans and Academic advisors evaluate and comment upon the course structure before the course in conducted.
After the course, participant evaluation feedback analysis obtained through ERP is made available to individual
faculty.

Faculty Evaluation:

Informal interactions in the studio by way of review of daily progress along with formal evaluation by way of juries as per the above provided course grading.

Student Evaluation:

Standard format by way of a questionnaire is available for the students to suggest their learnings as well as areas in which the course can improve.

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Landscapes/Ecologies of Resilience

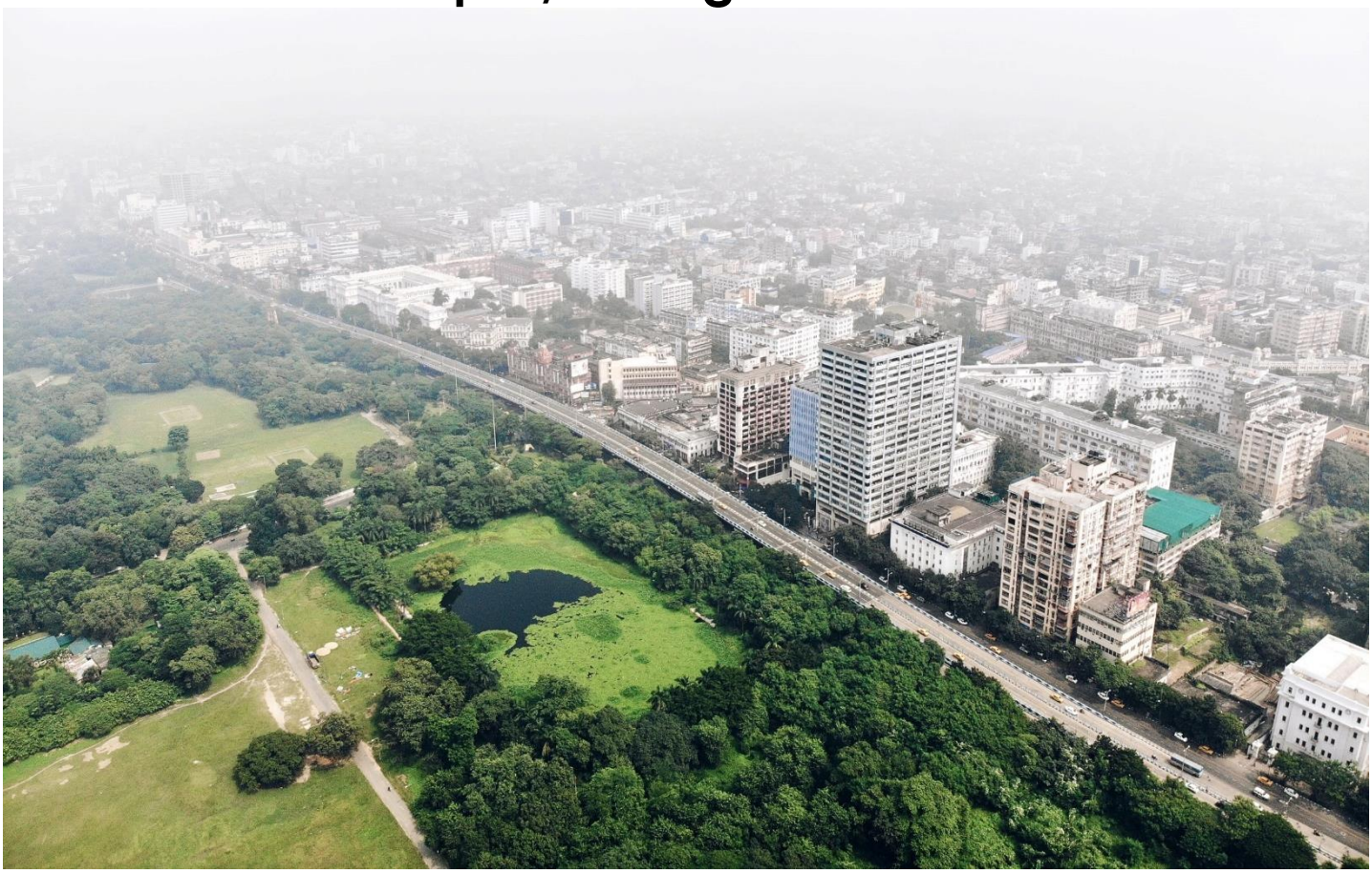

Image Source: Photo by Rahul Chakraborty on Unsplash

Description of course

Aim:

This course would open the discussion to explore the notion of Resilience in the context of Indian cities. It would validate many of the urban practices that are often unseen, spontaneously grown that are evolved by communities over time; as being resilient. It would try to realize the potential of such practices within the context of ecological, social and economic resilience that we realize is of prime importance to address the issues of climate change and fragmentation in our contemporary cities. It would also explore the possibilities of such practices informing field of design at all scales – the regional, the neighbourhood as well as the building.

Course Objectives:

To be able to initiate the conversation on this subject the course would like to investigate 5 different cases from cities across India. These are site where communities have spontaneously over time evolved a lasting relationship with their surrounds.

1. The eastern wetland of the city of Kolkata is a site where the city's sewage is treated through an intricate web of open canals and oxidation ponds before it drains into the River Kulti. In the wetlands it has a large holding of fisheries and agricultural farms for growing vegetables where the local community use the sewage water as nutrient. This area which itself is as large as the city of Kolkata has been important in not only treating the city's wastewater passively, but also playing an important role in achieving resilience related to food.

