



HINDUSTAN
INSTITUTE OF TECHNOLOGY & SCIENCE
(DEEMED TO BE UNIVERSITY)

SCHOOL OF ARCHITECTURE

MASTER OF ARCHITECTURE
M.ARCH (Housing) (Executive)
3 YEARS (6 Semesters)

Curriculum and Syllabus

SCHOOL OF ARCHITECTURE
DEGREE FOR MASTER OF ARCHITECTURE (HOUSING) (EXECUTIVE)
(6 SEMESTER PROGRAMME)

SEMESTER I

S.No.	CODE No.	SUBJECT NAME	L	T	P	C	TCH
Theory							
01.	PAH 101	Urban and Rural Housing	3	0	0	3	3
02.	PAH102	Sustainable Development and Community Planning	3	0	0	3	3
Studio							
03.	PAH 109	Housing Studio-I	0	0	9	6	9
TOTAL			6	0	9	12	15

SEMESTER II

S.No.	CODE No.	SUBJECT NAME	L	T	P	C	TCH
Theory							
01.	PAH 103	Housing Design and Technology	3	0	0	3	3
02.	PAH 202	Informal Housing	3	0	0	3	3
03.	PAR 101	Contemporary Digital Practices	3	0	0	3	3
04.	E1	Elective - I	3	0	0	3	3
TOTAL			12	0	0	12	12

SEMESTER III

S.No.	CODE No.	SUBJECT NAME	L	T	P	C	TCH
Theory							
01.	PAH 101	Urbanisation and Land Management	3	0	0	3	3
02.	PAH 203	Housing Strategies	3	0	0	3	3
Studio							
03.	PAH 209	Housing Studio-II	0	0	12	8	12
TOTAL			6	0	12	14	18

SEMESTER IV

S.No.	CODE No.	SUBJECT NAME	L	T	P	C	TCH
Theory							
01.	PAH 301	Housing Sociology and Economics	3	0	0	3	3
02.	PAH 302	Real Estate Planning and Management	3	0	0	3	3
03.	PAR 303	Research Methodology in Architecture	3	0	0	3	3
04.	E2	Elective - II	3	0	0	3	3
TOTAL			12	0	0	12	12

SEMESTER V

S.No.	CODE No.	SUBJECT NAME	L	T	P	C	TCH
Theory							
01.	E3	Elective - III	3	0	0	3	3
Studio							
02.	PAH 304	Dissertation	0	0	8	5	8
08.	PAH 309	Housing Studio-III	0	0	12	8	12
TOTAL			3	0	20	16	23

SEMESTER VI

S.No.	CODE No.	SUBJECT NAME	L	T	P	C	TCH
Studio							
01.	PAH 409	Thesis	0	0	21	14	28
TOTAL			0	0	21	14	28

TOTAL NUMBER OF CREDITS: 80**Note:**

- 1.5 hours of Studio / Dissertation / Thesis = 1 Credit
- 1 hour of Lecture (L) = 1 Credit
- P = Studio/ Dissertation / Thesis
- TCH = Total contact hours.

ELECTIVES

Elective No.	Semester	Code No.	Subject Name	L	T	P	C	TCH
I	II SEM	PAR 701	Urban Disaster Management	3	0	0	3	3
		PAH 701	Landscape, Ecology and Planning	3	0	0	3	3
		PAH 702	Housing Byelaws and Planning legislation	3	0	0	3	3
		PAH 703	Infrastructure Development and Project Finance	3	0	0	3	3
II	IV SEM	PAH 704	High Rise Building and Services	3	0	0	3	3
		PAH 705	Contemporary Materials and Construction	3	0	0	3	3
		PAH 706	Housing in Geo-Climatic Regions	3	0	0	3	3
III	V SEM	PAH 707	Housing Finance	3	0	0	3	3
		PAH 708	Urban Infrastructure Services	3	0	0	3	3
		PAH 708	GIS Modeling in Planning	3	0	0	3	3
		PAR 709	Virtual Society	3	0	0	3	3

