

**ANNA UNIVERSITY, CHENNAI**  
**NON-AUTONOMOUS COLLEGES AFFILIATED TO ANNA UNIVERSITY**  
**M. ARCH. (GENERAL). FULL-TIME PROGRAMME**  
**REGULATIONS 2021**  
**CHOICE BASED CREDIT SYSTEM**  
**I TO IV SEMESTERS CURRICULA AND I SEMESTER SYLLABUS**  
**SEMESTER I**

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
<b>THEORY</b>								
1.	MH4101	Process in Design	PCC	3	0	0	3	3
2.	MH4102	Contemporary Architectural Practices	PCC	3	0	0	3	3
3.	MH4103	Emerging Practices in Housing	PCC	3	0	0	3	3
4.	MH4151	Society, Culture, Media and Technology	PCC	3	0	0	3	3
5.		Audit Course I*	AC	2	0	0	2	0
<b>THEORY CUM STUDIO</b>								
6.	MH4121	Building Information Modelling	PAEC	1	0	3	4	4
<b>STUDIO</b>								
7.	MH4111	Process Based Design Studio	PCC	0	0	10	10	10
<b>TOTAL</b>				<b>15</b>	<b>0</b>	<b>13</b>	<b>28</b>	<b>26</b>

\* Audit Course is optional

**SEMESTER II**  
**(Prerequisite- Pass in Process Based Design Studio)**

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
<b>THEORY</b>								
1.	RM4251	Research Methodologies for Built Environment	RMC	3	0	0	3	3
2.	MH4201	Sustainable Architecture- Historic and Community Perspective	PCC	3	0	0	3	3
3.	MH4202	Climate Change Adaptation and Resilience in Architecture	PCC	3	0	0	3	3
4.		Audit Course II*	AC	2	0	0	2	0
<b>THEORY CUM STUDIO</b>								
5.	MH4221	Geographical Information Systems for Built Environment	PAEC	1	0	3	4	4
<b>STUDIO</b>								
6.	MH4211	Sustainable Design Studio	PCC	0	0	10	10	10
<b>TOTAL</b>				<b>12</b>	<b>0</b>	<b>13</b>	<b>25</b>	<b>23</b>
<b>PROFESSIONAL ELECTIVE</b>								
7.		Professional Elective I	PEC	X	X	X	3	3
<b>TOTAL</b>							<b>28</b>	<b>26</b>

\* Audit Course is optional

**SEMESTER III**  
(Prerequisite- Pass in Sustainable Design Studio)

SL NO.	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
<b>THEORY</b>								
1.	MH4301	Urban Design: Theory and Practice	PCC	3	0	0	3	3
2.	MH4302	Architectural Conservation: Policies and Practice	PCC	3	0	0	3	3
<b>STUDIO</b>								
3.	MH4311	Dissertation	PCC	0	0	4	4	4
4.	MH4312	Urban Environment Design Studio	PCC	0	0	10	10	10
<b>TOTAL</b>				<b>6</b>	<b>0</b>	<b>14</b>	<b>20</b>	<b>20</b>
<b>PROFESSIONAL ELECTIVE</b>								
5.		Professional Elective II	PEC	X	X	X	3	3
6.		Professional Elective III	PEC	X	X	X	3	3
<b>INTERNSHIP TRAINING</b>								
7.	MH4313	Internship Training	PAEC	X	X	X	X	2
<b>TOTAL</b>							<b>28</b>	<b>28</b>

**SEMESTER IV**  
(Prerequisite- Pass in Urban Environment Design Studio)

SL. NO.	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
<b>STUDIO</b>								
1.	MH4411	Thesis Project	PCC	0	0	20	20	20
<b>TOTAL</b>				<b>0</b>	<b>0</b>	<b>20</b>	<b>20</b>	<b>20</b>
<b>PROFESSIONAL ELECTIVE</b>								
2.		Professional Elective IV	PEC	X	X	X	3	3
<b>TOTAL</b>							<b>23</b>	<b>23</b>