2. The bazaar area of the indigenous city of Mumbai has over time been known for its unique small-scale entrepreneurial activities of trade, commerce and industries that provide for livelihood activities to numerous local as well as migrant population. Some of these are exceptional crafts which exists only within these complex ecologies of work and live environments. Over years these are threatened by the pressures of redevelopment that gentrify such environments, disempowering such communities as well as erasing such activities.

3. Within the informal settlement of Dharavi there exists a large network of plastic recycling industries that play an important role in reusing the plastic waste of the city. This future of such an important landscape is uncertain due to the new imagination conceived under the Dharavi Redevelopment Project.

4. The Metropolitan Region of Mumbai has numerous fishing villages that are still involved in traditional forms of fishing that is considered ecologically safe and sustainable. Yet such a form of livelihood is constantly threatened by developmental pressure as well as new form of commercial fishing that are extremely exploitative and unsustainable in nature.

5. 68% of the Mumbai Metropolitan region is composed of forests, agricultural/plantation zones and intertidal zones. The forest area in specific are important as they house many tribal villages that overtime have evolved lasting relationship with the surrounding ecology. This is manifested in the use of forest resources, practice of sustainable forms of agriculture as well as in depth knowledge of the local flora and fauna. Yet these communities are always in conflict with the forest officials who have a differing world view of nature as well as the immediate city.

The course would thus investigate these landscapes to be able to identify the unique characteristics of each in creating resilient landscapes, evolve techniques of mapping and representing such landscapes and establish learnings for design.

Learning Outcomes:

Establish a methodology to appreciate and validate the contribution made by such communities towards the sustenance and building of resilience with respect to the city.

• Identify all the stakeholders who are associated along with the community and analyse their roles in the community activity.

• Identify the threats and opportunities of the actions by each stakeholder with regards to the activity.

• Generate a scenario so that the threats can be addressed, and the opportunities can be strengthened, so that the community achieves a certain degree of resilience.

• Finally the scenarios and its implication to planning and architectural design would be understood by the learner so that she/he is able to generate sensitive design strategies.

Course Structure

Course Duration:
16 weeks, Once a week.

Course Frequency:
Every Year

Course Format:
Elective/Lectures

Course Content

Prerequisites for Participation:

A minimum of 10 students from the Postgraduate Program of Urban Design or Urban Conservation.

Course Syllabus:

Week No	Course Content
Week 1	Presenting the landscapes- site visits and secondary case studies
Week 2	Presenting the landscapes – site visits and secondary case studies
Week 3	Mapping the landscapes
Week 4	Mapping the landscapes
Week 5	Representing and communicating
Week 6	Learnings for Design

Course Assignments:

Study of settlement patterns of given sites, building narratives for the sites.

Expected Time Spent on Course:

Time spent in hours: 53 hours

Time spent in ECTS (European Credit Transfer and Accumulation System): 2 ECTS

Course Grading

Assessment Criteria and Distribution of Marks:

Stages & Details	***Percentage of Total Mark***
Internal assessment based on student participation in class	*50%*
Assignment submission	*50%*
Total	***100%***

Course Evaluation

Evaluation Procedure & Criteria:

Academic advisors evaluate the course structure before the course in conducted. After the course, student evaluation feedback analysis obtained through ERP is made available to individual faculty.

Faculty Evaluation:

Informal interactions in the studio and daily review of the progress along with formal evaluation as per the above provided course grading.

Student Evaluation:

Standard format by way of a questionnaire is available for the students to suggest their learnings as well as areas in which the course can improve.

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Imaging Crises & Resilience

Image Source: Photo by Deepam Kothari on Unsplash

Description of course

Aim:

The elective approaches issues of resilience through the examination of cultural artefacts, especially those emerging from moving image practices.

Course Objectives:

Through diagnostic processes of contextualisation, systemic and formal analysis and narrativisation the cultural artefacts allow insights into our current presumptions and preoccupations, and help to examine the possibilities of understanding and projecting more resilient futures.

The cultural artefacts chosen dwell upon particular objects (films, poetry, essays) that grapple with some of the environmental, social and economic anxieties of our contemporary world. They mirror some of the geographies reflected in the other electives that run in tandem.

Learning Outcomes:

The intention of the course is to enable students with the ability to critically examine acts of representation. It will enable students to contextualize the work, study its structure and formal characteristics and examine its rhetoric for political and social significance. It would examine the role of the producer, the presumptions of who the audience is meant to be, and the tools deployed, along with a critical analysis of the potentials and pitfalls of the approach deployed/

Course Structure

Course Duration:

10 weeks, 2 hrs (once) a week

Course Frequency:

Every Year

Course Format:

Short-term Elective

Course Content

Prerequisites for Participation:

A minimum of 10 students from the Post graduate Program of Urban Design or Urban Conservation.

