PROGRAMME EDUCATIONAL OBJECTIVES (PEOs):

I. To provide students with additional knowledge and skills as an architect/researcher/teacher.

II. To enable students to add value to the process of architectural design by incorporating depth in already existing fields of study relevant to architecture.

III. To enable students to widen the scope of their professional abilities through additional fields of study that would enhance their knowledge in intellectual, creative, technical, social and environmental realms.

IV. To enable students to take independent, informed and innovative decisions within the discipline of architecture.

V. To enable students to contribute to larger society through their future career as architect/researcher/teacher.

PROGRAMME OUTCOMES (POs):

On successful completion of the programme,

1. Graduates will demonstrate an all round skill in design and research.

2. Graduates will be able to identify additional parameters/issues within the context of architectural design and resolve them.

3. Graduate will be able to resolve architectural problems with due consideration to urban issues and environmental issues.

4. Graduates will be able to bring technical expertise in analysis and synthesis.

5. Graduates will be able to apply cutting edge methods/tools/approaches in the resolution of problems.

6. Graduates will be able to bring critical thinking in the consideration of any aspect of design.

7. Graduates will be able to identify problems or create design solutions in a holistic manner.

8. Graduates will be able to contribute further to society through their design/research/teaching.
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ANNA UNIVERSITY, CHENNAI
AFFILIATED INSTITUTIONS
M.Arch.
REGULATIONS – 2017
CHOICE BASED CREDIT SYSTEM
CURRICULA AND SYLLABI FOR I TO IV SEMESTERS

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*Professional Training of duration minimum 4 weeks full time or 8 weeks part time to be done in a firm specializing in any area(s) related to the Professional Core courses during semester vacation.

**TOTAL NO OF CREDITS:** 75
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## PROFESSIONAL CORE (PC)

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## PROFESSIONAL ABILITY ENHANCEABILITY COURSE (PAEC)

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OBJECTIVES

- To introduce the idea of conservation as enhancing quality of life, as effective planning strategy, as means of particularization of place and as a way to address issues of memory and identity.
- To give an overview of current status of conservation in India and introduce issues and practices of urban conservation at various levels and scales.

UNIT I INTRODUCTION TO CONSERVATION


UNIT II CONSERVATION IN INDIA


UNIT III CONSERVATION STRATEGIES

Listing of monuments – documentation of historic structures – assessing architectural character – historic report – guidelines for preservation, rehabilitation and adaptive re-use of historic structures – seismic retrofit and disabled access /services additions to historic buildings – heritage site management.

UNIT IV URBAN CONSERVATION

Over view of urban history of India and Tamil Nadu – understanding the character and issues of historic cities – select case studies of sites like Thanjavur, Kumbakonam, Kanchipuram, Chettinad – historic districts and heritage precincts.

UNIT V CONSERVATION AND URBAN PLANNING

Norms for conservation of heritage buildings and sites as part of Development Regulations - Heritage districts - Conservation as a planning tool – financial incentives and planning tools such as TDR, (transferable development right) – Urban conservation and heritage tourism.

TOTAL: 45 PERIODS

OUTCOMES

- The students would gain an understanding of the need and benefits of urban conservation.
- The students would be sensitised as well as informed to carry forth this understanding in the realm of practice/ research.

REFERENCES

7. INTACH, Conservation Briefs
OBJECTIVES

- To introduce and enable understanding of various aspects of urbanism through historical and theoretical frameworks
- To understand issues of contemporary urban form.
- To understand the role of urban design interventions.

UNIT I  INTRODUCTION  12
Introduction to origin and evolution of cities and urbanism- historic review of the development of the urban design discipline and principles.

UNIT II  READING THE URBAN FABRIC  9
Introduction to different ways of reading and interpreting the urban fabric/ city such as imageability, typology, phenomenology, behavioral studies, diagramming-mapping

UNIT III  ISSUES OF CONTEMPORARY URBAN FORM  9
Introduction to various issues and aspects that impinge on the urban condition today such as globalisation, digital revolution, contemporary processes, sustainability, splintering urbanism through changes in information and communication networks and transportation. Role of big data analytics in inclusive urbanism

UNIT IV  URBAN INTERVENTIONS- SUSTAINABLE DEVELOPMENT  9
Sustainable development– Sustainable Cities Program - Revitalization of brown field sites- Transit Metropolis- Case Studies

UNIT V  URBAN INTERVENTIONS- RESTRUCTURING THE CITY  6
Contemporary Processes in Urban Design- Place making in the Digital Age – Reconfiguring public realm – Urbanisation and Excursions on density.

TOTAL: 45 PERIODS

OUTCOMES

- Awareness of urbanism as a phenomenon.
- Knowledge about different ways of addressing urban issues.

REFERENCES
2. Edmund Bacon, Design of Cities , Penguin, 1976
6. Charles Correa, Housing and Urbanisation, Thames and Hudson, 1999
7. Donald Appleyard, Kevin Lynch, John R. Myer, The View from the Road, MIT Press 1965
10. Peter Calthorpe, Urbanism in the age of Climate Change, Island Press; 2 edition (June 1, 2013)
OBJECTIVES:
- To investigate the contemporary theories of media and their influence on the perception of space and architecture.
- To provide an overview of various contemporary design processes and its relation to computation.

UNIT I INTRODUCTION 6

UNIT II ASPECT OF DIGITAL ARCHITECTURE 9

UNIT III CONTEMPORARY PROCESS 12

UNIT IV GEOMETRIES AND SURFACES 12
Fractal Geometry and their properties – Architectural applications - Works of Zvi Hecker— Shape Grammar - Shapes, rules and Label - Shape Grammar as analytical and synthetic tools- Combining Shape grammar and Genetic algorithm to optimize architectural solutions - Hyper Surface—Introduction to Hyper surface and concepts of Liquid architecture.

UNIT V CASE STUDIES 6
Case studies- Study, understanding and analysis of known examples at the national and international levels which demonstrates the contemporary theories of media and their influence on the perception of space and architecture, contemporary design processes and its relation to computation.