**HINDUSTAN INSTITUTE OF TECHNOLOGY AND SCIENCE
SCHOOL OF ARCHITECTURE**

SYLLABUS FOR I SEMESTER M.ARCH (HOUSING) (EXECUTIVE)

PAH 101	URBAN AND RURAL HOUSING	3 Credits	L T P C
			3 0 0 3
Goal	To understand the fundamentals of housing concepts, existing conditions and policies and strategies adopted by the various agencies for the development in the contemporary scenario.		
Objectives		Outcome	
<ul style="list-style-type: none"> • To draw on the literature to understand the fundamentals to housing practice. • To highlight the existing housing conditions and related issues and study the various plans and policies for the development of the same. • To introduce to the students, the institutional framework for development and finance in this field 		<p>The student should be able to:</p> <ul style="list-style-type: none"> • Recognize the role of central and state governments in developing the housing industry. • Comprehend the current situation of conditions of housing in India. • Identify the different housing development programmes announced in India • Be aware of the different government agencies and their approach to the improvement of the housing conditions in India. • Be able to advice on finance options for construction and be aware of the various measures taken by the government towards provision of finance to the housing industry 	

UNIT I HOUSING AND DEVELOPMENT

9

Importance and Reflections of Housing on Social, Cultural and Economic Development – Role of Government and Public Agencies in Housing Development – National Housing Policy in India – Comparison of Housing Policies and Programmes of Developed and Developing Countries

UNIT II HOUSING SCENARIO IN INDIA

9

Housing Stock and its Adequacy in Urban & Rural Settlements – Housing Quality and its Determinants – Housing Supply and Demand Assessments – External and Internal factors of influence on Housing Development – Trends in Housing Market – Five Year Plans of GOI.

UNIT III HOUSING PROGRAMMES IN INDIA

9

Nature and Type of housing development Programmes - Sites and Services, LIG, MIG, HIG Schemes, - Rural Housing Schemes - Slum Housing Programmes - Cooperative and Private Sector Housing ,

UNIT IV INSTITUTIONAL FRAMEWORK

9

Housing agencies for Policymaking, Programme Formulation, and Implementation, - Objectives and Functioning of agencies like TNHB, TNSCB, CMDA, Cooperatives and other Department Agencies – Support of the National and State Governments - Housing Programmes announced from time to time.

UNIT V HOUSING FINANCE

9

Formal and Informal Systems of Finance - Financing agencies and their Terms of Lending – Direct and Indirect Incentives for Housing Development - Housing Affordability in relation with demographic, social and economic status.

TOTAL : 45

REFERENCES

1. J. Rosie Tighe and Elizabeth J. Mueller ‘The Affordable Housing Reader’ Routledge; 2012
2. Graham Towers, ‘ Introduction to Urban Housing Design’ Routledge; 2005
3. Annual Report 2010-2011, Ministry of Housing & Urban Poverty Alleviation, Government of India.
4. Charles Correa, ‘Housing and Urbanization: Building Solutions for People and Cities’, Thames & Hudson May 2003

ADDITIONAL READING:

5. National Urban Housing and Habitat Policy – 2007, Government of India, Ministry of Housing & Urban Poverty Alleviation, New Delhi.
6. Manual under right to information act, 2005, Government of Tamil Nadu, Tamil Nadu Housing Board, Chennai.
7. Manual under right to information act, 2005, Government of Tamil Nadu, Tamil Nadu Slum Clearance Board, Chennai.
8. Manual under right to information act, 2005, Government of Tamil Nadu, Directorate of Town and Country Planning, Chennai.
9. Manual under right to information act, 2005, Government of Tamil Nadu, Corporate Housing, Chennai.