Course Syllabus:

Week 1. Introductory Lecture. Making Meaning. Modes and Messages
Week 2. Propaganda and Image Making. Films Division India
Week 3. The Third Cinema. The Hour of the Furnaces, 1968, Octavio Getino and Fernando Solanas
Week 4. Nature as the Sublime. Watermark 2013, Jennifer Baichwal, Edward Burtynsky
Week 5. Temporalities. Le Quattro Volte, 2010, Michelangelo Frammartino
Week 6. The Agit Prop Film. The Narmada Diary, 1995, Anand Patwardhan
Week 7. The Post-Human. Leviathan, 2012, Lucien Castaing-Taylor and Véréna Paravel
Week 8. Multi-Media Experiences. The Sovereign Forest, 2011, Amar Kanwar
Week 9. Submission of Assignment
Week 10. Final Discussion

Course Assignments:

The student will each be assigned one cultural artefact to be analysed based on contextual and formal strategies. They would try and excavate the intention of the producer, the presumptions made of the intended audience and the formal strategies used.

Expected Time Spent on Course:

Time spent in hours: 20 hours + 5 hours of selfstudy.
Time spent in ECTS (European Credit Transfer and Accumulation System): 1 ECTS

Course Grading

Assessment Criteria and Distribution of Marks:

Stages and Details:	***Percentage of Total Mark***
Framework for Analysis	*20%*
Formal Analysis	*40%*
Social and Political Analysis	*40%*
Total	***100%***

Course Evaluation

Evaluation Procedure & Criteria:

Deans and Academic advisors evaluate and comment upon the course structure before the course in conducted.
After the course, participant evaluation feedback analysis obtained through ERP is made available to individual
faculty.

Faculty Evaluation:

Informal interactions in the studio by way of review of daily progress along with formal evaluation by way of juries as per the above provided course grading.

Student Evaluation:

Standard format by way of a questionnaire is available for the students to suggest their learnings as well as areas in which the course can improve.

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Cultural Practices and Resilience

Image Source: Photo by Amit Gaur on Unsplash

Description of course

Aim:

To study and review sociological and cultural heritage perspectives on the meaning of resilience from a South Asian lens. The questions of cultural practices in-built in the everyday urbanism of Indian cities are inextricably tied to the questions of resilience.

Course Objectives:

Resilience, as a construct has myriad connotations. In the global South, particularly in South Asia resilience takes a different meaning based on context specific experiences and altogether different challenges posed by cities. Through a variety of scholarly readings and several examples and case studies this elective seeks to develop a holistic sociological understanding of resilience through the lens of cultural practices and every day urbanism in Indian cities. The specific objectives of the course include a better understanding of the following:

- *Cultural Heritage, resilience and change*
- *Case studies for site at risks- Venice, Kyoto, Kathmandu, Jakarta, Rio de Janeiro, Paris*
- *Capacity to absorb disturbance*
- *Adaptability and transformability*
- *Climate change and heritage*

• *Resource management*
• *Memory & place in heritage resilience*
• *Future of the past*

Learning Outcomes:

• Theoretical understanding of the diverse sociological and cultural heritage perspectives of resilience
• Students will read a variety of scholarly literature with a specific focus on the Global South
• They will simultaneously get a global understanding of the subject
• Develop understanding of urban morphology through phenomena of cultural heritage and social practices
• Identify various forces and possible threats in the morphological structures and understand their relationships
• Develop suitable visual and creative methods to depict urban resilience with specific real-life examples from their eco system.

Course Structure

Course Duration:

16 weeks, Once a week.

Course Frequency:

Every Year

Course Format:

Elective/Lectures/ reading/presentations

Course Content

Prerequisites for Participation:

A minimum of 10 students from the Post Graduate Program of Urban Design or Urban Conservation.

Course Syllabus:

Module 1	Introduction with sharing of reading materials
Module 2	Reading and presenting scholarly literature
Module 3	Interactions with class
Module 4	Class presenting their own interpretations of the concepts learned
Module 5	Representing and communicating
Module 6	Learnings for Design

Course Assignments:

Study of chosen sites, drawing and representing them using the concepts learnt in class

Expected Time Spent on Course:

Time spent in hours: 53 hours
Time spent in ECTS (European Credit Transfer and Accumulation System): 2 ECTS

Course Grading

Assessment Criteria and Distribution of Marks:

Stages and Details:	***Percentage of Total Mark***
Internal assessment based on student participation in class	*50%*
Assignment submission	*50%*
Total	***100%***

Course Evaluation

Evaluation Procedure & Criteria:

Deans and Academic advisors evaluate and comment upon the course structure before the course in conducted.
After the course, participant evaluation feedback analysis obtained through ERP is made available to individual
faculty.

Faculty Evaluation:

Informal interactions in the studio by way of review of daily progress along with formal evaluation by way of juries as per the above provided course grading.

Student Evaluation:

Standard format by way of a questionnaire is available for the students to suggest their learnings as well as areas in which the course can improve.

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Cultural Territories and Cultural Resilience

Image Source: Photo by Indre Velaviciute on Unsplash

Description of course

Aim:

This course attempted to understand urban-scape through the phenomena of culture. The formation of cultural territories trough historical processes and emergence of new transformation through various means in recent time of cultural territories often brings conflicting paradigms. The course attempts to understand and locate such cultural territories through various reading based on sociological and anthropological literature and delineate the cultural led urban transformational process in contemporary times.

Course Objectives:

This course attempted to understand urban-scape through the phenomena of culture. The formation of cultural territories trough historical processes and emergence of new transformation through various means in recent time of cultural territories often brings conflicting paradigms. The course attempts to understand and locate such cultural territories through various reading based on sociological and anthropological literature and delineate the cultural led urban transformational process in contemporary times.