TOTAL: 45 PERIODS

OUTCOMES:
- Understanding of the effect of contemporary theories of media on contemporary architectural design.
- Understanding of various contemporary design process and their relation to computation

REFERENCES:
2. Contemporary Techniques in Architecture, Halsted Press, 2002
5. MOVE, UN Studio
6. Peter Eisenmann, Diagram: An Original Scene of Writing, Diagram Diaries
MH5111  URBAN MORPHOLOGY  L T P/S C 0 0 6 3

OBJECTIVES
• To understand the phenomenon of urbanism through case studies engaging ideas, tools and techniques.

The course enables an understanding of urban morphology through applying ideas, methods and techniques of urban design to the practical study of the city. The various processes that influence the evolution of urbanism as well as the resultant morphology would be understood through the study. The city would be understood from different perspectives - climatic, historic, perceptual, social, density, economics, infrastructure systems etc., The role of architecture in shaping the city would also be studied in detail. Emerging tools for reading urbanism such as mapping and big data analytics will be explored in detail.

TOTAL: 90 PERIODS

OUTCOME
• Study of emerging urban processes would help understand the relationship between architecture and the city and thereby contextualize architectural design process.

REFERENCES
7. Project on the City, Great Leap Forward, Harvard Design School, 2001
10. Yes is More, Taschen, 2009

MH5112  ADVANCED ARCHITECTURAL DESIGN STUDIO I  L T P/S C 0 0 10 5

OBJECTIVES
To engage in architectural design in the context of the city.

The studio will focus on architecture as being shaped by and shaping the urban context. The process of architectural design would be seen along with the aspects such as nature of cities, urban morphology, history, place, density, society, public realm, economy, climate and microclimate, ecology, legislation, finance. The design projects would become the site for taking positions on specific issues and developing these ideas to completion.

OUTCOME
• An ability to design buildings that respond to emerging urban conditions

TOTAL: 150 PERIODS
OBJECTIVES

- To sensitize the students to the importance of sustainable design
- To make students aware of the ways to sustainable design.
- To help students develop analytical abilities in the evaluation of buildings with respect to sustainability.

UNIT I INTRODUCTION
Basics of ecology, ecosystems, energy and material cycles in nature- function of ecosystem- Attitudes to sustainable architecture: a historical perspective- Concept of Sustainability and Sustainable Development - Carrying capacity, EIA- Global and local environmental issues- climate change, global warming, loss of bio-diversity, urban heat islands- Impact of construction sector on environment; Need, general premises and strategies for sustainable and green design.

UNIT II SUSTAINABLE PLANNING AND ARCHITECTURE
E’s of sustainability - Integrated approach to environmental design, Settlement level planning, Urban ecology, Urban planning considerations- Building and its interactions with the environment, general principles for minimizing environmental impact of buildings- Eco-mimicry as a design tool based on ecosystem analogy- The form of the house: the building as an analogy- Site planning considerations, working with climate: passive design principles, building envelope design, indoor environment quality-case studies.

UNIT III ENERGY AND WATER MANAGEMENT IN BUILDINGS
Energy management in buildings - reducing demand- relying on renewable energy- net zero/ energy plus buildings - photovoltaics and solar hot water systems- small scale wind systems and hydro power- Water management in buildings- water saving / demand management, water harvesting for recharge and use, reuse/ recycling

UNIT IV ENVIRONMENTAL IMPACT OF BUILDING MATERIALS
Impact of building materials- calculating embodied energy- impact of recycling, processing and time on embodied energy- embodied energy of different building materials, carbon foot print considerations for choice of materials for low energy- life cycle analysis- optimizing construction, site management, post occupancy building management- Adaptive reuse, Brown field site development, construction and demolition waste management

UNIT V POLICIES AND PRINCIPLES

TOTAL: 45 PERIODS

OUTCOMES

- An understanding on sustainability as applicable to architecture and planning.
- Knowledge on renewable energy and energy conservation through material usage.
- Ability to critically analyse buildings with respect to sustainability.

REFERENCES

MH5251 RESEARCH METHODOLOGIES IN ARCHITECTURE

OBJECTIVES

- To introduce the students to the importance of critical inquiry as a way of gaining knowledge and adding to it through research.
- To expose the students to the various forms of research and research methodologies/processes.
- To engage this understanding in the specific field of architectural research.

UNIT I INTRODUCTION
Basic research issues and concepts- orientation to research process- types of research: historical, qualitative, co-relational, experimental, simulation and modeling, logical argumentation, case study and mixed methods- illustration using research samples

UNIT II RESEARCH PROCESS
Elements of Research process: finding a topic- writing an introduction- stating a purpose of study identifying key research questions and hypotheses- reviewing literature- using theory- defining, delimiting and stating the significance of the study, advanced methods and procedures for data collection and analysis- illustration using research samples

UNIT III RESEARCHING AND DATA COLLECTION
Library and archives- Internet: New information and the role of internet; finding and evaluating sources- misuse- test for reliability- ethics
Methods of data collection- From primary sources: observation and recording, interviews structured and unstructured, questionnaire, open ended and close ended questions and the advantages, sampling- Problems encountered in collecting data from secondary sources.

UNIT IV REPORT WRITING
Research writing in general- Components: referencing- writing the bibliography - developing the outline - presentation; etc.

UNIT V CASE STUDIES
Case studies in the relevant discipline illustrating how good research can be used from project inception to completion- review of research publications.

