VISION OF DEPARTMENT OF ARCHITECTURE
The Department of Architecture is committed to excellence in the field of architectural education and the discipline of architecture through its pedagogical, research, extension and outreach activities, directed towards the betterment of the world that we inhabit, in all realms shaped by architecture. It shall uphold universal moral and ethical values in all endeavours that it undertakes and be exemplary in creating positive transformations.

MISSION OF DEPARTMENT OF ARCHITECTURE
The Mission of the Department of Architecture is

• To tap and strengthen the innate potential of each student and deepen their knowledge/skills in order to enable them to self-actualise as well as become catalysts for positive change.
• To contribute to immediate context, larger society and the world through knowledge creation and dissemination.
• To engage and extend the expertise of the department in addressing and solving of issues/problems related to the built environment.
• To actively interact and collaborate with professionals, educational institutions and other related organisations at all scales in order to collectively further the cause of appropriate architecture.
1. PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)
   - Become an architect with ability to discern problems and identify solutions through both deep and broad parameters.
   - Find gainful employment in architectural firms/ building sector through offering of specialised knowledge.
   - Be a part of organisations that influence policy and decision making through contributing in-depth knowledge in relevant fields of study.
   - Become a teacher/ researcher with ability to apply critical, investigative and analytical thinking towards future society.
   - Become a thinker and entrepreneur who can anticipate and project future transformations in the built environment.

2. PROGRAMME OUTCOMES (POs)
   After going through two years of study, our M. Arch (General) Graduates will exhibit ability to:

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<th>PO#</th>
<th>Programme Outcome</th>
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<tr>
<td>1</td>
<td>Independently carry out research / investigation and design development work to solve practical problems of built environment.</td>
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<tr>
<td>2</td>
<td>Write and present a substantial technical report/ research document.</td>
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<td>Intensify thoughts, techniques and knowledge with a demonstration of mastery in specific areas of architecture.</td>
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<td>4</td>
<td>Resolve architectural problems with due consideration to environmental issues.</td>
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<td>5</td>
<td>Look at the larger urban and social context in the making of design decisions.</td>
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<td>Bring contemporary tools/ methods/ approaches to analyse situations and explore design.</td>
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PEO / PO Mapping:

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# ANNA UNIVERSITY, CHENNAI
## UNIVERSITY DEPARTMENTS
### M.ARCH (GENERAL)
#### REGULATIONS - 2019
##### CHOICE BASED CREDIT SYSTEM
###### CURRICULUM AND SYLLABUS FOR I TO IV SEMESTERS

## SEMESTER I

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* 4 weeks in Summer Vacation between II and III Semesters

# SEMESTER IV
*(Prerequisite -Pass in Process Based Design Studio & Pre-Thesis, 40 Credits)*

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**TOTAL CREDITS:74**
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## PROGRAM ELECTIVE COURSES (PEC)

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<td>AA5009</td>
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### ELECTIVE IV - THEORY CUM STUDIO (Urban Analysis)

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### ELECTIVE V – THEORY (Design Theory, Process and Pedagogy)

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### ELECTIVE VI- THEORY CUM STUDIO (Design and Arts Exploration)

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<td>Explorations in Architectural Form</td>
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### RESEARCH METHODOLOGY COURSES (RMC)

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### EMPLOYABILITY ENHANCEMENT COURSES (EEC)

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AUDIT COURSES (AC)
Registration for any of these courses is optional to students

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Total Credits: 0

SUMMARY

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OBJECTIVES

- To give familiarity about the evolution of the idea of sustainability in built environment from the past to the present.
- To inform about sustainable concepts and principles of vernacular and historical architecture.
- To give knowledge about contemporary applications of traditional principles of sustainability.
- To give overview of practices, strategies and implementation processes that shape sustainable architecture.

UNIT I INTRODUCTION TO SUSTAINABILITY 6

UNIT II SUSTAINABLE BUILT ENVIRONMENT ACROSS HISTORY 12
Life style of early humans. Evolution of sustainability. Ancient and traditional perspectives in neighbourhood planning and architecture from cultures across the world. Planning principles and concepts of historic and vernacular Indian cities/settlements with respect to sustainability. Cultural beliefs associated with the principles/concepts.

UNIT III TRADITIONAL ARCHITECTURE AND ITS RESPONSE TO CLIMATE 9
Sustainable architecture in human settlement planning and housing – examples from vernacular and planned cities in different geo-climatic zones. Climatic response of vernacular architecture - analytical studies including developing scientific evidence. Water management in buildings- water saving/ demand management, water harvesting for recharge and use, reuse/ recycling.

UNIT IV SUSTAINABILITY LESSONS FROM TRADITIONAL ARCHITECTURE 9
Scale and context of sustainability, issues and solutions in the current world. Relevance of traditional and vernacular architecture in finding sustainable solutions to present situations. Importance of application of principles of traditional and vernacular architecture in modern context to achieve sustainability in various aspects- urban built space ratios, urban street canyons, environmental design and cultural identity, etc., Case studies of contemporary examples inspired from the past.

UNIT V STRATEGIES FOR SUSTAINABLE DESIGN 9

TOTAL: 45 PERIODS

OUTCOME

- An understanding of relation between sustainability and human history.
- Knowledge about sustainable principles in built environments from the past and familiarity with their applications in contemporary situations.
- An understanding of sustainability in a holistic manner, incorporating past knowledge and current developments in the field.

REFERENCES

AA5102 CLIMATE CHANGE ADAPTATION AND RESILIENCE IN ARCHITECTURE L T P/S C 3 0 0 3

OBJECTIVES
- To give understanding of the effects of climate change at global and local levels.
- To inform about vulnerability assessment methods.
- To give knowledge about strategies and methods in the design of built environment for adaptation, mitigation and resilience with respect to climate change.
- To give knowledge about government policies with respect to measures regarding climate change.

UNIT I INTRODUCTION TO CLIMATE CHANGE
Climate Change across History. Causes of Climate Change. Anthropogenic drivers of climate change. Global warming, greenhouse effect, carbon stocks and flow, Interaction of these factors at global and Indian scale. Evidences of climate change. Climate change predictions at macro and micro level. Disaster vulnerability of India with emphasis on climate change.

UNIT II ADAPTATION TO CLIMATE CHANGE/ITS EFFECTS

UNIT III MITIGATION OF CLIMATE CHANGE

UNIT IV CLIMATE CHANGE AND RESILIENT ARCHITECTURE
Architectural responses to impact of climate change. Concept of climate resilience. Components and action for resilient built forms. Planning strategies, methods and tools for resilient architecture at various scales reacting to earthquakes, floods, cyclones, storms, temperature, etc. Resilient back up and power systems. Lighting services during emergency. Resilient HVAC, water, storm water and grey water systems.
Climate change initiatives at international level and participating bodies. Goals, objectives, challenges. IPCC, UNFCCC, Kyoto Protocol, Montreal Protocol and Paris Agreement. Climate change policy framework. India’s Response to Climate Change. NAPCC and SAPCC. Green actions of India.