Learning Outcomes:

Theoretically understanding the meanings of cultural the way we interpret the everyday cultural phenomena
or environment and how they are integral part of existence and develops inherent meaning and brings about cultural changes
Develop understanding of urban morphology through phenomena of cultural territories.
Identify various forces in given morphological structure and understand their relationships.
Identify the possible threats to such territories under various economic and developmental processes.
Developing arguments for a cultural resilience approach.
Developing of suitable representational method for urban resilience.

Course Structure

Course Duration:

16 weeks, Once a week.

Course Frequency:

Every Year

Course Format:

Elective/Lectures/ reading/presentations

Course Content

Prerequisites for Participation:

A minimum of 10 students from the Post Graduate Program of Urban Design or Urban Conservation.

Course Syllabus:

Module 1	Presenting reading of text “Cultural and Cultural Territories”.
Module 2	Presentation of cities through cultural territories by group of students
Module 3	Presenting the supportive text to culture through reading of “City, Culture Reader”
Module 4	Mapping the territories
Module 5	Representing and communicating Course

Course Assignments:

Study of various historical cities in India, and mapping of cultural territories as method of reading cities.

Expected Time Spent on Course:

Time spent in hours: 53 hours
Time spent in ECTS (European Credit Transfer and Accumulation System): 2 ECTS

Course Grading

Assessment Criteria and Distribution of Marks:

Stages and Details:	***Percentage of Total Mark***
Internal assessment based on development of mapping	*50%*
Assignment submission	*50%*
Total	***100%***

Course Evaluation

Evaluation Procedure & Criteria:

Deans and Academic advisors evaluate and comment upon the course structure before the course in conducted.
After the course, participant evaluation feedback analysis obtained through ERP is made available to individual
faculty.

Faculty Evaluation:

Informal interactions in the studio by way of review of daily progress along with formal evaluation by way of juries as per the above provided course grading.

Student Evaluation:

Standard format by way of a questionnaire is available for the students to suggest their learnings as well as areas in which the course can improve.

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Traditional Wisdom and Sustainability Concepts

Image Source: Photo by Parul Gupta on Unsplash

Description of course

Aim:

To impart the importance of traditional wisdom and knowledge, and its relevance today.

Course Objectives:

This course shall pave the way to explore the traditional wisdom and best practices that can be applied in the contemporary world concerning adaptation to disasters and climate change with a focus on the built environment.

Learning Outcomes:

Students shall learn the traditional concepts and techniques from various case studies across the country for understanding the traditional concepts for coping up with sustainability issues.

Course Structure

Course Duration:

One semester (15-16 weeks) – 48 hours in total

Course Frequency:

Every Odd Semester of M. Arch, II Year

Course Format:

Course format includes Lectures, Workshops and Short-term Project

Course Content

Prerequisites for Participation:

Pre-registration for the courses before the start of the semester.

Course Syllabus:

1. *Socio-cultural aspects in the spatial formation of traditional buildings under different climate zones in India. Concepts of Sacred build-up and Landscape, An Architectural and Theological Interface, Indigenous knowledge, antiquity, Indian vernacular architecture concepts covering informal, functional architecture of structures, built of local materials and designs to meet the needs of the local people and the intricate variations in local social customs, craftsmanship and climate.*

2. *The interpretations and reintroduction of spatial elements such as columns, brackets, jaalis, zarokhas, chhajas, stairs and cupolas to the remake of spatial themes such as courts, terraces, pavilions and caves related to sustainable concepts.*

3. *Sustainable Architectural concepts in history covering Indus valley, Aryan cultures, Buddhist, Dravidian, Indo Aryan, Hoysala Architecture, Islamic, provincial style, Mughal, colonial and postcolonial architecture and components of consideration such as materials, high ventilated roofs, integrated design, lighting, ventilation, vegetation and adopting to natural environment.*

4. *The Architectural concepts to emphasize local conditions, geography of region and peoples mind to emphasize traditional wisdom and sustainable concepts. Reposing faith in traditional wisdom, continuum of Vernacular concepts in contemporary Indian architecture.*

5. *Appropriate Case Studies*

Course Assignments:

Reading materials on Traditional Wisdom and Sustainability Concepts

Expected Time Spent on Course:

Time spent in hours: minimum 48 hours

Time spent in ECTS (European Credit Transfer and Accumulation System): 3 Credits

Course Evaluation

Evaluation Procedure & Criteria:

1. *Student assignments – Presentation by students – 30% weightage*
2. *Mid semester written examination – Theory – 20% weightage*
3. *End Semester written examination – Theory - 50% weightage*

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Energy Studies in Environmental Planning

Image Source: Photo by Aman Upadhyay on Unsplash

Description of course

Aim:

To introduce the fundamental concepts of quantification-based assessment of energy consumption.

Course Objectives:

This course shall pave the way to explore the concepts of energy studies pertaining to spatial planning.

Learning Outcomes:

To Understand the energy consumption, assessment, accounting and auditing for promoting efficient energy use.

Course Structure

Course Duration:

One semester (15-16 weeks) – 48 hours in total

Course Frequency:

Every Odd Semester of MEPM, II Year

Course Format:

Course format includes Lectures, Workshops and Short-term Project

Course Content

Prerequisites for Participation:

Pre-registration for the courses before the start of the semester.