TOTAL: 45 PERIODS

OUTCOMES

- The student will develop the skill to identify, decipher and interpret issues relating to architecture based on research enquiry methods.
- The student will gain knowledge of different methods of conducting research and research writing.
REFERENCES
1. Iain Borden and Kaaterina Ruedi Ray; The Dissertation: An Architecture Student’s Handbook; Architectural Press; 2006
3. John W Creswell; Research design: Qualitative, Quantitative and Mixed Methods Approaches; Sage Publications; 2011.
5. Ranjith Kumar; Research Methodology- A step by step guide for beginners-3rd Edition ; Sage Publications;2011
6. Wayne C Booth; Joseph M Williams; Gregory G. Colomb; ‘The Craft of Research’, 3rd Edition; Chicago guides to writing, editing and publishing;2008

MH5221 PERFORMANCE EVALUATION OF BUILDINGS L T P/S C
2 0 2 3

OBJECTIVES
- To investigate the simulation and audit techniques for assessing the energy performance, environmental response and impact of built form.

UNIT I INTRODUCTION TO BUILDING PERFORMANCE EVALUATION 6
Emerging role of performance evaluation in building design and master planning- Performance audit and rating systems- GRIHA, LEED IGBC and BREAM Comparative analysis of green rating systems – Architectural Computation and performance audit- Introduction to Building performance simulation tools

UNIT II ENVIRONMENTAL ASSESSMENT METHODS AND MODELING FOR PASSIVE SYSTEMS 15
Modeling and experimental techniques for building assessment/ evaluation and design – Basics of thermal comfort, solar shading/access/ control, day lighting, acoustics, air movement etc. – issues and opportunities with current assessment modes/ evaluation tools- Evaluation and assessment based on Building type/ function and program – Building performance with respect to function, program, micro climate, urban planning, envelope design, material – Computer studio and simulation-Mathematical models of heat and mass transfer phenomena through building components: transfer function methods and numerical methods – Models of radiative and convective heat transfer phenomena within buildings.

UNIT III POST OCCUPANCY EVALUATION OF BUILDINGS 15
Purpose and components of Post occupancy evaluation (POE), Building performance bench marks, Occupant satisfaction, Indoor air quality, PPD & PMV analysis, Techniques and methods for post occupancy evaluation, Assessing existing buildings based on their energy and water usage.

UNIT IV ADVANCE BUILDING SIMULATION AND ENERGY MODELLING 15
Integration of simulation tools with BIM, RAPID ENERGY MODELLING - Modelling and performance simulation of existing buildings – residential-institutional- design of a new residential building using energy simulation tools
UNIT V  SEMINAR AND CASE STUDY PRESENTATION

Case study presentation of students on performance evaluation of a building identified by them and approved by the course faculty – Seminar on topics approved by the course faculty.

TOTAL: 60 PERIODS

OUTCOMES

- The students will gain knowledge on environmental assessment methods, audit and simulation techniques.
- Will add value to architectural design processes and equip students with energy modeling skills.

REFERENCES

5. https://www.designbuilder.co.uk

MH5281  BUILDING INFORMATION MODELING

OBJECTIVE

- To equip students with skills and information to build comprehensive Building Information Models (BIM) using appropriate Digital software and Media.

UNIT I  INTRODUCTION TO THE FUNDAMENTALS

Key concepts of BIM - reading and manipulating the software Interface - navigating within views - selection methods - the importance of levels and grids- creating walls, doors, windows, and components - working with essential modification commands and load family. Creating floors, ceilings, and stairs - working with type and instance parameters - importing CAD drawings - understanding the project browser and type properties palettes - adding sheets - inserting views onto sheets - adding dimensions and text to the mode and plotting

UNIT II  ADVANCED MODELING –FAMILY TYPES AND TOPOSURFACE MODELLING

Creating curtain walls, schedules, details, a custom family, and family types - “flex” a family with family types and work with reference planes - creating rooms and an area plan - tag components - customize existing wall styles. Create and edit a toposurface, add site and parking components - draw label contours - work with phasing - understand groups and links - work with stacked walls - and learn the basics of rendering and create a project template.
UNIT III RENDERNING AND MATERIAL APPLICATION
Choosing material for buildings - Creating custom walls, floors, and roofs - keynoting - working with mass elements - enhancing rendering with lighting - producing customized materials - Using sun and shadow settings - Walkthrough technique - adding decals - working with design options and worksets - and calculating energy analysis - managing revisions

UNIT IV BIM FOR BUILDING ENERGY SIMULATION
Energy simulation for conceptual BIM models using massing - Detailed modeling using design elements - Rapid energy modeling and simulation with Autodesk® Revit® Conceptual Energy Analysis features to simulate performance from within Revit Architecture - Use Autodesk® Green Building Studio® to produce energy consumption, carbon neutrality and renewable potential reports.

UNIT V BIM FOR COST ESTIMATING, PROJECT PHASING AND ADMINISTRATION
Introduction and theoretical information on the following topics - Model based Cost Estimating - Challenges in cost estimating with BIM - Cad geometrics vs BIM element description - Visual data models - Material substitutions and value engineering - detailed estimates and take off sheets - XML and automated cost estimate - project phasing and management - 4D modeling - BIM for project lifecycles.

TOTAL: 90 PERIODS

OUTCOMES
• This is a project-based course where students gain knowledge on the implementation of BIM concepts throughout the lifecycle of a building, from planning and design, to construction and operations.
• The students will learn about how to use BIM for building energy performance simulation, construction administration

REFERENCES

MH5211 ADVANCED ARCHITECTURAL DESIGN STUDIO II

OBJECTIVES
• To incorporate sustainability in architectural design at various scales.
• To balance varied technical and planning considerations in building design with aspects of sustainability.
The studio will focus on the challenges of incorporating sustainable principles into architectural design projects and typologies of increased complexity that are prevalent in the contemporary world. Aspects of planning, technology, services, density, height of construction, management would be examined along with considerations such as environmental performance, resource optimisation, ecological impact in order to produce a viable synthesis of diverging needs.

TOTAL: 150 PERIODS

OUTCOME
• An ability to balance human needs with environmental concerns in architectural design.
OBJECTIVES

- To look at contemporary architectural practices/practitioners along with stated ideas/theoretical writings in order to understand the relation between ideas/theory and practice.
- To look at how architectural practices engage with issues/conditions either as reactions to or as concurrence with contemporary world.
- To look at architecture and understand the larger forces/context that produces it.
- To engage in architectural interpretation and criticism.