PAH 102	SUSTAINABLE DEVELOPMENT AND COMMUNITY PLANNING	3 Credits	L T P C 3 0 0 3
Goal	To impart the concepts of sustainable development in housing designs		
Objectives		Outcome	
<ul style="list-style-type: none"> To sensitize the students to the various aspects of sustainable and green housing design in the context of global warming and climate change and to address the very process and tools of design to enable architecture that is environmentally friendly and sustainable. 		The students should be able to: <ul style="list-style-type: none"> Articulate the various concepts and strategies of sustainable design and green practices. Comprehend the environmental impact of materials and technologies and evaluation criteria like LEEDS, etc. Address eco-sensitive sustainable design processes, features etc. 	

UNIT I INTRODUCTION

9

A historical perspective- General premises and strategies for sustainable and green design- Definitions, objectives and basics- Eco-mimicry as a design tool based on ecosystem analogy- theoretical basis for a sustainable and eco friendly design

UNIT II ECO HOUSING

9

The form of the housing : the building as an analogy- design from first principles: conserving energy; working with climate: passive solar design; optimizing resources and recycling; respect for users; respect for site and holism- photovoltaic and solar hot water systems; water usage; small scale wind systems and hydro power; Case studies- Studio project on design of eco housing : context specific

UNIT III ENVIRONMENTAL IMPACT OF BUILDING MATERIALS

9

Measuring the impact of building materials- calculating embodied energy of different building materials and structure - recycling - processing and embodied energy- time and embodied energy- low energy building and masonry materials- life cycle analysis- Case studies and analysis

UNIT IV GREEN CONSTRUCTION AND ENVIRONMENTAL QUALITY

9

Green building Evaluation Systems; LEED Certification; Green Globe Certification; Case studies which look at - Sustainable Sites, Water efficiency, Energy Atmosphere, Materials & Resources, Indoor Environmental quality, Innovation and Design process in green practices.

UNIT V SUSTAINABLE AND GREEN HOUSING DESIGN CASE STUDY AND SEMINAR

9

This process will explore collaborative learning to explore, investigate and apply various parameters of sustainability for design development of projected housing / urban scenarios

TOTAL :45

REFERENCES

1. Rhonda Phillips, Bruce Seifer Ed, ‘Sustainable Communities: Creating a Durable Local Economy (Tools for Community Planning)’-Volume 2, Routledge 2013
2. Daniel Vallero and Chris Brasier; Sustainable Design- The science of sustainability and Green Engineering; Wiley; 2008
3. by Daniel K. Slone and Doris S. Goldstein, Wiley 2008

4. Dominique Gauzin- Muller; Sustainable architecture and Urbanism; Birkhauser; 2002

ADDITIONAL READING:

1. Ken Yeang; Eco design - A Manual for Ecological design, Wiley- Academy; 2006
2. Sue Roaf et all; Ecohouse: A design Guide; Elsevier Architectural Press; 2007
3. Thomas E Glavinich; Green Building Construction; Wiley; 2008

PAH 109	HOUSING STUDIO – I	6 Credits	L T P C 0 0 9 6
Goal	To enable the students to handle projects at the city scale and create awareness that housing is an integral part of the city environment.		
Objectives		Outcome	
<ul style="list-style-type: none"> To enable the student to design housing at a city scale bringing in issues related to various sectors of urban development. To expose the students to the needs of residential neighborhoods, and imbibe the ability to design a housing complex. To enable them to choose solutions in terms of material choice technology, feasibility, financing, policy and programmatic requirements for planning a housing layout. 		<p>The students should be able to:</p> <ul style="list-style-type: none"> Assess ongoing urban housing projects and understand their objectives Study and evolve policy guidelines Integrate functional infrastructure needs to suit their local context. Design urban housing projects of various scales and types 	

DESIGN STUDIO

135

Design of Advanced and Complex problems pertaining of residential neighborhood (Master plan) – Compromising of approximately 2000- 2500 population taking into consideration the housing design, infrastructure requirements, environmental impacts, accessibility and circulation

This studio aims at understanding and relating to the various contexts and relationships that affect the people who inhabit a neighborhood. It is intended to provide functional solutions that cater to both the physical and emotional need of people. The final design solution is expected to be a strong but intellectual response to historical, environmental and urban contexts while providing apt residential habitats for the individual as well as the community.