Course Syllabus:

1. *Principles of Energy: Sources and Consumption:*
Energy Demand and Supply; sources of energy and typology of energy available at source; Quantification of Resource Consumption and patterns of consumption; Relating energy consumption patterns with sectors – residential, commercial, transport, etc.

2. *Cluster & Group Based Energy Use*
Energy efficiency and ISO; Introduction to ISO; ISO-14000 and its Planning Implications; Case Study of an ISO certified industry, Environmental and Financial Benefits of ISO; Cluster Based Environment Management approach & Group Environmental Management System.

3. *Monetary valuation techniques*
Monetary valuation techniques – Cost Benefit Analysis, Natural Resource Accounting, Pricing, Non-use Value, Techniques of monetary evaluation/ valuation methodologies; Energy Audit; Conservation Issues.

4. *CDM and Carbon Credit*
Concepts of cleaner development mechanism; Life cycle analysis; Carbon trading / GHG emissions.

5. *Energy efficiency and Re-use*
Energy vis-a-vis concept of smart cities; Solar city mission in India; Renewable energy concept and its application in planning; Green cities and its energy implication, energy footprint.

Course Assignments:

Reading materials on energy studies in planning

Expected Time Spent on Course:

Time spent in hours: minimum 48 hours

Time spent in ECTS (European Credit Transfer and Accumulation System): 3 Credits

Course Evaluation

Evaluation Procedure & Criteria:

1. *Student assignments – Presentation by students – 30% weightage*
2. *Mid semester written examination – Theory – 20% weightage*
3. *End Semester written examination – Theory - 50% weightage*

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Human Settlements and Climate Change

Image Source: Photo by Sanket Shah on Unsplash

Description of course

Aim:

To study human settlements in climate change perspective and understand strategies for adaptation and spatial planning tools for mitigation of GHG emissions.

Course Objectives:

This course shall pave the way to explore the concepts and theories of human settlement and climate change related studies.

Learning Outcomes:

To estimate urban GHG emissions, risk assessment, vulnerability and adaptation to climate change.

Course Structure

Course Duration:

One semester (15-16 weeks) – 48 hours in total

Course Frequency:

Every Odd Semester of MEPM, II Year - Elective

Course Format:

Course format includes Lectures, Workshops and Short-term Project

Course Content

Prerequisites for Participation:

Pre-registration for the courses before the start of the semester.

Course Syllabus:

1. *Introduction to Climate Change*
Concern, human settlements as a major source of emissions, vulnerability to impacts of climate change, emission paths, strategies, location of settlements, socio-economic characteristics, cultural practices and governance structure, suitable interventions.

2. *Climate Risk and Vulnerability in the City*
Risk due to climate change, risk assessment, impacts due to flooding, cyclones and landslides, impacts on infrastructure, urban governance and participation.

3. *Urban GHG Emissions*
Sectoral emission – residential, industrial, transport, waste disposal, reducing emissions and urban carbon footprints, carbon trading and other alternatives

4. *Climate Change Mitigation and Low-Carbon Cities*
Energy efficient approaches, Urban climate governance, transportation and energy systems for the future, land-use planning and compact cities, future and smart cities, reducing the urban heat islands, protecting urban water systems from climate change risks.

5. *Adaptation – Towards Climate Resilient Cities*
Includes climate change adaptation – migration as adaptation, climate change experiments and alternatives, Climate change, Vulnerable Regions and Groups – Tropics, farmers, gender, children, poor and migrants.

Course Assignments:

Reading materials on energy studies in planning

Expected Time Spent on Course:

Time spent in hours: minimum 48 hours

Time spent in ECTS (European Credit Transfer and Accumulation System): 3 Credits

Course Evaluation

Evaluation Procedure & Criteria:

1. *Student assignments – Presentation by students – 30% weightage*
2. *Mid semester written examination – Theory – 20% weightage*
3. *End Semester written examination – Theory - 50% weightage*

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SPA B

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Climate Informed Settlement Planning

Image Source: Photo by Tarun Anand Giri on Unsplash

Description of course

Aim:

The course intends to understand implications of climate change in settlement planning and explore various emerging theoretical frameworks to build resilience of settlements.

Course Objectives:

• To develop understanding for basic concepts related to climate change and resilience of settlements

• To explore various strategies (mitigation and adaptation) to address climate change impacts

• To explore different ways to identify climate change stresses being experienced by the city.

• To examine various emerging theoretical frameworks relating to building resilience to climate change related stresses and its application in a field-based exercise

Learning Outcomes:

• Conversant with emerging adaptation and mitigation strategies along with various resilience frameworks for its application in live projects.

• Conversant with the national and international covenants related to climate change.

• Able to identify stresses confronted by a settlement due to climate change.

• Able to apply theoretical frameworks through spatial planning interventions for enhancing resilience of settlements.

Course Structure

Course Duration:

16 weeks

Course Frequency:

Every Year

Course Format:

Theory (Core Course)

• The lecture sessions are to be used to introduce essential and methodical aspects.

• Reading assignment to develop an understanding of the current challenges due to climate change.

• Field explorations as primary research.

• Case studies-based co-learning through discussion.

• Students to explore theoretical constructs related to climate change resilience to develop a conceptual exploration around it.

• Output linked with the case studies framework. Emphasis on the applicability of the three separate methodologies developed from BReUCom (SPAB) case studies.

Course Content

Prerequisites for Participation:

Compulsory Core course as a part of regular curriculum of second semester Master of planning (Environmental Planning) programme, so all students are required to attend.