UNIT I ARCHITECTURE AND MEANING
Interpreting and analysing ideas/writings and works of architects that address the question of meaning-for example Bernard Tschumi, Peter Eisenman-Discussion of contemporary iconic architecture/Starchitecture through stated intent-for example Frank Gehry, Zaha Hadid, Daniel Libeskind-interpreting and analysing ideas and works of BIG architects.

UNIT II ARCHITECTURE AND CONTEXT
Interpreting and analysing ideas/writings and works of architects who address universals of architecture within a particular context-for example Zumthor, Murcutt, Siza, Barragan, Souto de Moura, Correa, Doshi-interpreting and analysing ideas/writings and works of architects who address sustainability-for example Ken Yeang, William McDonough.

UNIT III ARCHITECTURAL FORM IN THE DIGITAL AGE
Interpreting and analysing ideas/writings and works of architects that derive form through contemporary processes of design and engaging current technology-example Greg Lynn, ZHA, UNstudio, NOX, Novak, FOA.

UNIT IV ARCHITECTURE AND THE CITY
Interpreting and analysing ideas/writings and works of architects that engage with the city/its issues-for example Rem Koolhaas, MVRDV.

UNIT V EMERGING ARCHITECTURAL PRACTICES IN INDIA
Study and analysis of emerging practices in India along with their stated ideals/approaches/writings in the context of the diverse interests and concerns of the contemporary world.

TOTAL: 45 PERIODS

OUTCOME

- A critical understanding of architectural ideas and practice prevalent in the contemporary world that would inform architectural ideas/positions and design responses.

REFERENCES

1. B.V. Doshi, Paths Uncharted
2. Bjarke Ingels, Yes is More
3. Daniele Pauly, Barragan, Space and Shadow, Walls and Colour, Birkhauser 2002
5. Kate Nesbitt, Theorizing a New Agenda for Architecture, Princeton Architectural Press, 1996
9. MVRDV, FARMAX
10. Rahul Mehrotra, Architecture in India since 1990
MH5351  ARBITRATION AND ADVANCED PROFESSIONAL PRACTICE  L T P/S C

3 0 0 3

OBJECTIVES:
- To provide exposure to the importance and intricacies of Arbitration as an Alternative Disputes Resolution (ADR) Mechanism.
- To learn the importance of various legislations and Acts as well as the relevance of ‘Awards’ and judgments given by courts.
- To enable the understanding of the roles and responsibilities of various professional bodies.
- To provide and exposure to the systems and proceeding of Arbitration.

UNIT I  IMPORTANCE OF ARBITRATION AS AN ALTERNATIVE DISPUTES RESOLUTION (ADR) MECHANISM


UNIT II  APPOINTMENT OF ARBITRATORS - THEIR ROLES AND RESPONSIBILITIES, TECHNICAL TERMS AND COMMENTS

How Arbitration proceedings are initialed - Reasons leading to Arbitration - Procedures and Communication - Composition of Arbitral Tribunal - Appointment of Arbitration and umpire - Interim Measures by Court / Arbitral Tribunal - Jurisdiction of Arbitral Tribunal - Conduct of Arbitral proceedings - Determination of Rules and procedure.

UNIT III  ARBITRAL PROCEEDINGS

Place and language of proceedings - Claim statements and counter claim - Hearings and written proceedings - Experts and Assistance from courts - Form and contents of Arbitral Awards - Setting aside the Arbitral awards - Appeals, insolvency and Limitation - Misconduct of Arbitrator.

UNIT IV  PROJECT MANAGEMENT CONSULTANCY

Introduction - practices and strategic issues related to construction project management - understanding of issues related to management of clients and other stakeholders involved in the delivery of a project.

UNIT V  PRACTICE AND CASE-STUDIES

Emerging trends in Arbitration in India through Cases – Landmark awards and judgements by the various courts and judiciary - Case Studies in Project Management Consultancy.

TOTAL: 45 PERIODS

OUTCOMES:
- The student will be familiar with the various legal systems that are in force and the methods of handling disputes.
- The student will understand the role and responsibility and the ethical standards that govern an architectural practice.

REFERENCES:
5. Prof. MadhavDeobhakta; Arbitration for Architects and Project Managers, 2011.
OBJECTIVES:
- To expose the students to the various thrust areas in architecture.
- To inculcate the spirit of research in architecture by providing opportunities to read on various issues.
- To expose the students to the finer details of technical writing.
- To provide a platform for a prelude to the ‘Design Thesis’.

Dissertation is best expressed as ‘Design in text’. It offers an opportunity to look at the research component in architecture in various thrust areas such as history, theory, design and other value based aspects through texts. Students are encouraged to choose any topic of their interest. This may range from analyzing and a critique of the works of an architect, ideologies and philosophies of architects that get transformed spatially, history, typological architecture, sustainability issues and so on. the dissertation must comprise of an aim, the objectives, the scope and limitations of their dissertation, hypothesis (if any), methodology followed by extensive review of literature through references and documentation. The analysis of the work must be substantiated either empirically or through extensive arguments. A dissertation could also be a Thesis preparation course and gives the student scope for independent study and opportunity to explore specific area of interest which will form the basis of his/ her design thesis project in the next semester. The topic will have to be approved at the start of the semester and reviewed periodically to a jury at the end of the semester.

TOTAL: 90 PERIODS

OUTCOME
- A Dissertation book which is based on accepted norms of technical writing.
- An understanding leading to formation of thesis ideas.

REFERENCES:
2. John W Creswell; Research design: Qualitative, Quantitative and Mixed Methods Approaches;
5. Wayne C Booth; Joseph M Williams; Gregory G. Colomb; The Craft of Research, 2nd Edition; Chicago guides to writing, editing and publishing.

OBJECTIVES:
- To understand contemporary processes and tools in architectural design.
- To integrate the processes and tools in the design of projects, including those with increased complexity of parameters.