OUTCOME

- An understanding of the impact of climate change and specific vulnerabilities related to it.
- Knowledge about designing built environment with respect to adaptation, mitigation and resilience associated with climate change.
- Familiarity with frameworks for addressing climate change.

REFERENCES


OBJECTIVES

- To enable the incorporation of sustainability in architectural design at various scales.
- To help balance varied technical and planning considerations in building design with aspects of sustainability.

CONTENT

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 climatic response, resilience, planning, technology, services, density, height of construction, management, etc., would be examined along with considerations such as environmental performance, resource optimisation, ecological impact in order to produce a viable synthesis of diverging needs.
Part I  Study and Overall Design Stage
In this part, focus would be on studying macro and micro level issues and coming up with design propositions and strategies. This may include policy, master plan, building design as the case may be based on the project.

Part II  Detailed Design Stage
In this part, the aim is to freeze on the propositions and then develop a part of it to completion in all aspects. The outcome will be a workable solution to a part of a building project if the project is large or the entire building if the project is small. It could range from building envelope design to developing prototypical solutions.

TOTAL : 240 PERIODS

OUTCOME
- An ability to balance human needs with environmental concerns in architectural design.
- Skill in executing a small part of a broader idea into a workable solution.

REFERENCES

AA5201  URBAN DESIGN: THEORY AND PRACTICE

OBJECTIVES
- To introduce the evolution of urbanism and the urban design discipline.
- To introduce tools and techniques used in critical enquiry into urban issues.
- To give understanding of the complex challenges faced by contemporary urbanism.
- To introduce emerging concepts and strategies in urban interventions.

UNIT I  INTRODUCTION
Introduction to the origin and evolution of urbanism across the world with key examples. Historic overview of the development of the urban design discipline and principles.

UNIT II  READING THE URBAN ENVIRONMENT
Introduction to the different tools and methods to read the urban environment and interpret underlying issues.

UNIT III  CONTEMPORARY ISSUES AND CHALLENGES IN URBANISM
Introduction to various contemporary issues that influence urbanism such as globalisation, environmental degradation and pollution, imageability and identity, digital revolution, splintering urbanism, privatization of the public realm, climate change, etc.
UNIT IV  URBAN INTERVENTIONS: CONTEMPORARY PROCESSES  
Contemporary processes and digital tools in urban design. Place-making in digital age. Participative design and community engagement. Restructuring the urban realm, urban conservation and regeneration policies. Suitable case studies for all the above.

UNIT V  URBAN INTERVENTIONS: EMERGING CONCEPTS AND STRATEGIES  

TOTAL: 45 PERIODS

OUTCOME
• Awareness of urbanism as a phenomenon.
• An understanding of the complexity involved in addressing contemporary urban issues.
• Knowledge of various contemporary processes and urban interventions.

REFERENCES
• Malcolm Moore & Jon Rowland Eds, 'Urban Design Futures', Routledge, 2006

AA5202  PROCESS IN DESIGN

OBJECTIVES
• To introduce the history of process in the discipline of design.
• To give familiarity to different processes in design- analytical, social, computational, etc.,
• To provide an overview of various contemporary design processes and its relation to computation.

UNIT I  INTRODUCTION
History of design process across time. Types of Design- unselfconscious Design/ self-conscious design, design through craft/ design through craft, etc., Design Methodology movement. Different models of the design process.

UNIT II  ASPECTS OF DIGITAL ARCHITECTURE

UNIT III  CONTEMPORARY PROCESS
UNIT IV GEOMETRIES AND SURFACES

UNIT V PROCESS AND PEOPLE
Overview of different methods related to study and design in the context of people. User behavior studies, post occupancy studies, participatory approach to design, collaborative processes, computational processes related to people.

OUTCOME
- An understanding of the importance of process in design across history
- An understanding of various tools to study the existing and process to design future desirable situations.

REFERENCES
- Ben van Berkel and Caroline Bos, 'MOVE', UN Studio, 2008.

AA5211 URBAN ENVIRONMENT DESIGN STUDIO

OBJECTIVES
- To enable architectural design in the context of the city.

CONTENT
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.

Part I Study and Overall Design Stage
In this part, focus would be on studying issues related to any one or more of the aspects of the content and come up with design propositions and strategies. This may include policy, master plan, building design as the case may be based on the project.
Part II  Detailed Design Stage

In this part, the aim is to freeze on the propositions and then develop a part of it to completion in all aspects. The outcome will be a workable solution to any identified aspect of the overall design. It could range from infill design to street character design.

TOTAL : 240 PERIODS

OUTCOME

- An ability to design buildings as positive additions to the city.

REFERENCES


AA5351  RESEARCH METHODOLOGIES FOR HUMAN ENVIRONMENT  L T P/S C

OBJECTIVES

- To give introduction to the importance of critical inquiry as a way of gaining knowledge and adding to it through research.
- To give exposure to the various forms of research and research methodologies/ processes.
- To help engage this understanding in the specific field of human environment research.

UNIT I  INTRODUCTION

Basic research issues and concepts. Orientation to research process. Types of research: historical, qualitative, co-relational, experimental, simulation and modelling, 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


Methods of data collection- Primary sources: observation and recording, interviews structured and unstructured, questionnaire, open ended and close ended questions and the advantages, sampling. Collecting data from secondary sources.

UNIT IV  REPORT WRITING

Research writing in general and its components. Developing the outline, referencing, writing the bibliography, presentation, etc.

UNIT V  CASE STUDIES

Case studies illustrating how good research can be, from project inception to completion. Review of research publications.

TOTAL: 45 PERIODS
OUTCOME

- Skill to identify, decipher and interpret issues relating to architecture based on research enquiry methods.
- Knowledge of different methods of conducting research and research writing.

REFERENCES


OBJECTIVES

- To promote research in architecture.
- To enable training in collecting, interpreting and concluding with respect to an area of study.
- To enable preparation for Thesis.

CONTENT

The Pre-Thesis proposal in about 1000 words stating the topic/ issues to be explored and the scope must be submitted for approval. The main goal of the Pre-Thesis is to serve as a prelude to the final semester Thesis project. However, it would also serve to concretise notions and ideas with respect to specific areas of interest in architecture through a rigorous process of research.

The process would consist of choosing of an area of interest/challenge, writing out initial thoughts on it, clarifying intents, identifying methodologies to achieve the intents, exploring ways of knowing (reading, first hand studies, experimentation, documentation, measured drawing, interviews, simulation, etc.), structuring the information, analysing and interpreting it, and finally coming to well-argued conclusions. The progress of work will be reviewed periodically throughout the semester.

The research for Pre-Thesis can be of any nature as it is intended to drive the Thesis project. However, the final submission for Pre-Thesis should document/ collate all the work in the form of a Pre-Thesis report. The report will be presented in the viva-voce exam and defended. The Pre-Thesis report will form the basis to begin the Thesis project.

TOTAL: 90 PERIODS

OUTCOME

- Ability to carry out independent research.
- Ability to study, analyse and conclude on an area of interest.
- Depth of knowledge in a particular area that would give a base to start the Thesis project.

REFERENCES

OBJECTIVES
- To enable understanding of complex situations through engaging appropriate tools that help analyse different aspects of the situations.
- To help incorporate appropriate processes into design- social, environmental, parametric/ contemporary process, computational process, etc., in order to get a holistic design/ address the most crucial aspects of a given design situation.