Course Syllabus:

Lectures on the following topics:

- Understanding Climate Change
- Mitigation and Low Carbon Development
- Adaptation Strategies and Climate Change Resilience
- Climate Change Resilience through Socio-Ecological Sustainability
- Building Climate Change Resilience

Course Assignments:

Tasks, homework, tests, expected activities of students, etc.

Expected Time Spent on Course:

Time spent in hours: Studio: Three hours per week for 16 weeks plus additional hours spent on field work)

Time spent in ECTS (European Credit Transfer and Accumulation System): Studio: 2 ECTS

Course Grading

Assessment Criteria and Distribution of Marks:

Stages & Details		***Percentage of Total Marks***
Continuous Assessment during conduction of Course		
Discussion on Article reading Assignment	The Evaluation was on Participation in the discussion; Understanding the contents; type of Question formulation and comments during the discussion	***10***
Article review of 100 words	Adapting to climate change in rapidly urbanizing river basins	***5***
	Multi-criteria decision analysis in policy-making for climate mitigation and development	***5***
	Agro-ecosystem based sustainability indicators for climate resilient agriculture in India (This paper is to understand the approach adopted for identifying indicators)	***5***

Online Test on Understanding of Climate Change Resilience through Socio-Ecological Sustainability	Resilience concept	***10***
	City-Resilience-Framework	
	Socio-ecological resilience (Scanned copy of two chapters)	
	Vulnerability and Adaptation Assessment of Bundelkhand region for climate Resilient Development	
	City-Resilience-Framework	
	Mainstreaming Climate Change Adaptation in Policy Making: A case of Bundelkhand region for climate Resilient Development	
Field Study based exercise on 'Building Resilience to Climate Change Stresses'	1. Analysing Climate change impacts and corresponding stresses for an area confronting urban transformation in peripheral areas of Bhopal city. 2. Analysing socio-ecological factors influencing the climate change stresses through field study 3. Identification of challenges towards building resilience to climate change stresses 4. Using various resilience frameworks suggesting mechanism for building resilience of the identified area	***15***
End Term Examination		
End Term Examination	Written examination of three hours (Format may change as per directives of MHRD for conducting exams due to COVID-19)	***50***
Total		***100***

Course Evaluation

Evaluation Procedure & Criteria:

Fifty percent weightage is to continuous assessment during the conduction of course, This has to be done through assignments and tests. Fifty percent weightage is assigned to performance in written exam (for theory subjects) at the end of semester. Descriptive and objectives questions are asked to test the knowledge attained in the subject.

Faculty Evaluation:

Faculty performance is evaluated through online students' feedback towards the end of semester on the basis 13 questions.

Student Evaluation:

Participation in the discussion after lectures; Participation in field work; Performance in the assignment and tests.

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SPA B

Course

Landscape Urbanism

Image Source: Photo by Elizabeth Villalta on Unsplash

Description of course

Aim:

The course intends to bring the development debates on urbanism and ecology through the approach of landscape urbanism. In last twenty years, landscape urbanism has developed into a disciplinary practice to mitigate the challenges posed by anthropogenic dominance in all fields of life.

Course Objectives:

This subject will critically look at the phenomenon of climate change and its relationship to social significance, implications for human health and urban infrastructure –where landscape urbanism occupies a central position in the development and design discourse. Case studies from Europe and India- systems of social, political and economic world would be discussed to understand the wider urban implications. The course will also reinterpret Urban design process as capacity to incorporate and give physical form to our growing scientific understanding of urban regions as social ecological systems. Case studies in international (BreUCom) as well as National ((Bhopal, Indore, Mumbai) will be studied specifically in this aspect.

The course will expect students to take up urban interventions, design case studies and orient their thinking towards the relationship in between the landscapes of city and region.

Learning Outcomes:

The course aims to achieve following learning outcomes with increased ability of students/participants to imbibe and critically understand:

a) The emerging urban discourse in South Asian continent with respect to urban ecology and environment.

b) The idea of resilience in urban systems and design in the context of climate change

c) The vulnerabilities identified of water systems, socio-economic systems, livelihood systems in urban context

d) How urban interventions and urban projects need to be reinterpreted through landscape urbanism perspective.

Course Structure

Course Duration:

13 weeks

Course Frequency:

The course is an elective and part of the existing syllabus of M.Arch.(Urban Design) program at School of Planning and Architecture Bhopal and will be offered every year in second semester of the urban design curriculum

Course Format:

The course looks at current development process through live examples and case studies to explore micro and macro aspects of urban network and system which are emerging in the times of climate change. The course therefore is mainly based on lectures and assignments. Site visits to relevant field case studies in the region of Madhya Pradesh are also part of the lecture plan.

Course Content

Prerequisites for Participation:

Student must have completed bachelor course in Architecture/Planning.

Course Syllabus:

- **Module-I** : social significance and implications for human health, environmental justice, and urban infrastructure –

  Case studies from India- systems of social, political and economic world

- **Module-II** :Urban design process, as capacity to incorporate and give physical form to our growing scientific understanding of urban regions as social ecological systems
- **Module-III** :Detailing our development model for a transformational urban design-ecology nexus- case studies from city planning projects across India
- **Module-IV** :Urban Ecology and City Form- relationships among design, infrastructure, and urban development- joining the three to achieve urban climate resilience and enhance sustainability.
- **Module-V** : Landscape Urbanism as way to move from an ecology of cities to an ecology for cities based on a knowledge-to-action agenda

Course Assignments:

Apart from reading and suggested documentary watching students are required to do following assignments

1) Selecting an urban infrastructure project currently being built in your area which you think has ecological dimensions or repercussions. Analyze the case and form an understanding of how it is related with urban landscape.