DESIGN APPROACH

Students are expected to the following :

- a. Theoretical reading – housing and urban design
- b. Clear definition of a general design approach to housing through basic studies
- c. Study of relevant rules and guidelines.
- d. Site and contextual study and analysis
- e. Study and Analysis of public and community spaces (both generally and locally)
- f. Understanding of the functioning of ‘your neighborhood’
- g. Clear Conceptual Ideas and design approaches
- h. Program statement and site zoning with justification and basic model
- i. Housing typology and design with study models
- j. Final Layout and Scheme – II with study model
- k. Presentation sheets of ‘Residential neighborhood’ (including site plan, site sections, layouts, plans, sections, elevations) with final model and 3-d views

TOTAL 135

SYLLABUS FOR II SEMESTER M.ARCH (HOUSING) (EXECUTIVE) COURSE

PAR 101	CONTEMPORARY DIGITAL PRACTICES	3 Credits	L T P C
			3 0 0 3
Goal	To impart the knowledge of creative planning and execution of visual communication and latest technical advancements in architecture		
Objectives		Outcome	
<ul style="list-style-type: none"> • To sensitize students in digital technology and architecture • To orient the students towards contemporary process • To impart concepts of geometries and surface, media and architecture 		The students should be able to: <ul style="list-style-type: none"> • Approach spatial & regional designs with help of diagrams, geometry and surface parameters. • Contemporary design approach with the help of theories. 	

UNIT I INTRODUCTION 6

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

UNIT II ASPECT OF DIGITAL ARCHITECTURE 9

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 12

Overview of various Contemporary 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 10

Fractal Geometry and their properties – Architectural applications - Works of Zevi Hecker-- Shape Grammar - Shapes, rules and Label - Shape Grammar as analytical and synthetic tools- Combining Shape grammar and Genetic algorithm to optimise architectural solutions - Hyper Surface-- Introduction to Hyper surface and concepts of Liquid architecture.

UNIT V MEDIA AND ARCHITECTURE 8

Visions unfolding/ Media Architecture as desirable/ Films as a space for virtual architecture Architects, Asymptote, Herzog and de Meuron, Neil Denari.

TOTAL: 45

REFERENCES:

1. The Phaidon Atlas of Contemporary World Architecture, 2008
2. Dennis Sharp, Twentieth Century Architecture – A visual History, Images Publishing 2006
3. Dimitris Kottas ‘Contemporary Digital Architecture: Design and Techniques’, Links International, 2010
4. Antoine Picon, ‘Digital Culture in Architecture’ , Birkhäuser Architecture, 2010
5. Nick Dunn, ‘Digital Fabrication in Architecture’, Laurence King Publishing, 2012

PAH 103	HOUSING DESIGN AND TECHNOLOGY	3 Credits	L T P C
			3 0 0 3
Goal	The aim of the course is to prepare professionals to be able to tackle housing design issues and projects in real life		
Objectives		Outcome	
<ul style="list-style-type: none"> The course on Housing Design quickly tries to explore issues at various scales of planning and design. The course will try to expose the students about the historical development of housing typologies in various contexts. Various design approaches will be looked into through case study presentation by experts in the field. Issues in rural housing, housing technology and landscape design will be explored. 		The students should be: <ul style="list-style-type: none"> aware of various factors involved in the design of human habitat on various scales , including participatory approach and use of standard design programmes/software have profound knowledge about the historical development of housing and the importance of cultural inferences 	

UNIT I HABITAT PLANNING AND DESIGN 9

Code for humane habitat - issues in habitat planning and design. Goals and objectives., Performance criteria., Quantity versus Quality, Scales and decision areas. Decision areas and design principles at various scales settlement, community and dwelling. Project formulation - requirements, standards, costs, density and Affordability - introduction to site planning software like Bertaud's Model and HAPS.