The design studio will focus on the role of emerging tools and processes for understanding of complex and macro forces in the realm of the built environment as well as designing within this context. It would explore relationships between user group activity, movement, landform and urban form using diagramming and mapping tools to come up with creative prescriptions of certain projected scenarios.
The studio will also emphasize on collaborative learning processes. The projects would be of macro scale involving large campus/township oriented architectural projects as well as architectural design interventions in the urban context.

TOTAL: 150 PERIODS

OUTCOME
- Students would be aware of contemporary processes and tools of design.
- Students would use these processes and tools in the design projects to identify and address specific aspects of the project, as well as integrate complexity of connections and issues.

MH5412 PROJECT PHASE II - THESIS

OBJECTIVES
- To integrate the knowledge gained in the previous semesters with respect to issues/tools of architectural design at a more advanced level.
- To understand and identify issues appropriate to a particular project or area of architecture, through independent thinking as well as to design in a manner appropriate to the project context.

The students will synthesize the areas of knowledge, skills and techniques acquired in the various courses of the previous semesters through a thesis project of their choice. This thesis project would be a design project with a strong research component. The project would desirably extend the critical position developed within the theory and studio projects as well as dissertation. The scale of the project could extend from individual site to settlement levels. The initial process shall be rigorous, incorporating background research on the topic, case studies, documentation of project issues, context, site and building information, programming. The process would culminate in design interventions at scales appropriate to the topic. The project shall desirably have the potential to serve as a starting point for practice and/or further research. Students will submit a detailed proposal on their topic of interest(s). The Proposal shall be approved by the thesis review committee. The thesis project will be reviewed periodically by the review committee. At the end of the semester, the final thesis will be submitted and presented through a viva voce examination before a jury.

TOTAL: 300 PERIODS

OUTCOME
- Students would be able to integrate various contemporary/advanced issues and techniques into the architectural design process.
- Students would be able to identify and go in depth into specific and appropriate aspects relating to the discipline of architecture and reflect this in the realm of design.

MH5001 ANTHROPOLOGY AND ARCHITECTURE

OBJECTIVES:
- To understand the relationship between society and the making of the built environment.
- To understand phenomenology and the role of meaning in built form.
- To look at place making from the architectural as well as urban design point of view.
UNIT I  RELATIONSHIP BETWEEN CULTURE, SOCIETY, ANTHROPOLOGY AND ARCHITECTURE 6

UNIT II  ANTHROPOLOGY OF TRADITIONAL ARCHITECTURE 10
Architecture as a Process – kinship and house societies – perceptions of built form – conceptions of space – symbolism and technology – study of the above through case study of traditional architecture in India, Asia and Africa.

UNIT III  ANTHROPOLOGY AND PLACE MAKING 15

UNIT IV  AN OVER VIEW OF URBAN ANTHROPOLOGY 6
Meaning of urban studies and urban anthropology – role of cities – urban ethnography, primary units, major components and units of integration – anthropology and contemporary urban issues.

UNIT V  SEMINAR 8
Students would make presentations exploring the relevance and impact of anthropological studies on contemporary architecture and design through readings/case studies. The proposal must be discussed with course faculty prior to presentation.

TOTAL: 45 PERIODS

OUTCOME
- A comprehensive understanding of architecture and urbanism as expressions of particular societies in time and place.

REFERENCES
2. Edwin James; Anthropology of the City; Prentice Hall; 1977.
3. F Bollnow; Mann, Bensch and Raum, Stuttgart; 1963.
4. J Carstern and S H Jones; About the house: Levi Strauss and Beyond; Cambridge University Press; 1955.

MH5002  ARCHITECTURE AND CRITICAL THEORY  L T P/S C
3 0 0 3

OBJECTIVES
- To introduce the idea of architecture as enmeshed in society and a product of larger socio-cultural processes, and not as autonomous object within a hermetically sealed discipline.
- To introduce the various interdisciplinary critical theories and explain their interpretation of architecture.
UNIT I  INTRODUCTION

UNIT II  POWER AND GENDER IN ARCHITECTURE
Definition of power- Forms of power- ideas of power and society, power-knowledge- postcolonialism- Colonialism in India as a form of dominance- architecture and urbanism of colonialism in India- Indo-Saracenic architecture- New Delhi as part of imperial vision- Power in the built environment at various scales- Case studies in the contemporary world- Introduction to the idea of gender and space- Case studies.

UNIT III  PLACE AND ARCHITECTURE
Modernity, modern architecture and issues of particularity, place and context - Critical Regionalism and architectures of resistance- Phenomenology in architecture- placemaking.

UNIT IV  MEANING IN ARCHITECTURE
Architecture as communication and representation- introduction to linguistic concepts of semiotics, structuralism, post structuralism and deconstruction- debates on modern, postmodern and deconstructivist architecture with reference to these concepts- Conditions of late capitalism- Society of spectacle- Architecture as spectacle and seduction.

UNIT V  ARCHITECTURE IN THE AGE OF GLOBALISATION AND DIGITAL TECHNOLOGY
Influence of globalisation and digital revolution on architectural processes- global/ regional debates- contemporary issues in architecture in India.

TOTAL: 45 PERIODS

OUTCOMES
• The students would gain an understanding of architecture as an integral production of society as well as engage in critical thinking to interpret architecture.
• The students’ awareness through this course would inform their future practice/ research/ teaching.

REFERENCES
3. Guy Debold, Society of Spectacle,
11. Neil Leach, Anaesthetics of Architecture, MIT Press 1999,
MH5003 SERVICES IN HIGH RISE BUILDINGS

OBJECTIVES

- This course will examine various services in high rise buildings.
- Understand how services integration can translate into an intelligent and energy efficient system which will enable sustainability of the structure.