2) Writing a 2000-word paper on the topics of spatial implications:

●'Ethnoscapes' and Informality

●Place Marketing and Landscapes of Consumption

●Privatization, Fortification and Tightening of Public Space

●Non-place Realms and Virtual Public Spaces

●Threat of Climate Change and 'Peak Oil'

●Unhealthy Neighborhoods

3) Poster making on any urban ecology and climate change issue in global south.

Expected Time Spent on Course:

Time spent in hours: 26 Hours

Time spent in ECTS (European Credit Transfer and Accumulation System): Approximately 01 ECTS

Course Grading

Assessment Criteria and Distribution of Marks:

Description of Lesson	***Mode of Study/Presentation***
Lecture 1: Introduction to the subject and role of Nature-Urban in contemporary city thinking with respect to climate change.	
Lecture 2: What is climate change?	Reading I introduction
Lecture 3: Cities and Natural Process-I – Green and Blue in the city- How Landscape Urbanism is key to understand the emerging issues in climate change and urban form.	Discussion on reading- I- 10% Marks
Lecture 4 : Climate Change Perspective-I - social significance and implications for human health, environmental justice, and urban infrastructure – Case studies from Europe and India- systems of social, political and economic world	
Lecture 5: Climate Change Perspective-II -Urban design process, as capacity to incorporate and give physical form to our growing scientific understanding of urban regions as social ecological systems	Reading II introduction
Bird Watching at Van Vihar	
Lecture 5: Climate Change Perspective-III Facing new climate change risks and vulnerabilities – mapping, documenting and analyzing	Reading I discussion
Lecture 6: Site visit to Bhopal OR Indore – Understanding factors of Green and Blue Plan for a city assignment No-1- Urban Issue and Landscape Urbanism	*Reading II discussion Discussion on reading 10% Marks*
Lecture 7: Detailing our development model for a transformational urban design-ecology nexus- case studies from city planning projects across India	
presentations by students- assignment No-2- seminar on chosen issue	*40% marks*
Lecture 8: Urban Ecology and City Form- relationships among design, infrastructure, and urban development- joining the three to achieve urban climate resilience and enhance sustainability- Case studies from BreUCom symposiums	Reading III and Reading IV Introduction
Lecture 9: Landscape Urbanism as way to move from an ecology of cities to an ecology for cities based on a knowledge-to-action agenda	
Presentations and Final Assessment- assignment No-3- poster making	30% marks

Remaining 10% marks will be awarded on the basis of class involvement and completion of readings.

Course Evaluation

Evaluation Procedure & Criteria:

The nature of this particular subject is elective based. The institution evaluates it on the basis of continuous internal assessment of submissions during the semester and end term viva-voce examination. Weightage for the both evaluation is 50% (totaling to 100%) where student have to pass the subject separately in both evaluations with minimum 25% marks in each.

Faculty Evaluation:

School of Planning and Architecture Bhopal has an institute wide faculty evaluation format which is filled by students at the end of every semester.

Student Evaluation:

In addition to continuous evaluation of submissions and tasks, students are also evaluated on the basis of involvement in the class, through discussions, initiatives, bringing new information on relevant subject in the class, reading subject related books and completion of readings.

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Vernacular Construction Techniques in Kangra Region

Image Source: Photo by Vivek Sharma on Unsplash

Description of course

Aim:

To explore the Resilient Vernacular Construction Techniques in Hills

Course Objectives:

To identified the vulnerable locations in Kangra Region.
To identify various existing Vernacular Construction Techniques.
Studying the level of resilience provided/ gained by using Vernacular construction techniques for mitigating the adverse impact of landslide, cloud burst, flood and earthquake
To suggest context-based planning and design strategy for Resilience community planning.

Learning Outcomes:

Upon successful completion of the course, the students will be able to
Understand the Vernacular practices in Himachal Pradesh.
Analyze the sustainability of vernacular construction techniques.
Understand to resilience of vernacular construction techniques.

Course Structure

Course Duration:

12 weeks

Course Frequency:

The course designed to be conducted every year with varied locations having indigenous construction vocabulary.

Course Format:

1. Lecture:
    - Hill architecture, Building Types, techniques and materials of vernacular architecture of Himachal Pradesh
    - Definitions of resilience; Types of Resilience: Community resilience; Effect of Climate change and natural disasters on resilience
    - Vulnerabilities and its assessment in hill settlement(s)
2. Literature Study: Study of Vulnerability Atlas; Disasters Management in Himachal Pradesh;

   Literature review of various studies.
3. Site study and analysis: Study area data collection and site system analysis.
4. Design Studio Exercise: Design intervention based upon the gained knowledge and discussion.

Course Content

Prerequisites for Participation:

All the admitted students of M.Arch. (Sustainable Architecture), Department of Architecture, NIT Hamirpur

Course Syllabus:

UNIT-01

Hill architecture and its unique attributes and concerns.