CONTENT
The increasing complexity of the world today needs a richer analysis to understand interconnected layers. Also, this complexity is correspondingly reflected in the needs of buildings and the built environment. Appropriate design processes can help in study, analysis and integration of specific inputs and needs into the projects. The studio will focus on engaging processes for study/ analysis and for incorporating complex inputs/ data into design so that architecture can address human needs in a holistic manner. Processes such as diagramming, mapping, participatory approaches, collaboration, statistics, data, etc., would be used to understand situations such as macro environment, socio-cultural aspects, user behaviour, aspects of contemporary life, activity and movement, landform, urban form, etc., as required. The projects could be of macro scale involving large campus/ township oriented architectural projects and/ or architectural design interventions in the urban context. The idea of process in design can be deterministic/ generative/ innovative as appropriate for a particular studio project situation.

Part I  Study and Proposition Stage  
In this part, focus would be on how to study and analyse/ understand a situation through appropriate processes based on the design project and context given. At the end of this, the nature of the problem and the nature of the solution would be arrived at.

Part II  Design Stage  
In this part, the aim is to project a solution from the process. The outcome will be a workable, ingenious, innovative solution of any scale based on the project. The emphasis would be on how the design solution is connected to the intent through the process and is generated through the process.

TOTAL: 240 PERIODS

OUTCOME
- Ability to identify, study the effects and connections of complex forces and project a desired scenario for a given situation through appropriate processes and tools.
- Ability to find innovative and workable transformations of the existing from the projections in an organic manner.

REFERENCES
AA5313 INTERNSHIP TRAINING L T P/S C X X X 2
OBJECTIVES

- To help in developing depth of knowledge and inquiry in any one of a chosen area of specialty in architecture.
- To enable interacting with practicing architects, allied professionals, researchers and organisations working in the field of specialty in architecture.

CONTENT

The students will undertake the Internship Training in any organisation engaged in activities relating to a specialised area of architecture for a period of 4 weeks. The Internship Training is expected to make aware how specific areas in architecture can be pursued to depth in the realm of practice and research. The Internship Training can thus be in any architectural practice/research organisation/university, etc., where there are such pursuits. Through the Internship Training, the students could obtain mastery in a specific area of practice or research. The students may also utilise the Internship Training to strengthen their ability to do Thesis in the subsequent semester.

The students are expected to complete the Internship Training in the Summer Vacation between second and third semesters, before the commencement of the third semester, and enroll for the course in the third semester. The students shall submit an Internship Training Report, on or before the last working day of the third semester. The students shall be evaluated on the basis of the Report submitted, through a Viva-Voce Examination, as part of the End Semester Examinations of the third semester.

OUTCOME

- Exposure in and enrichment with respect to specific areas of architecture for pursuing practice or independent research.

AA5411 THESIS L T P/S C 0 0 24 12
OBJECTIVES

- To facilitate integration of the knowledge gained in the previous semesters with respect to issues/tools of architectural design at a more advanced level.
- To enable understanding and identifying of issues appropriate to a particular project or area of architecture through independent thinking and to design in a manner appropriate to the project context.
CONTENT

- The students will synthesise 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 scale of the project could extend from individual site to settlement levels.

- The project would extend the knowledge/ critical position developed in the Pre-Thesis. The initial process of background research on the topic through Pre-Thesis will be taken forward towards a concrete design project. The Thesis session would therefore begin from understanding the project situation. The process would culminate in design interventions at scales appropriate to the topic and the final project would manifest the study/ research component. The project shall desirably have the potential to serve as a starting point for practice and/ or further research.

- The progress of work will be reviewed periodically throughout the semester. At the end of the semester, students should submit the final thesis project for the viva voce exam. The final submission will comprise of study sheets, optional study models, design approach sheets, optional design process models, design presentation sheets, final model, detailed drawings based on the research component, project report summarising the entire thesis work and soft copy of all the work.

TOTAL: 360 PERIODS

OUTCOME

- Ability to identify important, specific and unique aspects as informing the process of architectural design.

- Ability to study these aspects in depth and integrate them through methodologies/ techniques/ skills into the design project.

REFERENCES


OBJECTIVES

- To inform about daylight and its use in buildings.
- To give knowledge about electric lighting in interiors and urban lighting.
- To give exposure to lighting research.

UNIT I  
DAYLIGHT  
7

UNIT II  
DAYLIGHT INTEGRATION IN BUILDINGS  
11

UNIT III  
ELECTRIC LIGHTING IN INTERIORS  
11
Sources of electric lighting. Luminaires- types and applications, design and optimisation. Energy efficient strategies. Integration of daylight and electric lighting using physical models / software.

UNIT IV  
URBAN LIGHTING  
7
Elements of urban lighting. Street lighting, city lighting. Lighting the building exteriors: concepts, decorative and accent, etc. Issues in urban lighting – energy, light pollution, safety and security.

UNIT V  
LIGHTING RESEARCH  
9
Introduction to lighting research, need and issues. Types of lighting research – qualitative, quantitative, empirical, case study methods. Review of research papers on lighting.

TOTAL: 45 PERIODS

OUTCOME

- Knowledge about lighting in buildings and urban spaces.
- Awareness of different types of lighting research.

REFERENCES

- Emily Dufner, Vasiliki Malakasi, Simone Collon, Dan Lister, 'Lighting in The Urban Age: Meaningful Design For Cities, People & Places', ARUP.
OBJECTIVES

- To give knowledge and skills to enable the facilitation and transformation of places and spaces where culture and technology are in a state of rapid change and resources are scarce.
- To give familiarity with self-help techniques of construction, adaptation, repair and management in order to give understanding about what is involved in sustainable construction of domestic and community architecture.

UNIT I INTRODUCTION


UNIT II DESIGN PRINCIPLES

Principle 1: Conserving energy; Principle 2: Working with Climate; Principle 3: minimising new resources; Principle 4: respect for users; Principle 5: respect for site; Principle 6: Holism. Illustrated with examples.

UNIT III SUSTAINABLE CONSTRUCTION

Design issues relating to sustainable development including site and ecology, community and culture, health, materials, energy, and water. Domestic and Community buildings using self help techniques of construction. Adaptation, repair and management.

UNIT IV SYSTEMS, MATERIALS AND APPLICATIONS


UNIT V BEST CURRENT PRACTICE

Case studies demonstrating best current practice in a scale ranging from small dwellings to large commercial buildings drawn from across the world.

OUTCOME

- An understanding on the needs of alternative technologies in buildings.
- Exposure to sustainable materials and construction.

REFERENCES

OBJECTIVES

- To give familiarity about skyscrapers/super tall buildings as a typology in history
- To give information on the Super Tall building typology with respect to structural systems.
- To give understanding about how services integration in super tall structures can translate into an intelligent and energy efficient system which will enable sustainability of the structure.