**Total No. of Credits: 103**

**PROFESSIONAL CORE COURSES (PCC)**

S NO.	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
1.	MH4101	Process in Design	PCC	3	0	0	3	3
2.	MH4102	Contemporary Architectural Practices	PCC	3	0	0	3	3
3.	MH4103	Emerging Practices in Housing	PCC	3	0	0	3	3
4.	MH4151	Society, Culture, Media and Technology	PCC	3	0	0	3	3
5.	MH4111	Process Based Design Studio	PCC	0	0	10	10	10
6.	RM4251	Research Methodologies for Built Environment	RMC	3	0	0	3	3
7.	MH4201	Sustainable Architecture - Historic and Community Perspective	PCC	3	0	0	3	3
8.	MH4202	Climate Change Adaptation and Resilience in Architecture	PCC	3	0	0	3	3
9.	MH4211	Sustainable Design Studio	PCC	0	0	10	10	10
10.	MH4301	Urban Design: Theory and Practice	PCC	3	0	0	3	3
11.	MH4302	Architectural Conservation: Policies and Practice	PCC	3	0	0	3	3
12.	MH4311	Dissertation	PCC	0	0	4	4	4
13.	MH4312	Urban Environment Design Studio	PCC	0	0	10	10	10
14.	MH4411	Thesis Project	PCC	0	0	20	20	20

**PROFESSIONAL ELECTIVE COURSES (PEC)**

**SEMESTER II, ELECTIVE I**

SL. NO.	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
1.	MH4001	Explorations in Architectural Form	PEC	2	0	1	3	3
2.	MH4071	Environmental Psychology	PEC	3	0	0	3	3
3.	MH4002	Architectural Lighting	PEC	3	0	0	3	3
4.	MH4072	Performance Evaluation of Buildings	PEC	2	0	1	3	3
5.	MH4073	Soft Skills	PEC	2	0	1	3	3
6.	MH4003	Architectural Journalism and Photography	PEC	2	0	1	3	3

**SEMESTER III, ELECTIVE II & III**

SL. NO.	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
1.	MH4004	Anthropology and Architecture	PEC	3	0	0	3	3
2.	MH4005	Urban Cultural Landscapes	PEC	3	0	0	3	3
3.	MH4006	Building Skins and Smart Materials	PEC	3	0	0	3	3
4.	MH4007	Retrofitting and Adaptive Reuse	PEC	3	0	0	3	3
5.	MH4008	Sustainable Building Services and Water Management	PEC	3	0	0	3	3
6.	MH4074	Psychology of Learning and Development	PEC	3	0	0	3	3
7.	MH4009	Facilities Programming and Management for Architecture	PEC	3	0	0	3	3

**SEMESTER IV, ELECTIVE IV**

SL. NO.	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
1.	MH4010	Architecture and Critical Theory	PEC	3	0	0	3	3
2.	MH4011	Landscape Urbanism	PEC	3	0	0	3	3
3.	MH4012	Urban Infrastructure and Management	PEC	3	0	0	3	3
4.	MH4013	Appropriate Technologies and Sustainable Construction	PEC	3	0	0	3	3
5.	MH4075	Theory of Architectural Education	PEC	3	0	0	3	3
6.	MH4014	Advanced Professional Practice	PEC	3	0	0	3	3

**PROFESSIONAL ABILITY ENHANCEMENT COURES (PAEC)**

SL. NO.	COURSE CODE	COURSE TITLE	CATE GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
1.	MH4121	Building Information Modelling	PAEC	1	0	3	4	4
2.	MH4221	Geographical Information Systems for Built Environment	PAEC	1	0	3	4	4
3.	MH4313	Internship Training	PAEC	X	X	X	X	2

### AUDIT COURSES (AC)

Registration for any of these courses is optional to students

SL. NO	COURSE CODE	COURSE TITLE	PERIODS PER WEEK			CREDITS	SEMESTER
			Lecture	Tutorial	Practical		
1.	AX4091	English for Research Paper Writing	2	0	0	0	1/2
2.	AX4092	Disaster Management	2	0	0	0	
3.	AX4093	Constitution of India	2	0	0	0	
4.	AX4094	நற்றமிழ் இலக்கியம்	2	0	0	0	

**OBJECTIVES**

- To impart knowledge about 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****6**

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****9**

Investigation of contemporary theories of media and their influence on the perception of space and architecture. Technology and Art. Technology and Architecture. Technology as Rhetoric. Digital Technology and Architecture. Aspects of Digital Architecture. Design and Computation. Difference between Digital Process and Non-Digital Process. Architecture and Cyber Space. Qualities of the new space. Issues of Aesthetics and Authorship of Design. Increased Automatism and its influence on Architectural Form and Space

**UNIT III CONTEMPORARY PROCESS****9**

Overview of various Contemporary processes to understand existing situations such as mapping, etc., Design process and its relation to computation. Diagrams. Diagrammatic Reasoning. Diagrams and Design Process. Animation and Design. Digital Hybrid Design Protocols. Concept of Emergence. Introduction to Cellular Automata and Architectural applications. Genetic algorithms and Design Computation.