UNIT I INTRODUCTION

Standards of high-rise buildings- Indian Standards and Global Standards on High Rise Buildings; Introduction to various services; their significance with regards to High Rise Buildings; Some examples of Buildings and services used in them A brief on evolution of High Rise Buildings. Aspects and Integration of services- Concepts of Intelligence Architecture and Building Automation

UNIT II WATER SUPPLY AND WASTE DISPOSAL

Water supply and waste water collection systems- water storage and distribution systems- Planning and Design- Selection of pumps- rain water harvesting – Sewage collection systems and recycling of water- solid waste disposal. “Some latest Trends Observation, NBC’s recommendations. in these areas can be included.

UNIT III HVAC, ELECTRICAL AND MECHANICAL SYSTEMS

Natural and Mechanical Ventilation systems- Air conditioning systems and load estimation- Planning and design for efficiency-Basic concepts- Automation and Energy Management- concepts. Natural lighting systems- Energy efficiency in lighting systems- load and distribution- Planning and Design for energy efficiency- Automation- basic concepts, Glass and Glazing system for natural lighting. Types of elevators, systems and services- Lobby design- Escalators- safety principles, Some latest Trends, NBC’s recommendations

UNIT IV SAFETY AND SECURITY


UNIT V CASE STUDIES

Case Studies of High Rise buildings and skyscrapers through appropriate examples- Norman Foster; Ove Arup; Ken Yeang, etc.

OUTCOME

Students can apply some or all of these services in one of their design projects.

REFERENCES

OBJECTIVES:
- This course provides a detailed exposure to students regarding the design & application in the field of life safety, electronic security & services automation requirements.
- To expose the students to the mandatory and inevitable integration of building management systems in building construction.

UNIT I SAFETY SYSTEMS – FIRE ALARM & PUBLIC ADDRESS SYSTEM 9
Objective of a Fire Alarm System, essential components of a Fire Alarm System, Type of detection technology currently in use and Statutory Standards to be followed in design. Explanation of the essential Clauses of the the codes, and various types of Technologies employed in the Fire Alarm System, basic knowledge on how a Fire Alarm system works, designed and installed.

Objective of a Public Address System, essential components of a Public Address System, various types of technologies currently in use and design guidelines to be followed and basic knowledge on how a Public Address System works, is designed and installed.

UNIT II SAFETY SYSTEMS – FIRE SUPPRESSION SYSTEM 9
Objective of a Fire Suppression System, Explanation on Fire triangle, Essential Components of a Fire Suppression System, different type of Fire Suppression Systems, detailed design criteria for Hand held extinguishers Wet Riser, Sprinkler Systems and various gas Based Fire Suppression System, and Type of Statutory Standards followed in Suppression, Explanation on the essential Clauses and Basic Knowledge on how a Fire Suppression System works, is designed and installed.

UNIT III SECURITY SYSTEMS – ACCESS CONTROL SYSTEM AND INTRUDER ALARM SYSTEM 9
Introduction to Access Control, Intruder Alarm, Essential Components of each System, and Various types of Technologies employed in the system, Basic knowledge as how they work, are designed and installed.

UNIT IV SECURITY SYSTEMS – CCTV AND PERIMETER PROTECTION 6
Introduction to CCTV, Perimeter protection system, Essential Components of each System, and Various types of Technologies employed in the system, Basic knowledge as how they work, are designed and installed.

UNIT V INTEGRATED BUILDING MANAGEMENT SYSTEM 12
The objective of the Integrated Building Management System (IBMS), the list of utility, safety & security systems that are generally monitored & controlled through IBMS, the various components of IBMS, types of integration with the utility, Safety & security systems, explanation in detail on how each utility, safety & security system is integrated to IBMS, details of various parameters that can be monitored & controlled on each utility, safety & security system and the basic knowledge on how they work, are designed and installed.

OUTCOME:
- To ensure that every architect understands & designs the buildings that facilitates safe, code compliant, secure & comfortable buildings for the occupants

REFERENCES:
2. Bureau of Indian Standards IS2189, IS2190, IS15105, IS13039.
3. CCTV Surveillance, Herman Kruegler.
8. The Principles and Practice of Closed Circuit Television, Mike Constant & Peter Turnbull

EA5191 SUSTAINABLE AND GREEN BUILDINGS L T P/S C
3 0 0 3

OBJECTIVES:
• To sensitize the students to the various aspects of sustainable and green building design in the context of global warming and climate change and to address the very process and tools of design to enable architecture that is environmentally friendly and sustainable.

UNIT I INTRODUCTION 06
Attitudes to architecture: a historical perspective- General premises and strategies for sustainable and green design- objectives and basis- Eco-mimicry as a design tool based on ecosystem analogy- theoretical basis for a sustainable and eco friendly design.

UNIT II ECO HOUSE 12
The form of the house: the building as an analogy- design from first principles: conserving energy; working with climate: passive solar design; minimizing new resources; respect for users; respect for site and holism- photovoltaics and solar hot water systems; water usage; small scale wind systems and hydro power; Case studies- design of eco houses: context specific.

UNIT III ENVIRONMENTAL IMPACT OF BUILDING MATERIALS 09
Measuring the impact of building materials- calculating embodied energy- recycling and embodied energy- processing and embodied energy- time and embodied energy- embodied energy of different building materials- low energy building and masonry materials- life cycle analysis- Case studies and analysis.

UNIT IV GREEN CONSTRUCTION AND ENVIRONMENTAL QUALITY 12
Sustainable architecture and Green Building: definition- Green building Evaluation Systems; LEED Certification and GRIHA; Green Globe Certification; Case studies which look at the environmental approach- renewable energy- controlling the water cycle- impact of materials on the environment – optimizing construction- site management- environmental management of buildings.

UNIT V SUSTAINABLE AND GREEN BUILDING DESIGN CASE STUDIES 06
Instrument and natural case studies to investigate and apply various studio exercises on Green Building Design.