UNIT I INTRODUCTION TO SUPER TALL BUILDINGS

The history and evolution of skyscrapers and the ideas and theories behind their designs. The rise of skyscraper culture. The architectural and tectonic issues that have accompanied their iconic power. The ways in which changing ideas in design demonstrated and expressed in the skyscraper. Urban environment and physical planning considerations in high rise buildings. Indian standards and global standards for high-rise Buildings.

UNIT II BUILDING STRUCTURAL SYSTEMS

Conceptual understanding of high-rise buildings in normal and adverse conditions. Planning and design considerations of foundation and superstructure for tall and super tall buildings. Construction details understanding. The deck, shear wall, typical framing, floor plate, assembly, building module, components, core wall, structural steel external frame. Sequence of erection and facilitating maintenance of such structures. Identifying specialised equipment required for installation. Suitable case studies.

UNIT III BUILDING SERVICES


UNIT IV VERTICAL TRANSPORTATION AND SERVICE


UNIT V LIFE SAFETY AND CORE ELEMENTS


TOTAL: 45 PERIODS

OUTCOME

- An understanding of skyscrapers as building typology - urban player, cultural artefacts, historical background of vertical urbanism.
- Knowledge about the structural systems and services of super tall buildings.

REFERENCES

• Carol Willis, ‘Form Follows Finance: Skyscrapers and Skylines in New York and Chicago’, edition 1, Princeton, 1995.

AA5004 SUSTAINABLE BUILDING SERVICES AND WATER MANAGEMENT L T P/S C

3 0 0 3

OBJECTIVES

• To give knowledge about the importance of water management systems for optimal use and sustainability and give knowledge about the same.
• To gain knowledge about designing and managing building services for sustainability.
• To give familiarity about laws and methods that help in the management of resources in a sustainable manner.

UNIT I TRADITIONAL WATER MANAGEMENT SYSTEMS 9
Sources of water. Settlements influenced by water bodies. Traditional water management systems in India and other countries. Examples from history. Issues in current context.

UNIT II WATER MANAGEMENT SYSTEMS 9

UNIT III POLICIES AND BYELAWS 9

UNIT IV CARBON NEUTRALITY 9

UNIT V CASE STUDIES 9
Online case studies / Visit to high rise buildings. Building services studies – location, optimisation, conformity to LEED India. Green rated buildings – Issues and proposals.

TOTAL: 45 PERIODS

OUTCOME

• Ability to manage water resources for a building in an optimal and sustainable manner.
• Familiarity with different methods to design and manage building services for sustainability.
• Knowledge about laws and strategies with respect to sustainable building services and resources.

REFERENCES

• ‘Manual on Water Supply and Treatment’, CPHEEO, Govt. of India, New Delhi, 2003.
AA5005   BUILDING SKINS AND SMART MATERIALS            L T P/S C
                              3 0 0 3

OBJECTIVES

- To introduce smart materials for use in architectural design.
- To give familiarity about products that have changeable properties in response to elements.
- To inform about materials and technologies such as LEDs, smart glazing, displays, etc.
- To give introduction to building skins in terms of their performance and functionality, bio inspired facades and interactive surfaces.
- To give familiarity about the methods of fabrication, production and construction for innovation in design.

UNIT I    INTRODUCTION                                            7

UNIT II   NEW AGE MATERIALS I                                       9

UNIT III  NEW AGE MATERIALS II                                      10

UNIT IV   SUSTAINABLE BUILDING SKIN                                  10
Parameters for designing a sustainable building skin - sun control, natural ventilation, daylighting, connection to outdoors, thermal insulation, moisture control, micro-climate zones, structural efficiency, material choices, potential for energy generation, bio inspired facades, responsive façade, interactive façade.

UNIT V    CASE STUDIES                                             9
Case studies on the innovative applications of smart materials and various building skins in design.

TOTAL: 45 PERIODS
OUTCOME

- Knowledge about fundamentals of material and current innovations.
- Ability to explore the potential of smart materials in creative designing.
- Knowledge about smart material characteristics and methods of material technology that can be translated to innovative approaches to design.
- Ability to examine building skin as both giver of character and as part of the performative technology of buildings.

REFERENCES

- Maggie McIntosh, ‘Sustainable Building Skin Design’ https://soa.utexas.edu/sites/default/disk/technologies/technologies/09_03_fa_speck_mcintosh_ml.pdf

ELECTIVE II

AA5021 BUILDING INFORMATION MODELLING

OBJECTIVE

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

UNIT I BIM FUNDAMENTALS AND MODELLING


UNIT II RENDERING AND MATERIAL APPLICATION

UNIT III  BIM FOR BUILDING ENERGY SIMULATION  20

UNIT IV  BUILDING AUTOMATION AND NETWORKING  15

TOTAL: 75 PERIODS

OUTCOME
• Knowledge about the implementation of BIM concepts throughout the lifecycle of a building, from planning and design, to construction and operations.
• Familiarity with the use of BIM for building energy performance simulation, construction administration.

REFERENCES
• Omura, George, Brian C Benton, ‘Mastering AutoCAD’, Autodesk.

AA5022  PERFORMANCE EVALUATION OF BUILDINGS  L T P/S C
1 0 4 3

OBJECTIVES
• To facilitate simulation and auditing techniques for assessing energy performance, environmental response and impact of built form.
• To give knowledge about solar shadow modeling tools, heat flow analysis, light simulation tools, modelling of ventilation, fire dynamics, sizing of passive solar features, estimation of energy conservation.

UNIT I  ENERGY AND THE PERFORMANCE OF BUILDING  15
Need for performance analysis of buildings - Investigation and assessment, energy audit procedures - Design investigations - Basics of thermal comfort, solar shading/access/ control, day lighting, acoustics air movement etc.- Energy conservation measure calculations - Modelling systems: cognitive, empirical and analytical assessment of buildings - Architectural Computation and performance audit. Introduction to ECOTECT.

UNIT II  MODELLING OF THE BUILDING FORM  25
Modelling the Building form - Parametric and empirical building simulation - Factors affecting accuracy of energy model - Thermal performance criteria of buildings - Envelope considerations, climatic analysis, weather data-Heating and cooling systems modelling, ventilation systems modelling - Energy use analysis through open source software such as EQUEST. Integration of ECOTECT with BIM, RAPID ENERGY MODELLING -Modelling and performance simulation of
existing buildings – eQuest and Sketch Up + Open Studio + Energy Plus or any free wares which are approved by Department of Energy, USA / India as simulation software Design builder, IES VE, TRNSYS etc.

Simple exercises in the above.

UNIT III POST OCCUPANCY EVALUATION OF BUILDINGS

Purpose and components of Post occupancy evaluation (POE), Building performance bench marks, Occupant satisfaction, Indoor air quality, PPD and PMV analysis, Techniques and methods for post occupancy evaluation, assessing existing buildings based on their energy and water usage.

Case Studies and exercises in the above.

UNIT IV SEMINAR AND CASE STUDY PRESENTATION

Case study presentation of students on performance evaluation of a small residential / office typology in different climate zones- on how to integrate passive design and show results of how energy efficiency has been achieved - Real time data collection using physical instruments and paper publication to journals.

TOTAL: 75 PERIODS

OUTCOME

- Knowledge about environmental assessment methods, audit and simulation techniques, energy modelling skills.
- Ability to add value to architectural design processes.