**UNIT IV GEOMETRIES AND SURFACES****9**

Fractal Geometry and their properties. Architectural applications. Works of ZviHecker. 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 PROCESS AND PEOPLE****12**

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.

**TOTAL: 45 PERIODS****OUTCOMES**

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

**REFERENCES**

1. Geoffrey Broadbent, 'Design in Architecture - Architecture and the Human Sciences', D.Fulton, 1988.
2. Christopher Alexander, 'A Pattern Language', Oxford, 2015.
3. Christopher Jones, 'Design Methods', John Wiley and Sons, 1980.
4. Peter Eisenmann, 'Diagram Diaries', Thames & Hudson Ltd., October 1999.
5. Ben van Berkel and Caroline Bos, 'MOVE', UN Studio, 2008.
6. Greg Lynn, 'Architecture Curvilinearity: The Folded, The Pliant and The Supple', Architectural Design 63: Folding Architecture, Academy Editions, London, 1993.
7. Greg Lynn, 'Animate Form', American Academic Research, 2018.
8. Ali Rahim, 'Contemporary Process in Architecture', John Wiley and Sons, 2000.

9. Walter Benjamin, 'Work of Art in the Age of Mechanical Reproduction', Penguin, 2008.
10. William J Mitchell, 'The Logic of Architecture: Design, Computation and Cognition', MIT Press, Cambridge, 1998.
11. Marcos Novak, 'Invisible Architecture: An Installation for the Greek Pavilion', Venice Biennale, 2000.

<b>MH4102</b>	<b>CONTEMPORARY ARCHITECTURAL PRACTICES</b>	<b>L T P/S C</b>
		<b>3 0 0 3</b>

### **OBJECTIVES**

- To impart knowledge about contemporary architectural practices/ practitioners along with stated ideas/ theoretical writings.
- To give an understanding about how architectural practices engage with issues/ conditions.
- To give an understanding of architecture as a product of the context that produces it as well as a way towards the future.
- To enable engagement in architectural interpretation and criticism

### **UNIT I ARCHITECTURE AND IDEAS/ INTENT 9**

Understanding and interpreting works of architects who explicitly state their ideas/ theories for example Bernard Tschumi, Peter Eisenman. Understanding and interpreting contemporary Iconic architecture/ Starchitecture through stated intent of architect and final form- for example Gehry, Zaha Hadid, Libeskind, BIG architects

### **UNIT II ARCHITECTURE AND CONTEXT 9**

Understanding and interpreting works of architects whose response to universals and particulars of context – social/ cultural/ environmental are considered exemplary- for example Zumthor, Murcutt, Siza, Barragan, Souto de Moura, Correa, Doshi, Aravena. Ken Yeang, William McDonough.

### **UNIT III ARCHITECTURAL FORM IN THE DIGITAL AGE 9**

Understanding and interpreting works of architects who are considered exemplary in their engagement with the digital age and technology through contemporary processes- for example Greg Lynn, ZHA, UNstudio, NOX, Novak, FOA, Gehry,

### **UNIT IV ARCHITECTURE AND THE CITY 9**

Understanding and interpreting works of architects who include the city and its forces within the discourse of architecture - for example Rem Koolhaas, MVRDV.

### **UNIT V EMERGING ARCHITECTURAL PRACTICES IN INDIA 9**

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**

### **OUTCOMES**

- A critical understanding of contemporary architectural practice that is influenced by or informed by specific conditions/ ideas/ situations and that is explicitly evident in the final work.
- An ability to understand the role of architecture as built propositions towards future by interpreting the present.