Concept and Importance of resilience; Types of Resilience

Vulnerabilities and its assessment in hills

UNIT-02

Building Types, techniques and materials of vernacular architecture of Himachal Pradesh;

Koti Banal Architecture (Kath-Kuni), Thathara houses, Dhajji construction etc.

UNIT-03

Measuring resilience of Vernacular construction techniques.

Relevance of Vernacular construction techniques in present contexts: Social, economic and Environmental.

Measuring Community Resilience of proposed design.

Course Assignments:

Assignments: Study of Disasters Management in Himachal Pradesh

Identifying various existing Vernacular Construction Techniques

Literature review of various studies

Design Exercise: Study area and relevant data collection

Design Exercise: Analysis and Design

Expected Time Spent on Course:

Time spent in hours: 75 hours

Time spent in ECTS (European Credit Transfer and Accumulation System): 3 ECTS

Course Grading

Assessment Criteria and Distribution of Marks:

Stages & Details	***Percentage of Total Marks***
1. *Study of Disasters Management in Himachal Pradesh*	*5%*
2. *Identifying various existing Vernacular Construction Techniques*	*20%*
3. *Literature review of various studies*	*10%*
4. *Site Study and relevant data collection*	*5%*
5. *Site analysis*	*10%*
6. *Pre final Design proposal*	*20%*
7. *Final portfolio assessments*	*30%*
Total	***100%***

Course Evaluation

Evaluation Procedure & Criteria:

The evaluation Procedure & Criteria is as per Section 7. Evaluation and Grading system for Course work/project/training (7.2.c Studio Courses Having Lectures and Drawings) given in Ordinances For Master Programmes of NIT Hamirpur, available at:

https://www.nith.ac.in/uploads/topics/15826280304025.pdf

Faculty Evaluation:

National institute of technology, Hamirpur has an institute wide faculty evaluation format which is filled by Students at the end of every semester.

Student Evaluation:

Students are evaluated at a continuous basis. Viva and Presentations at regular intervals are conducted during the semester. End semester evaluation is done by external faculty member. In addition students are also evaluated on the basis of literature understanding and related assignments.

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Resilient settlement in Himachal Pradesh

Image Source: Photo by Nomad Bikers on Unsplash

Description of course

Aim:

To understand the concept of resilience and its importance in hill settlements

Course Objectives:

1.To study the concept of resilience and its relationship with sustainability
2. To study the vulnerabilities in hill settlement(s)
3. To study various relevant literature and identification of important factors determining resilience
4. To collect the data and analyse the resilience in hill settlement(s)

Learning Outcomes:

Concept of resilience, its importance and its relation with sustainability;
determining the status of resilience in hill settlement(s) and
the development of suitable strategies for enhanced resilience

Course Structure

Course Duration:

16 weeks

Course Frequency:

The course designed to be conducted every.

Course Format:

1. Lecture: Concept of resilience; its relationship with sustainability
2. Lecture: Definitions of resilience; Importance of resilience; Resilience Theory; Types of Resilience
3. Lecture: Community resilience; Effect of Climate change and natural disasters on resilience
4. Lecture: Vulnerabilities and its assessment in hill settlement(s)
5. Exercise: Study of Vulnerability Atlas; Disasters and its Management in Himachal Pradesh
6. Exercise: Literature review of various studies on community resilience and identification of factors
7. Exercise: Study area and relevant data collection
8. Exercise: Analysis and discussion

Course Content

Prerequisites for Participation:

All the admitted students of M.Arch. (Sustainable Architecture), Department of Architecture, NIT Hamirpur

Course Syllabus:

Unit 1
Concept of resilience; its relationship with sustainability
Definitions of resilience; Importance of resilience;
Resilience Theory; Types of Resilience: Psychological, Emotional, Physical, and Community

Unit -2
Community resilience;
Effect of Climate change and natural disasters on resilience
Vulnerabilities and its assessment in hill settlement(s)

Unit-3:
Measuring Community Resilience

Course Assignments:

1. Exercise: Study of Vulnerability Atlas; Disasters and its Management in Himachal Pradesh
2. Exercise: Literature review of various studies on community resilience and identification of factors
3. Exercise: Study area and relevant data collection
4. Exercise: Analysis and discussion; conclusion

Expected Time Spent on Course:

Time spent in hours: 100 hours
Time spent in ECTS (European Credit Transfer and Accumulation System): 4 ECTS

Course Grading

Assessment Criteria and Distribution of Marks:

Stages & Details	***Percentage of Total Marks***
1. Introduction: Resilience	*5%*
2. Study of Vulnerability Atlas; Disasters and its Management in Himachal Pradesh	*15%*
3. Literature review of various studies on community resilience and identification of factors	*20%*
4. Study area and relevant data collection	*10%*
5. Analysis and discussion	*20%*
6. Conclusion	*10%*
7. Final viva voce	*20%*
Total	***100%***

Course Evaluation

Evaluation Procedure & Criteria:

The evaluation Procedure & Criteria is as per Section 7. Evaluation and Grading system for Course work/project/training (7.2.c Studio Courses Having Lectures and Drawings) given in Ordinances for Master Programmes of NIT Hamirpur, available at: https://www.nith.ac.in/uploads/topics/15826280304025.pdf

Faculty Evaluation:

National institute of Technology, Hamirpur has an institute wide faculty evaluation format which is filled by students at the end of every semester.

Student Evaluation:

Students are evaluated at a continuous basis. Student Evaluation process includes timely submission of report(s) and presentation of work.

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