REFERENCE

Development of the concept, factors to be considered, calculation techniques for embodied energy - Data sets available for calculation of embodied energy - Case studies of embodied energy calculations - Sample embodied energy calculations for a material - Concept of embodied carbon or carbon footprint of material, calculation techniques, methods to offset high embodied energy - Cradle to cradle material, whole life cycle and life cycle costing analysis techniques.

Simple exercises in the above.

UNIT II  LCA METHODS AND TOOLS  20

Simple exercises in the above.

UNIT III IMPACT ASSESSMENT  15

Exercises in the above.

UNIT IV INTERPRETATION  15

TOTAL: 75 PERIODS

OUTCOME
- An understanding of the concepts and the scientific method as it applies to a systems-based, trans-disciplinary approach to sustainability,
- Ability to identify problems in sustainability and formulate appropriate solutions based on scientific research, applied science, social and economic issues.
- An understanding of the basic concepts of life cycle assessment (LCA), along with life cycle inventory (LCI) and life cycle impact assessment (LCIA) including the social and economic dimensions.

REFERENCES
OBJECTIVES
- To introduce the importance of traditional architectural knowledge system for conservation.
- To emphasise need for sustainability of the existing morphology through adaptive reuse in order to provide alternative options in urban renewal with reference to changing market dynamics.
- To enable a better understanding of the structure and fabric of historic structures.

UNIT I TRADITIONAL KNOWLEDGE SYSTEM

UNIT I STRUCTURAL SYSTEMS
Introduction to construction techniques and structural components in a historic structure. Understanding various types of historic structural systems. Structural analysis of historic structures. Understanding various techniques for structural analysis. Understanding the failure and distress in historic structures and development of new forms. Inspection and diagnosis of structures.

UNIT III THEORY OF MATERIALS

UNIT IV RETROFITTING OF BUILDINGS / PROPERTIES AND ADAPTIVE REUSE

UNIT V CASE STUDIES
Legal framework and administrative aspects, policies and charters. Case studies of proposals for conservation / adaptive reuse from India and abroad. Sustainable development, Brownfield projects, mixed use strategies (examples in Indian and Western context).

TOTAL: 45 PERIODS

OUTCOME
- Sensitivity with respect to the significance of adaptive reuse and retrofitting with its implications in creating value.

REFERENCES
- Cliff Moughtin, ‘Urban Design-Street and Square’, Routledge, 2007
OBJECTIVES

- To give understanding of social and cultural diversity as design generators.
- To introduce tools for documentation and analysis of urban cultural landscapes.
- To introduce the various theories and discourses on urban cultural landscape.
- To give understanding of the complex challenges involved in the practice of conservation of urban cultural landscapes through national and international case studies.

UNIT I  DEFINING URBAN CULTURAL LANDSCAPES

Introduction to the concept of Urban Cultural Landscape as the result of interplay between natural and built environment and as the generator of Spirit of place - uniqueness of place, peoples and traditions.

Definition of Urban Cultural Landscapes and Historic Urban Landscape as understood in the international framework (Vienna Memorandum, World Heritage Cities Programme, ICOMOS)

UNIT II  TOOLS AND METHODS FOR MAPPING CULTURAL LANDSCAPES

Tools and methods to delineate, document and analyze the complexity of the urban cultural landscape; Mapping tangible and intangible values (recording oral history and traditional knowledge systems)

UNIT III  URBAN CULTURAL LANDSCAPE: THEORIES AND DISCOURSE

Introduction to the evolution of theories and discourse on urban cultural landscape. Inclusion of traditional and indigenous cultural values, emphasis on local and lived experience, collective memory, identity, meaning and association, local and traditional knowledge systems, sacred landscape.

UNIT IV  URBAN CULTURAL LANDSCAPES: PRACTICE AND CHALLENGES

Challenges in managing urban continuity and change: global processes, urbanization and development, economics, changing cities, tourism. Shift from object or monument-centric approach to the notion of ‘value’ guided by urban values and the economic value of conservation. Shift from expert oriented approach to inter-disciplinary and community-based or people-centric approaches.

UNIT V  CASE STUDIES

National and International case studies to understand the application of theoretical frameworks and trace the relation between discourse and practice of conservation of urban cultural landscapes

TOTAL: 45 PERIODS

OUTCOME

- Ability to identify and appreciate the importance of social and cultural diversity.
- Ability to document urban cultural landscapes.
- Sensitivity to complex challenges involved in urban conservation.

REFERENCES


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.
- To equip students to deal with urban conservation and recycling along with related design issues of existing urban environment, old cities natural and urban heritage areas.
UNIT I INTRODUCTION TO CONSERVATION

UNIT II CONSERVATION PRACTICE

UNIT III URBAN CONSERVATION AND PLANNING
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. Norms for conservation of heritage buildings and sites as part of Development Regulations. Central and state government policies and legislations. Conservation as a planning tool. Financial incentives and planning tools such as TDR (transferable development right). Urban conservation and heritage tourism.

UNIT IV HISTORIC OVERVIEW OF REGENERATION OF CITIES

UNIT V CONSERVATION MANAGEMENT
Conservation management, community participation, economic regeneration, upgrading infrastructure, financing and implementation frame work for redevelopment and revitalisation projects.

TOTAL : 45 PERIODS

OUTCOME
- Understanding of the need and benefits of urban conservation.
- Ability to carry forth knowledge and convictions with respect to conservation in the realm of practice/ research.

REFERENCES
OBJECTIVES

- To give an outline of the evolution of housing to its present forms.
- To give familiarity with respect to redefinition of contemporary housing within the contexts of multicultural cities due to globalisation.

UNIT I  INTRODUCTION
Introduction to housing, 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. Investigation of contemporary life and its influence on space and architecture. Globalisation and influences on economy. Alternate housing solutions: Commune, Co Housing, Cooperatives, etc.

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

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

UNIT IV  NEW FORMS OF LIVING AND HOUSING IN THE DIGITAL ERA

UNIT V  CONTEMPORARY HOUSING IN THE INDIAN CONTEXT
Social and economic changes in India in the 21st century. Impact on housing form and its evolution. Housing policies today. Case studies of government, market oriented projects and innovations by architects for the current scenario.

OUTCOME

- Sensitivity to the various forces that shape the form of housing today.
- Knowledge about the latest development, issues and design strategies governing housing at national and international level.

REFERENCES

OBJECTIVES

- To provide basic knowledge on the functions, dynamics, planning and management of urban infrastructure systems.
- To give understanding about the dynamics within and between urban infrastructure systems, and their relation to the built environment and economic development.
- To give knowledge about how to assess the qualities of infrastructure systems in terms of vulnerability, sustainability, equity and efficiency.

UNIT I  INTRODUCTION, TRANSPORTATION, POWER AND COMMUNICATION  18
An overview of different types of urban infrastructures. Status of urban and rural infrastructure in India. Road Transportation - Design criteria for road, types of traffic and transportation survey, types of roads, infrastructure for road, facilitating pedestrians. Power and communication system - source and distribution networks with safety norms applicable.
Study and design exercises in the above.