### **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

4. Harry Francis Mallgrave and David Goodman, An Introduction to Architectural Theory- 1968 to the present, Wiley Blackwell 2011
5. Kate Nesbitt, Theorizing a New Agenda for Architecture, Princeton Architectural Press, 1996
6. Koolhaas, Rem, and Bruce Mau, S, M, L, XL. New York: Monacelli Press, 1995
7. Lynn, Greg. Animate Form. New York: Princeton Architectural Press, 1999
8. Michael Hays (ed) Architectural Theory since 1960, MIT Press, 2000
9. MVRDV, FARMAX
10. Rahul Mehrotra, Architecture in India since 1990
11. Steven Holl, Juhani Pallasmaa, Alberto Pérez Gómez, Questions of perception: phenomenology of architecture, William Stout, 2006
12. Tschumi, Bernard. Architecture and Disjunction. Cambridge, MA: MIT Press, 1994

**MH4151**

**SOCIETY, CULTURE, MEDIA AND TECHNOLOGY**

**L T P/S C**  
**3 0 0 3**

**OBJECTIVES**

- To introduce the interdisciplinary field of research, science, technology and society studies.
- To create awareness of the interface between science, technology and society from a theoretical perspective.

**UNIT I SOCIOLOGY OF SCIENTIFIC KNOWLEDGE 9**

Relationship between science and the social, Conventional view of philosophers and historians of science, Sociology of Science (Karl Manheim-Robert K. Merton), Social Function of Science (Joseph Bernal). The Radical Science Movement- the Kuhnian intervention. Science as a social activity: Strong Program, Laboratory Studies/ethnography of science, Actor Network Theory (Bruno Latour). Communicating science to peers, scientific controversies, public engagement with Science & Technology -the changing configuration of science, mode II knowledge production.

**UNIT II TECHNOLOGY – SOCIETY INTERFACE I 9**

**Techno science and the Interpenetration of Science & Technology**

Questioning of the traditional boundary between science (knowing) and technology (doing). How science and technology together shape the ways in which knowledge is constructed. Technological Determinism, Power and the Politics of Knowledge Production.

**UNIT III TECHNOLOGY – SOCIETY INTERFACE II 9**

**Technology in Context: Perspectives in Science, Technology and Society (STS) Studies.**

Various perspectives on Technology in Science, Technology and Society(STS) studies; Social Shaping of Technology - Social Construction of Technology, Actor Network Theory, Transition in Socio-Technical Systems. Multi-Level Perspective, Critical Theory of Technology. Contributions of Trench, Lewenstein, Jasanoff & Vishvanathan---governance and ethical issues in the context of emerging technologies. Influence of local contexts —democratisation and ‘up-stream’ public engagement with technology.

**UNIT IV NEW MEDIA 9**

The new communication paradigm brought about by digital technologies. Digitality (Digital versus Analogue Media) – Interactivity, Extractive versus immersive navigation, Registrational Interactivity and Interactive communication – Hypertextuality - Networked Media -Virtuality



## UNIT V VISUAL CULTURE

9

Introduction and definitions of Visual Culture- Visual Culture Studies - New ways of seeing – Decoding Images – Visual Cultural Perspectives – High and low culture – Images and Power – Images and Ideology – Picture Theory – Representation – Image and Meaning – The myth of the Image – Medium is the Message

**TOTAL: 45 PERIODS**

### OUTCOMES

- Understanding of trends that problematised production of scientific knowledge and the sociology of scientific knowledge
- Familiarity with the technology-society interface from a wide range of theoretical standpoints such as social shaping of technology, social constructionist and actor network theoretical perspectives.
- Understanding of science and technology as socially and culturally embedded activities.

### REFERENCES

1. Collins, Harry and Pinch, Trevor 1993. *The Golem: What Everyone should Know about Science*. Cambridge: Cambridge University Press.
2. Hess, David J. 1995. *Science and Technology in a Multicultural World: The Cultural Politics of Facts and Artefacts*. New York: Columbia Press.
3. Hess, David J. 1997. *Science Studies: An Advanced Introduction*. New York: NewYork University Press.
4. Jasanoff, Sheila et al. (eds.). 1995. *Handbook of Science and Technology Studies*. Thousand Oaks, CA: Sage Publications.
5. MacKenzie, Donald and Judy Wajcman 1999 (eds.). *The Social Shaping of Technology*, 2nd edition, Open University Press.
6. Sismondo, Sergio 2010. *An Introduction to Science and Technology Studies* (2nd edition). Chichester: Wiley-Blackwell.
7. Mirzoeff, Nicholas, *An Introduction to Visual Culture*, Routledge
8. Bijker, Wiebe E. et al. 1989. *The Social Construction of Technological Systems*. Cambridge, MA: MIT Press.
9. Bloor, David 1976. *Knowledge and Social Imagery*, second edition, London: Routledge and Kegan Paul.
10. McLuhan, Marshall, *The Medium is the Message, From Understanding Media: The Extensions of Man*.