TOTAL: 45 PERIODS

OUTCOMES:
• The students gain an understanding of the various aspects of sustainable and green building design.
• The students are able to comprehend the Green Building rating system.
REFERENCES:
1. Brenda and Robert Vale; Green Architecture- Design for a Sustainable Future; Thames and Hudson; 1996
2. Daniel Vallero and Chris Brasier; Sustainable Design- The science of sustainability and Green Engineering; Wiley; 2008
3. Catherine Slessor; Sustainable Architecture and High Technology- Eco Tech; Thames and Hudson; 1997
4. Dominique Gauzin- Muller; Sustainable architecture and Urbanism; Birkhauser; 2002.
5. Ken Yeang; Eco design - A Manual for Ecological design, Wiley- Academy; 2006
6. Sue Roaf et all; Ecohouse: A design Guide; Elsevier Architectural Press; 2007
7. Thomas E Glavinich; Green Building Construction; Wiley; 2008

MH5005  MATERIAL CONSERVATION  L  T  P/S  C
3  0  0  3

OBJECTIVES
- To study materials, structural systems, buildings and elements produced by historical technologies in order to develop understanding of their evolutionary, chronological and stylistic context.
- To use this understanding to outline causes of deterioration and repair as well as look at the remedial and preventive measures that need to be taken to preserve the building fabric.

UNIT I  CONSERVATION TECHNIQUES

UNIT II  COMPOSITION, CHARACTERISTICS AND DETERIORATION OF MASONRY MATERIALS
Brick- Stone- Composite masonry- causes for decay and deterioration- remedial measures-Introduction to the significance and use of the lime – working with lime – repairing and replacing plaster - Issues concerning terracotta and mud- use of consolidants.

UNIT III  COMPOSITION, CHARACTERISTICS AND DETERIORATION OF OTHER STRUCTURAL MATERIALS
Use and repair of iron and steel members – Understanding wood and timber structures / methods to conserving timber structures

UNIT IV  CASE STUDIES
Case studies at the national, international and state level conservation projects done by ASI, INTACH & Conservation Architects- assessment and evaluation.

UNIT V  MATERIAL CONSERVATION AND ADAPTIVE REUSE
Studio on Adaptive reuse/ restoration project / building in Existing fabric.

TOTAL: 45 PERIODS

OUTCOMES
- A holistic understanding of the physical processes of building, including gaining knowledge about historical, material and cultural aspects.
- Gaining sensitivity and knowledge with respect to process of physical interventions in historic buildings.
REFERENCES:
2. Ernest Burden; Illustrated Dictionary of Architectural Preservation; McGraw hill 2003
3. J. Stanley Rabun; Structural Analysis of Historic buildings: Restoration, Preservation and Adaptive Reuse; Applications for Architects and Engineers; Wiley 2000

MH5006 EMERGING PRACTICES IN HOUSING L T P/S C
3 0 0 3

OBJECTIVE
- This course will examine the redefinition of contemporary housing within the contexts of multicultural cities due to globalisation.

UNIT I INTRODUCTION
9
Introduction to this building type, from its industrial beginnings in London and Paris to New York City’s Lower East Side and the 20th-century designs of Le Corbusier, Antonio Sant’Elia, and Mies van der Rohe to mention a few.
Investigation of contemporary life and its influence on space and architecture-Globalization and influences on economy- Alternate housing solutions: Commune, Co Housing, Cooperatives, etc.

UNIT II SINGLE FAMILY, MULTI FAMILY HOUSING
9
Review of latest developments in single family and multi family housing by examining the works of Wiel Arets, Shigeru Ban, Ben van Berkel, Kees Christiaanse, Philippe Gazeau, Frank O. Gehry, Steven Holl, Hans Kolhoff, Morger & Degelo, , Jean Nouvel, Kas Oosterhuis, MVRDV

UNIT III HIGH DENSITY HOUSING
6
Issues and concerns- Review of the current state of high density houses - the perspectives and future developments through a study of a few international projects.

UNIT IV NEW FORMS OF LIVING AND HOUSING IN THE DIGITAL ERA
6
Hyper Housing- Multi cultural Housing- lab rooms and cyber homes- Network housing- hybrid buildings- individual sheltered residences; residence cities and bio homes for senior citizens- Works of UN Studio; FOA; OMA

UNIT V DEFINITION OF HOUSING IN THE INDIAN CONTEXT
15
Design strategies in the context of Indian metropolitan cities will be explored through case studies

TOTAL: 45 PERIODS

OUTCOME:
- The students will understand the latest development, issues and design strategies governing the Housing in National and international level.

REFERENCES:
1. Adrienne Schmitz; Multifamily Housing Development Handbook; Urban Land Institute; 2001
2. Carles Bronto; Innovative Public Housing; Gingko Press; 2005
3. Jingmin ZHOU; Urban housing Forms; Architectural Press; 2005
4. Manuel Gausa and Jaime Salazer; Housing+ Single Family Housing; Birkhauser- Publishers for Architecture; 2005
5. Vincene Guillart; Sociopolis:Project for a city of the Future; ACTAR; 2004
OBJECTIVE:
To analyze the role of Landscape Urbanism – theory (texts) & practice (projects) in forming the contemporary city. To understand the evolution of a new urban morphology for contemporary cities adopting new models & strategies based on the Landscape of the city.

UNIT I LANDSCAPE URBANISM – AN INTRODUCTION
Background (what & why), the emergence of Landscape urbanism, characteristics, revaluing landscape, history and driving forces, Landscape in practice: Defining competitions of landscape urbanism

UNIT II LANDSCAPE (SUB) URBANISM IN THEORY AND PRACTICE
LU – a school of thought, Smart growth and LU, New Urbanism, Green Urbanism, From Critical Regionalism to Critical Pragmatism
Practical limitations to innovation – Case study – The Wugong Urban Water (WUW) Landscape Structure Plan, The WUW project in relation to theory

UNIT III LANDSCAPE URBANISM – PLANNING
Performative Processes – process cycles, processes engaged in design, a democratic urban environment, processes of planning – Surface Strategies – Contemporary Positions – Network city, New pragmatism, philosophy of world complexity, ecological design media – Evolution of Planning Ideals – from the modern to the contemporary, the rise of landscape urbanism

UNIT IV SUSTAINABLE(SU) & ECOLOGICAL URBANISM (EU)
EU- Historic roots and current trends, propositions and principles for the design of resilient cities, Cities – as habitats, part of the natural world, Urban ecosystems, The future of Urban Design.