UNIT II  WATER SUPPLY AND DRAINAGE  18
Water supply systems. Quality and quantity requirements. Sources. Collection and conveyance of water. Treatment methods, treatment plant location. Planning distribution systems and their zoning with respect to urban structure.
Study and design exercises in the above.

UNIT III  SOLID WASTE MANAGEMENT  12
Study and design exercises in the above.

UNIT IV  INFRASTRUCTURE AND ENVIRONMENT  12

TOTAL: 60 PERIODS

OUTCOME

- Understanding about the infrastructure system at micro level to macro level.
- Ability to plan integrating all aspects of infrastructure for a sustainable development.

REFERENCES

OBJECTIVES

- To give exposure to the need, methodology, documentation and usefulness of environmental impact assessment.
- To enable the development of skill to prepare environmental management plan.

UNIT I  BASICS OF ENVIRONMENTAL IMPACT ASSESSMENT

Historical development of Environmental Impact Assessment (EIA). EIA in Project Cycle. Legal and Regulatory aspects in India. Types and limitations of EIA. Cross sectoral issues and terms of reference in EIA. Public Participation in EIA. EIA process—screening, scoping, setting, analysis, mitigation.


UNIT II  METHODS


UNIT III  EIA OF PROJECTS


UNIT IV  ENVIRONMENTAL MANAGEMENT PLAN


TOTAL: 60 PERIODS

OUTCOME

- Understanding about the significance of environmental impact assessment.
- Ability to prepare basics of environmental management plan.
- Knowledge about the legal requirements of Environmental and Risk Assessment for projects.

REFERENCES

OBJECTIVE

- To enable development of capability to plan for and manage various aspects of building so as to give user satisfaction and safety.

UNIT I  BASICS OF ARCHITECTURAL PROGRAMMING

UNIT II  BASICS OF FACILITIES MANAGEMENT
Principle duties of a facility manager. Business aspects of facilities management. Diverse responsibilities and decision-making processes from building infrastructure to fleet services.

UNIT III  FACILITIES DESIGN AND SPACE PLANNING
Applications of facilities design in defining the requirements of a project. Developing design strategies, implementing corporate philosophies and methodologies, and understanding the project development process. Flexibility and facilities planning. Optimal space planning and cost minimisation through facility layout.

UNIT IV  FACILITY PLANNING AND DECISION SUPPORT SYSTEM

UNIT V  FACILITY MANAGEMENT DURING CONSTRUCTION PHASE & HANDOVER
Types of facility management options. Functionality of Building Automation systems. Wear and tear of technical installations. Recording operating costs, safety concepts, energy supply and waste management. Service tenders and contracts.

OUTCOME

- Familiarity about facilities programming in planning a building.
- Understanding of the relation between facilities planning and and facilities management and their importance, especially in the context of service-oriented spaces and building types.

REFERENCES


OBJECTIVES

- To give introduction to the realm of environmental psychology.
- To introduce interdisciplinary social science approaches and to explore ways that people experience environments and make decisions about them.
UNIT I  INTRODUCTION TO ARCHITECTURAL PSYCHOLOGY
Introduction to the discipline, its importance in the field of architecture. Understanding the principle of psychology- Form, perception, attention, concepts, types of concepts, physical settings and varied emotions. Creative Thinking: Process of creativity, visual and creative thinking. Types of thinking- directed thinking, convergent, divergent. Articulation of masses and spaces, sense and sensation modalities. Language of architecture and its role in creativity, like rhythm, harmony, balance and other visual traits.

UNIT II  ENVIRONMENTAL RESPONSE
Environmental variables-fixed feature variable, semi-permanent feature variable, ambient feature variable and human comportment, human adaptation to the given environment, collective behaviour and spatial orders, effects of colour and behaviour in built environment

UNIT III  CONCEPT OF BEAUTY AND HUMAN ATTITUDE
Philosophies of beauty, aesthetics and physio-psychological association to it and the human mind, simulated by ‘pull’ and ‘push’ factors of the environment physical manifestation and emotional impact attitudes towards typical physical settings form, space and attitude relations.

UNIT IV  APPLICATION OF PSYCHOLOGY IN ARCHITECTURE DESIGN
Evaluation of the satisfactory levels of a residential building. Parameters to provoke desired emotions in the built environment application of the knowledge in the design of a residence, community, neighbourhood in all stages of design.

UNIT V  PSYCHOLOGY OF SUSTAINABLE BEHAVIOR / GREEN INTERVENTIONS

TOTAL: 45 PERIODS

OUTCOME
- Knowledge of application of psychology in architectural design.

REFERENCES

AA5012  PSYCHOLOGY OF LEARNING AND DEVELOPMENT  L T P/S C
3 0 0 3

OBJECTIVES
- To introduce general concepts of learning theory.
- To help understand research related to theories of learning.
- To enable opportunity to engage in critical analysis of theories through discussions.
UNIT I  INTRODUCTION

UNIT II  EDUCATIONAL PSYCHOLOGY

UNIT III  UNDERSTANDING LEARNER STAGES OF HUMAN DEVELOPMENT

UNIT IV  LEARNING AND MOTIVATION

UNIT V  APPRECIATION AND CRITICISM
Ability of Understanding – appreciation, advocacy, descriptive, evaluative, interpretative and other evaluation criteria and methodology. Development of Design Thoughts-understanding, developing and expressing a design thought in its right perspective purpose, manner and mode. Theories and models for experiencing architecture.

TOTAL: 45 PERIODS

OUTCOME
• Knowledge about major social and psychological processes involved in learning and development in an educational setting.
• Ability to engage in knowledgeable and productive dialogue with colleagues about human learning, development, and educational practice.

REFERENCES
• Carol Davidson Cragoe, ‘How to Read A Building’, Rizzoli, 2008.
OBJECTIVES
- To give familiarity about theories of architectural education.
- To introduce the idea of cognition development.
- To give familiarity about ways of thinking and learning with respect to architecture.

UNIT I INTRODUCTION
Overview of the important aspects of the discipline of architecture. Nature of Architectural Education based on the nature of the discipline of architecture.

UNIT II TOOLS/ TECHNIQUES TO TEACH ARCHITECTURE
Models and methods of Teaching. Teaching Aids In Architecture Education. Types of Teaching Aids- Visual, Audio, etc., Learning by Doing, reflection, exploring, arguing, incidentally. Case-Based Teaching. Advanced Organizer, Concept attainment model, Simulations.

UNIT III SYNECTICS AS A MODEL OF TEACHING.
The essence of creativity in synectics. Use of synectics in the design studio. Techniques of teaching-learning: Maxims of teaching and its application to subjects of architecture. Concept mapping, creating concept maps. Basic aspects of classroom management.

UNIT IV STUDENT DEVELOPMENT

UNIT V LEARNING IN ARCHITECTURE DESIGN STUDIO
Development of Critical, Creative and Pragmatic Thinking in Architectural Design Studio. Bloom Taxonomy in Design Studio. Qualities which can be attained at various stages in Architectural Design Studio.

OUTCOME
- Awareness of the importance of contextual excellence in architectural design and methods for the same.
- Knowledge about and ability to integrate interdisciplinary and cognitive aspects of learning, teaching and development.