**MH4103**

**EMERGING PRACTICES IN HOUSING**

**L T P/S C**

**3 0 0 3**

### 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

9

Introduction to housing, from its industrial beginnings in London and Paris to New York City's Lower East Side and the 20<sup>th</sup> 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.

<b>UNIT II</b>	<b>SINGLE FAMILY, MULTI FAMILY HOUSING</b>	<b>9</b>
Review of latest developments in single family and multifamily housing by examining the works of WielArets, Shigeru Ban, Ben van Berkel, KeesChristiaanse, Philippe Gazeau, Frank O. Gehry, Steven Holl, Hans Kollhoff, MorgerandDegelo,, Jean Nouvel, KasOosterhuis, MVRDV.		
<b>UNIT III</b>	<b>HIGH DENSITY HOUSING</b>	<b>7</b>
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.		
<b>UNIT IV</b>	<b>NEW FORMS OF LIVING AND HOUSING IN THE DIGITAL ERA</b>	<b>7</b>
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.		
<b>UNIT V</b>	<b>CONTEMPORARY HOUSING IN THE INDIAN CONTEXT</b>	<b>13</b>
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.		

**TOTAL:45 PERIODS**

**OUTCOMES**

- 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**

1. Jaime Salazer, Manuel Gausa, 'Single Family Housing', Birkhauser Verlag AG, 2005.
2. Vicente Guallart, 'Sociopolis: Project for a City of the Future', ACTAR, 2004.
3. Jingmin Zhou, 'Urban Housing Form', Architectural Press, 2005.
4. Adrienne Schmitz, 'Multifamily Housing Development Handbook', Urban Land Institute, 2000.
5. CarlesBronto, 'Innovative Public Housing', Links Internacional, 2005.
6. Rahul Mehrotra, 'Architecture in India since 1990', HatjeCantz, 2011.

<b>MH4121</b>	<b>BUILDING INFORMATION MODELLING</b>	<b>L T P/S C</b>
		<b>1 0 3 4</b>

**OBJECTIVES**

- To equip students with skills and information to build comprehensive Building Information Models (BIM) for stage wise project analysis.
- To help students work and iterate on parameters that impact design options
- To sensitise students, and enhance their potential at energy modelling.
- To let student's review and optimise the complex details in the design solution so as to avoid construction risks.
- To equip students with skills on cost optimisation with design inputs using appropriate Digital software and Media.

**UNIT I INTRODUCTION TO THE FUNDAMENTALS 10**

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 MODELLING15**

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 topo surface, 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 RENDERING AND MATERIAL APPLICATION 15**

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 work sets - and calculating energy analysis - managing revisions

**UNIT IV BIM FOR BUILDING ENERGY SIMULATION 15**

Energy simulation for conceptual BIM models using massing- Detailed modeling using design elements- Rapid energy modeling and simulation - Conceptual Energy Analysis features to simulate performance to produce energy consumption, carbon neutrality and renewable potential reports.

**UNIT V BIM FOR COST ESTIMATING, PROJECT PHASING AND ADMINISTRATION 5**

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: 60 PERIODS**

**OUTCOMES**

- Knowledge on the implementation of BIM concepts throughout the lifecycle of a building, from planning and design, to construction and operations.
- Knowledge of optimisation, working on options and alternatives that could result in efficiency.
- Ability to use BIM for analysing energy performance and simulating details.
- Knowledge that can synchronise the real time project through simulation.
- Understanding of the complex details of generating detailed estimates that add to value engineering.