UNIT V ASIAN LANDSCAPE URBANISM
Emerging challenges, Relationship between Asian Urbanism and Landscape Urbanism – social & cultural aspects of Asian Urbanism – Landscape Urbanism in India – case studies Hampi, Goa

TOTAL: 45 PERIODS

REFERENCES:
1. Charles Waldheim, The Landscape Urbanism Reader (paperback)
   Landscape practice Global Leader, Woods Bagot PO Box 58041, Dubai, UAE.
7. Landscape urbanism – large-scale architecture, ecological urban planning or a designerly research policy, GUNILLA LINDHOLM Senior lecturer, landscape architect, Department of Landscape Architecture, SLU, Alnarp, Sweden – Research paper
8. Mohsen Mostafavi, Ecological Urbanism, Harvard University, Graduate school of design, Lars Muller Publisher.
11. Steven Velegrinis, Flux-scape: Emerging Challenges of Asian (Landscape) Urbanism,
OBJECTIVE
To examine the role and application of Geographic Information Systems in environmental design, community charities and other urban design projects.

UNIT I INTRODUCTION
GIS – Spatial data, non Spatial data, Plan, Map, Scale, Map Projection, GPS, GCP collection, Spectral signature curve, Image processing – Geo coding / Geo referencing, GIS software, Two tier architecture, Three tier architecture, Thin client, Thick client

UNIT II DATABASE CONCEPTS
Data structures, Databases, Files, Types of Tables, Table operations, Creating a Table, Accessing Records in a Table, Manipulating records in a Table, Modifying Table structure, Reports, Advantages of database, Primary key and data access, Composite primary key, Defining a primary key, Sorting, Indexing, Master Detail relationships, Types of relationships, Foreign key, Deleting, updating and adding records to linked tables, ER Diagram, Data Model – Physical, logical and conceptual.

UNIT III SPATIAL DATA

UNIT IV INTRODUCTION TO GIS SOFTWARE
Arc Info – Coverage – Arc, Node, Tics, Add, get, put, Map extent, edit, Topology creation – Clean, Build, Tables – Creating tables, updating tables, join, drop item, Export, Import, overlay, union, intersection, buffer.

UNIT V MODELLING GIS PROJECTS FOR URBAN AREAS
Preparation of Land use map, Land use suitability analysis, Screen design, Visual Basic application using Map objects.

TOTAL: 45 PERIODS

OUTCOMES
• The student will increase the knowledge on GIS and the various characteristics of Data.
• The student will accept the potential of GIS and develop integrated practice of using the GIS application with architecture.

REFERENCES
1. An Introduction to Data base Systems – C.J.Date
2. ESRI (1992) Understanding GIS, The Arc Info Methods, ESRI, USA
3. Fundamentals of Data base Management System by Elmasri & Navethi
4. Information systems for Urban Planning – Robert Laurini
5. Modelling our world – ESRI Press
MH5009 EXPLORATIONS IN ARCHITECTURAL FORM

OBJECTIVE
- To introduce contemporary ways and processes of generating architectural form through small design exercises.

UNIT I DIAGRAMMING 12
Introduction to diagramming- history- traditional diagrams- contemporary diagramming processes as a tool to creative interpretation and design of architectural form- simple exercises in diagramming

UNIT II SHAPE GRAMMAR 12
Introduction to shape grammar- applications of shape grammar- simple design exercises in shape grammar

UNIT III FRACTALS 12
Introduction to Fractals- examples from nature and built environment- types of fractals- fractal creation, generators and initiators, direction and proportion- –simple design exercises in fractals

UNIT IV EVOLUTIONARY ALGORITHMS 12
Introduction to evolutionary algorithms – evolutionary art- optimisation- synthesis of topology, geometry and component properties of a structure using genetic algorithm- simple design exercises based on evolutionary algorithm

UNIT V PARAMETRIC DESIGN 12
Introduction to parametric design- concept of scripting- simple design exercises in parametric design

TOTAL: 60 PERIODS

OUTCOME
- The student will be able to explore architectural form through contemporary processes

REFERENCES

MH5071 WEB DESIGN AND PORTFOLIO PRODUCTION

UNIT I INTRODUCTION TO WEB DESIGN 15
Basics of web design – Introduction to software used for web design – ADOBE IMAGE READY, DREAMWEAVER, FLASH etc.
UNIT II  STATIC PAGES  15
Slice – URL in ADOBE IMAGEREADY. Creation and Editing of site map – layer, tables, frameset, -
CSS style – Forms – tools like insert, roll over etc., in DREAMWEAVER

UNIT III  ANIMATION IN FLASH  15
Introduction to MACROMEDIA FLASH, importing other file formats to Flash- saving and exporting
Flash files, Frame by frame animation – Motion Tweening – Shape Tweening

UNIT IV  INTRODUCTION TO SCRIPTING  15
Using Timeline – Frames –Key frames- Creating and using Symbols- Simple scripting in flash –
Publishing SWF files

UNIT V  DEVELOPING A WEB SITE  30
Using the skills and concepts learnt with the ADOBE IMAGEREADY,DREAMWEAVER, FLASH
softwares , students will develop their portfolio in the form of web pages. These pages have to be
uploaded in free public domains.

TOTAL: 90 PERIODS

REFERENCES
2. Adobe Flash CS3 professional on demand by Steve Johnson, Andy Anderson, Perspection inc,
   2012.
4. Flash Web Design, The Art of Motion Graph, Curtis Hillman, New Riders Publishing, Indianapolis,
   IN. U.S.A, 2000
6. Mark Von Wodtke, Mind over Media : Creative Thinking Skills for Electronic Media, McGraw-hill,
   New York, 1993
7. Photoshop 7 Bible Professional Edition, Wiley John & Son INC, New York, DekeMcClelland,
   2000.