REFERENCES
OBJECTIVES

- To introduce basic objectives, methods and skills for practice of professional journalism with particular emphasis on architectural journalism.
- To introduce and explore photography as an important aspect of journalism and as a standalone requirement for the architectural profession.

UNIT I  INTRODUCTION TO JOURNALISM  12
Introduction to journalism, its key concepts and objectives. Different types of journalism. Architectural journalism as a specialised area. Outline of aspects related to journalism - research, reporting, writing, editing, photography, columns, public relationship, criticism. Knowledge about copyright, policies, etc.,. Code of ethics. Basic knowledge of press laws, Press Council of India.

UNIT II  TECHNIQUES AND SKILLS FOR JOURNALISM  16

UNIT III  DISCUSSIONS AND ISSUES ON ARCHITECTURE  12

UNIT IV  ARCHITECTURAL PHOTOGRAPHY  20

OUTCOME

- Knowledge and skill in the basics of journalism.
- Familiarity with the scope of architectural journalism.
- Skill in architectural photography.

REFERENCES


AA5027 EXPLORATIONS IN ARCHITECTURAL FORM L T P/S C 2 0 2 3

OBJECTIVES
• To inform about aspects, concepts and methods related to some contemporary architectural design processes.
• To enable use of contemporary processes in order to generate architectural form for specific design situations.

UNIT I DIAGRAMMING 15
Introduction to diagramming and its history. Traditional diagrams. Contemporary diagramming processes as tool to creative interpretation and design of architectural form. Simple exercises in diagramming.

UNIT II SHAPE GRAMMAR AND FRACTALS 15
Introduction to shape grammar and its applications. Introduction to Fractals. Examples from nature and built environment. Types of fractals. Fractal creation, generator and initiator, direction and proportion. Simple design exercises in shape grammar and fractals.

UNIT III EVOLUTIONARY ALGORITHMS 15

UNIT IV PARAMETRIC DESIGN 15
Introduction to parametric design. Concept of scripting. Simple design exercises in parametric design.

TOTAL: 60 PERIODS

OUTCOME
• Familiarity with some basic contemporary processes of architectural design.
• Ability to explore architectural form through contemporary processes.

REFERENCES
AUDIT COURSES (AC)

AX5091 ENGLISH FOR RESEARCH PAPER WRITING  L T P C  2 0 0 0

OBJECTIVES

- Teach how to improve writing skills and level of readability
- Tell about what to write in each section
- Summarize the skills needed when writing a Title
- Infer the skills needed when writing the Conclusion
- Ensure the quality of paper at very first-time submission

UNIT I  INTRODUCTION TO RESEARCH PAPER WRITING  6
Planning and Preparation, Word Order, Breaking up long sentences, Structuring Paragraphs and Sentences, Being Concise and Removing Redundancy, Avoiding Ambiguity and Vagueness

UNIT II  PRESENTATION SKILLS  6

UNIT III  TITLE WRITING SKILLS  6
Key skills are needed when writing a Title, key skills are needed when writing an Abstract, key skills are needed when writing an Introduction, skills needed when writing a Review of the Literature, Methods, Results, Discussion, Conclusions, The Final Check

UNIT IV  RESULT WRITING SKILLS  6
Skills are needed when writing the Methods, skills needed when writing the Results, skills are needed when writing the Discussion, skills are needed when writing the Conclusions

UNIT V  VERIFICATION SKILLS  6
Useful phrases, checking Plagiarism, how to ensure paper is as good as it could possibly be the first-time submission

TOTAL: 30 PERIODS

OUTCOMES

CO1 – Understand that how to improve your writing skills and level of readability
CO2 – Learn about what to write in each section
CO3 – Understand the skills needed when writing a Title
CO4 – Understand the skills needed when writing the Conclusion
CO5 – Ensure the good quality of paper at very first-time submission

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REFERENCES

OBJECTIVES

- Summarize basics of disaster
- Explain a critical understanding of key concepts in disaster risk reduction and humanitarian response.
- Illustrate disaster risk reduction and humanitarian response policy and practice from multiple perspectives.
- Describe an understanding of standards of humanitarian response and practical relevance in specific types of disasters and conflict situations.
- Develop the strengths and weaknesses of disaster management approaches

UNIT I 
INTRODUCTION

Disaster: Definition, Factors and Significance; Difference between Hazard And Disaster; Natural and Manmade Disasters: Difference, Nature, Types and Magnitude.

UNIT II 
REPERCUSSIONS OF DISASTERS AND HAZARDS


UNIT III 
DISASTER PRONE AREAS IN INDIA

Study of Seismic Zones; Areas Prone To Floods and Droughts, Landslides And Avalanches; Areas Prone To Cyclonic and Coastal Hazards with Special Reference To Tsunami; Post-Disaster Diseases and Epidemics

UNIT IV 
DISASTER PREPAREDNESS AND MANAGEMENT

Preparedness: Monitoring Of Phenomena Triggering a Disaster or Hazard; Evaluation of Risk: Application of Remote Sensing, Data from Meteorological And Other Agencies, Media Reports: Governmental and Community Preparedness.

UNIT V 
RISK ASSESSMENT

Disaster Risk: Concept and Elements, Disaster Risk Reduction, Global and National Disaster Risk Situation. Techniques of Risk Assessment, Global Co-Operation in Risk Assessment and Warning, People’s Participation in Risk Assessment. Strategies for Survival

TOTAL : 30 PERIODS

OUTCOMES

CO1: Ability to summarize basics of disaster
CO2: Ability to explain a critical understanding of key concepts in disaster risk reduction and humanitarian response. 
CO3: Ability to illustrate disaster risk reduction and humanitarian response policy and practice from multiple perspectives.
CO4: Ability to describe an understanding of standards of humanitarian response and practical relevance in specific types of disasters and conflict situations.
CO5: Ability to develop the strengths and weaknesses of disaster management approaches.

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AX5093 SANSKRIT FOR TECHNICAL KNOWLEDGE

OBJECTIVES
- Illustrate the basic sanskrit language.
- Recognize sanskrit, the scientific language in the world.
- Appraise learning of sanskrit to improve brain functioning.
- Relate sanskrit to develop the logic in mathematics, science & other subjects enhancing the memory power.
- Extract huge knowledge from ancient literature.

UNIT I ALPHABETS
Alphabets in Sanskrit

UNIT II TENSES AND SENTENCES
Past/Present/Future Tense - Simple Sentences

UNIT III ORDER AND ROOTS
Order - Introduction of roots

UNIT IV SANSKRIT LITERATURE
Technical information about Sanskrit Literature

UNIT V TECHNICAL CONCEPTS OF ENGINEERING
Technical concepts of Engineering-Electrical, Mechanical, Architecture, Mathematics

TOTAL: 30 PERIODS

OUTCOMES
- CO1 - Understanding basic Sanskrit language.
- CO2 - Write sentences.
- CO3 - Know the order and roots of Sanskrit.
- CO4 - Know about technical information about Sanskrit literature.
- CO5 - Understand the technical concepts of Engineering.