**REFERENCES:**

1. Eastman, C.; Teicholz, P.; Sacks, R.; Liston, K. (2008) BIM Handbook: A Guide to Building Information Modeling for Owners, Managers, Designers, Engineers and Contractors. New York: Wiley.
2. Ray Crotty;(2011) The Impact of Building Information Modelling: Transforming Construction. Spons Architecture Price Book.

**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.

In the study and proposition stage, 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.

In the design stage, 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: 150 PERIODS**

**OUTCOMES**

- 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**

1. Branko Kolarevic, 'Architecture in the Digital Age: Design and Manufacturing, Spon Press, 2003.
2. Achim Menges, Sean Ahlquist, Eds, 'Computational Design Thinking, AD Reader', John Wiley & Sons, 2011.
3. Robert Woodbury, 'Elements of Parametric Design', 1st Edition, Routledge, 2010.
4. Paul Coates, 'Programming Architecture', 1st Edition, Routledge, 2010.
5. Wassim Jabi, Brian Johnson, Robert Woodbury, 'Parametric Design for Architecture', Laurence King Publishing, 2013.

7. Katherine Melcher, Barry Stiefel, Kristin Faurest, Eds, 'Community-Built: Art, Construction,
8. Preservation, and Place', 1st Edition, Routledge, 2016.
9. Nishat Awan, Tatjana Schneider, Jeremy Till, 'Spatial Agency: Other Ways of Doing Architecture', Routledge, 2011.
10. Philip Plowright, 'Revealing Architectural Design: Methods, Frameworks and Tools', Routledge, 2014.
11. Wendy Gunn, Ton Otto, Rachel Charlotte Smith, 'Design Anthropology: Theory and Practice', Berg, 2013.
12. C. Thomas Mitchell, 'Redefining Designing: From Form to Experience', Van Nostrand Reinhold, 1992.

## AUDIT COURSES

**AX4091**

**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**

Clarifying Who Did What, Highlighting Your Findings, Hedging and Criticizing, Paraphrasing and Plagiarism, Sections of a Paper, Abstracts, Introduction

### **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

### **REFERENCES**

1. Adrian Wallwork, English for Writing Research Papers, Springer New York Dordrecht Heidelberg London, 2011
2. Day R How to Write and Publish a Scientific Paper, Cambridge University Press 2006
3. Goldbort R Writing for Science, Yale University Press (available on Google Books) 2006
4. Highman N, Handbook of Writing for the Mathematical Sciences, SIAM. Highman's book 1998.

**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****6**

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****6**

Economic Damage, Loss of Human and Animal Life, Destruction Of Ecosystem. Natural Disasters: Earthquakes, Volcanisms, Cyclones, Tsunamis, Floods, Droughts And Famines, Landslides And Avalanches, Man-made disaster: Nuclear Reactor Meltdown, Industrial Accidents, Oil Slicks And Spills, Outbreaks Of Disease And Epidemics, War And Conflicts.

**UNIT III DISASTER PRONE AREAS IN INDIA****6**

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****6**

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****6**

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

**REFERENCES**

1. Goel S. L., Disaster Administration And Management Text And Case Studies”, Deep & Deep Publication Pvt. Ltd., New Delhi,2009.
2. NishithaRai, Singh AK, “Disaster Management in India: Perspectives, issues and strategies “NewRoyal book Company,2007.
3. Sahni, PardeepEt.Al. ,” Disaster Mitigation Experiences And Reflections”, Prentice Hall OfIndia, New Delhi,2001.

**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 Revolution in 1917 and 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**

Fundamental Rights, Right to Equality, Right to Freedom, Right against Exploitation, Right to Freedom of Religion, Cultural and Educational Rights, Right to Constitutional Remedies, Directive Principles of State Policy, Fundamental 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**

District's Administration head: Role and Importance, □ Municipalities: Introduction, Mayor and role of Elected Representative, CEO, Municipal Corporation. Pachayati raj: Introduction, PRI: Zila Pachayat. Elected officials and their roles, CEO Zila Pachayat: Position and role. Block level: Organizational Hierarchy(Different departments), Village level: Role of Elected and Appointed officials, Importance of grass root democracy.

**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.

**TOTAL: 30 PERIODS**

**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.
2. Dr.S.N.Busi, Dr.B. R.Ambedkar framing of Indian Constitution, 1st Edition, 2015.
3. M.P. Jain, Indian Constitution Law, 7th Edn., Lexis Nexis, 2014.
4. D.D. Basu, Introduction to the Constitution of India, Lexis Nexis, 2015.



<b>UNIT I</b>	<b>சங்க இலக்கியம்</b>	<b>6</b>
	1. தமிழின் துவக்க நூல் தொல்காப்பியம் - எழுத்து, சொல், பொருள்	
	2. அகநானூறு (82) - இயற்கை இன்னிசை அரங்கம்	
	3. குறிஞ்சிப் பாட்டின் மலர்க்காட்சி	
	4. புறநானூறு (95,195) - போரை நிறுத்திய ஔவையார்	
<b>UNIT II</b>	<b>அறநெறித் தமிழ்</b>	<b>6</b>
	1. அறநெறி வகுத்த திருவள்ளுவர் - அறம் வலியுறுத்தல், அன்புடைமை, ஒப்புறவு அறிதல், ஈகை, புகழ்	
	2. பிற அறநூல்கள் - இலக்கிய மருந்து - ஏலாதி, சிறுபஞ்சமூலம், திரிகடுகம், ஆசாரக்கோவை (தூய்மையை வலியுறுத்தும் நூல்)	
<b>UNIT III</b>	<b>இரட்டைக் காப்பியங்கள்</b>	<b>6</b>
	1. கண்ணகியின் புரட்சி - சிலப்பதிகார வழக்குரை காதை சமூகசேவை இலக்கியம் மணிமேகலை - சிறைக்கோட்டம் அறக்கோட்டமாகிய காதை	
<b>UNIT IV</b>	<b>அருள்நெறித் தமிழ்</b>	<b>6</b>
	1. சிறுபாணாற்றுப்படை - பாரி முல்லைக்குத் தேர் கொடுத்தது, பேகன் மயிலுக்குப் போர்வை கொடுத்தது, அதியமான் ஔவைக்கு நெல்லிக்கனி கொடுத்தது, அரசர் பண்புகள்	
	2. நற்றிணை அன்னைக்குரிய புன்னை சிறப்பு	
	3. திருமந்திரம் (617, 618) - இயமம் நியமம் விதிகள்	
	4. தர்மச்சாலையை நிறுவிய வள்ளலார்	
	5. புறநானூறு - சிறுவனே வள்ளலானான்	
	6. அகநானூறு (4) - வண்டு நற்றிணை (11) - நண்டு கலித்தொகை (11) - யானை, புறா ஐந்திணை 50 (27) - மான் ஆகியவை பற்றிய செய்திகள்	

1. உரைநடைத் தமிழ்,
  - தமிழின் முதல் புதினம்,
  - தமிழின் முதல் சிறுகதை,
  - சுட்டுரை இலக்கியம்,
  - பயண இலக்கியம்,
  - நாடகம்,
2. நாட்டு விடுதலை போராட்டமும் தமிழ் இலக்கியமும்,
3. சமுதாய விடுதலையும் தமிழ் இலக்கியமும்,
4. பெண் விடுதலையும் விளிம்பு நிலையினரின் மேம்பாட்டில் தமிழ் இலக்கியமும்,
5. அறிவியல் தமிழ்,
6. இணையத்தில் தமிழ்,
7. சுற்றுச்சூழல் மேம்பாட்டில் தமிழ் இலக்கியம்.

**TOTAL : 30 PERIODS**

#### **தமிழ் இலக்கிய வெளியீடுகள் / புத்தகங்கள்**

1. தமிழ் இணைய கல்விக்கழகம் (Tamil Virtual University)- [www.tamilvu.org](http://www.tamilvu.org)
2. தமிழ் விக்கிப்பீடியா (Tamil Wikipedia)-<https://ta.wikipedia.org>
3. தர்மபுர ஆதின வெளியீடு
4. வாழ்வியல் களஞ்சியம் - தமிழ்ப் பல்கலைக்கழகம், தஞ்சாவூர்
5. தமிழ்கலைக் களஞ்சியம் - தமிழ் வளர்ச்சித் துறை ([thamilvalarchithurai.com](http://thamilvalarchithurai.com))
6. அறிவியல் களஞ்சியம் - தமிழ்ப் பல்கலைக்கழகம், தஞ்சாவூர்