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REFERENCES
1. “Abhyaspustakam” – Dr. Vishwas, Samskrita-Bharti Publication, New Delhi
2. “Teach Yourself Sanskrit” Prathama Deeksha-Vempati Kutumbshastri, Rashtriya Sanskrit Sansthanam, New Delhi Publication
OBJECTIVES

Students will be able to
- Understand value of education and self-development
- Imbibe good values in students
- Let the should know about the importance of character

UNIT I

UNIT II

UNIT III

UNIT IV

TOTAL: 30 PERIODS

OUTCOMES

Students will be able to
- Knowledge of self-development.
- Learn the importance of Human values.
- Developing the overall personality.

Suggested reading

OBJECTIVES

Students will be able to:
- Understand the premises informing the twin themes of liberty and freedom from a civil rights perspective.
- To address the growth of Indian opinion regarding modern Indian intellectuals’ constitutional
- Role and entitlement to civil and economic rights as well as the emergence nation hood in the early years of Indian nationalism.
- To address the role of socialism in India after the commencement of the Bolshevik Revolutionin1917and its impact on the initial drafting of the Indian Constitution.

UNIT I HISTORY OF MAKING OF THE INDIAN CONSTITUTION
History, Drafting Committee, (Composition & Working)

UNIT II PHILOSOPHY OF THE INDIAN CONSTITUTION
Preamble, Salient Features
UNIT III CONTOURS OF CONSTITUTIONAL RIGHTS AND DUTIES

UNIT IV ORGANS OF GOVERNANCE
Parliament, Composition, Qualifications and Disqualifications, Powers and Functions, Executive, President, Governor, Council of Ministers, Judiciary, Appointment and Transfer of Judges, Qualifications, Powers and Functions.

UNIT V LOCAL ADMINISTRATION

UNIT VI ELECTION COMMISSION
Election Commission: Role and Functioning. Chief Election Commissioner and Election Commissioners - Institute and Bodies for the welfare of SC/ST/OBC and women.

OUTCOMES
Students will be able to:
• Discuss the growth of the demand for civil rights in India for the bulk of Indians before the arrival of Gandhi in Indian politics.
• Discuss the intellectual origins of the framework of argument that informed the conceptualization
• of social reforms leading to revolution in India.
• Discuss the circumstances surrounding the foundation of the Congress Socialist Party[CSP] under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of direct elections through adult suffrage in the Indian Constitution.
• Discuss the passage of the Hindu Code Bill of 1956.

Suggested reading
1. The Constitution of India,1950(Bare Act),Government Publication.

AX5096 PEDAGOGY STUDIES

OBJECTIVES
Students will be able to:
• Review existing evidence on there view topic to inform programme design and policy
• Making under taken by the DIID, other agencies and researchers.
• Identify critical evidence gaps to guide the development.

UNIT I INTRODUCTION AND METHODOLOGY
Aims and rationale, Policy background, Conceptual framework and terminology - Theories of learning, Curriculum, Teacher education - Conceptual framework, Research questions - Overview of methodology and Searching.
UNIT II   THEMATIC OVERVIEW
Pedagogical practices are being used by teachers in formal and informal classrooms in developing countries - Curriculum, Teacher education.

UNIT III   EVIDENCE ON THE EFFECTIVENESS OF PEDAGOGICAL PRACTICES
Methodology for the in depth stage: quality assessment of included studies - How can teacher education (curriculum and practicum) and the school curriculum and guidance materials best support effective pedagogy? - Theory of change - Strength and nature of the body of evidence for effective pedagogical practices - Pedagogic theory and pedagogical approaches - Teachers’ attitudes and beliefs and Pedagogic strategies.

UNIT IV   PROFESSIONAL DEVELOPMENT
Professional development: alignment with classroom practices and follow up support - Peer support - Support from the head teacher and the community - Curriculum and assessment - Barriers to learning: limited resources and large class sizes.

UNIT V   RESEARCH GAPS AND FUTURE DIRECTIONS
Research design – Contexts – Pedagogy - Teacher education - Curriculum and assessment - Dissemination and research impact.

OUTCOMES
Students will be able to understand
• What pedagogical practices are being used by teachers informal and informal classrooms in developing countries?
• What is the evidence on the effectiveness of these pedagogical practices, in what conditions, and with what population of learners?
• How can teacher education (curriculum and practicum) and the school curriculum and guidance materials best support effective pedagogy?

Suggested reading

AX5097   STRESS MANAGEMENT BY YOGA

OBJECTIVES
• To achieve overall health of body and mind
• To overcome stress

UNIT I
Definitions of Eight parts of yoga.(Ashtanga)

UNIT II
Yam and Niyam - Do’s and Don’t’s in life - i) Ahinsa, satya, astheya, bramhacharya and aparigraha,
ii) Ahinsa, satya, astheya, bramhacharya and aparigraha.
UNIT III
Asan and Pranayam - Various yog poses and their benefits for mind & body - Regularization of breathing techniques and its effects - Types of pranayam

TOTAL: 30 PERIODS

OUTCOMES
Students will be able to
- Develop healthy mind in a healthy body thus improving social health also
- Improve efficiency

SUGGESTED READING
1. ‘Yogic Asanas for Group Tarining-Part-I”: Janardan Swami Yoga bhyasi Mandal, Nagpur
2. “Rajayoga or conquering the Internal Nature” by Swami Vivekananda, Advaita Ashrama (Publication Department), Kolkata

AX5098
PERSONALITY DEVELOPMENT THROUGH LIFE ENLIGHTENMENT SKILLS

OBJECTIVES
- To learn to achieve the highest goal happily
- To become a person with stable mind, pleasing personality and determination
- To awaken wisdom in students

UNIT I
Neetisatakam-holistic development of personality - Verses 19,20,21,22 (wisdom) - Verses 29,31,32 (pride & heroism) – Verses 26,28,63,65 (virtue) - Verses 52,53,59 (dont’s) - Verses 71,73,75,78 (do’s)

UNIT II
Approach to day to day work and duties - Shrimad Bhagwad Geeta: Chapter 2-Verses 41, 47,48 - Chapter 3-Verses 13, 21, 27, 35 Chapter 6-Verses 5,13,17,23, 35 - Chapter 18-Verses 45, 46, 48.

UNIT III
Statements of basic knowledge - Shrimad Bhagwad Geeta: Chapter2-Verses 56, 62, 68 Chapter 12 -Verses 13, 14, 15, 16,17, 18 - Personality of role model - shrimad bhagwad geeta - Chapter2-Verses 17, Chapter 3-Verses 36,37,42 - Chapter 4-Verses 18, 38,39 Chapter 18 – Verses 37,38,63

TOTAL: 30 PERIODS

OUTCOMES
Students will be able to
- Study of Shrimad Bhagwad Geeta will help the student in developing his personality and achieve the highest goal in life
- The person who has studied Geeta will lead the nation and mankind to peace and prosperity
- Study of Neetisatakam will help in developing versatile personality of students.

Suggested reading
1. Gopinath, Rashtriya Sanskrit Sansthanam P, Bhartrihari’s Three Satakam, Niti-sringar-vairagya, New Delhi, 2010