UNIT II EVOLUTION OF HOUSING 9

Historical review of development of dwelling typologies in various contexts. The pre-urban house, transient dwellings, the oriental urban house, Mesopotamia, the Indus., Egypt, China, the Greek and the Romans. The urban house - history of modern housing typologies, the age of the Renaissance, the industrial revolution, current practices.

UNIT III DESIGN GUIDELINES FOR FACTORS IN HOUSING DESIGN 9

Design guidelines for (based on research carried out will be presented in the form of Audio-visual training materials). House extensions, neighborhood streets, and small shops. Design Guidelines for Trees and public spaces, Work places, house form variations. Residential open spaces, Magnitude and hierarchy of space. Utilization rate, Socio-cultural preferences, Influence of housing typologies and Design guidelines. Elements of Landscape, design for better living environment. Principles of landscape design.

UNIT IV PARTICIPATORY DESIGN PROCESS 9

Participatory design process, the concept of planner builder. Peoples involvement in layout and building design and construction, Merits over conventional housing development.

UNIT V CASE STUDIES 9

Case Study – Design of Company Township– Group Housing Design and Concepts– High Density Housing
– Built-form and Development Control– Design Issues in Private-Public Partnership Projects

TOTAL : 45

REFERENCES:

1. An Introduction to Urban Housing Design – Graham Towers – 2005
2. Graham Towers, 'Introduction to Urban Housing Design', Routledge, 2005
3. Bernard Leupen and Harald Mooij, 'Housing Design: A Manual', Rai publishers; 2nd ed. edition, 2012
4. David Levitt, 'The Housing Design Handbook: A Guide to Good Practice', Routledge, 2009
5. National Building code
6. UDPFI Guidelines

PAH 202	INFORMAL HOUSING	3 Credits	L T P C 3 0 0 3
Goal	To create awareness about slums and squatter settlements and to study the existing conditions in the cities and their related issues, to introduce aspects of controlling, redevelopment and improvement of slums and squatter settlements.		
Objectives		Outcome	
<ul style="list-style-type: none"> To study the definition of slum and squatter settlements and the related issues with respect to rapid pace of urbanization To study the growth process of slums and means of limiting such growth. To provide information about redevelopment, improvement and up gradation of slum and squatter settlements and methods to facilitate the process. 		The students should be able to: <ul style="list-style-type: none"> Analyze Slum/squatter settlements and understand their specific issues, Design development plans for slum/squatter settlements, Apply the relevant national as well as international policies 	

UNIT I INTRODUCTION 6

Definition of informal settlements in India, developing and developed countries, related problems and issues in the urbanization process.

UNIT II GROWTH OF INFORMAL SETTLEMENTS 6

Growth process of informal settlements- Factors leading to the growth, causes for spread of the slums, problems created within the city and within the locality with relevant examples at National, International and local level , UNCHS Studies

UNIT III SLUM UPGRADATION AND RECONSTRUCTION PROCESS 12

Policies, responses and actions required for controlling, redevelopment, up gradation and improvement of slums with case studies at international, national, regional and local level – JNNURM, IHSDP etc., NUDP I and II.

UNIT IV CASE STUDY 15

Case study of an informal settlement and preparation of a development plan for the same.

UNIT V SEMINAR 6

Seminar on evaluative study of past programmes for development of informal settlements.

TOTAL 45

REFERENCES:

- Challenges of Slums: Global report on human settlements –UN HABITAT- 2003
- Slums of the World: Eduardo López Moreno, Global Urban Observatory – UN HABITAT – 2003
- Eugenie L. Birch and Shahana Chattaraj, ‘Slums: How Informal Real Estate Markets Work (The City in the Twenty-First Century)’, University of Pennsylvania, 2016
- Upgrading of Urban Slum and Squatter Areas, 2006
http://www.unhabitat.org/downloads/docs/3617_80393_CHS-OP-81-4.pdf
- Marie-Caroline Saglio-Yatzimirsky and Frederic Landy ,’Megacity Slums : Social Exclusion, Space and Urban Policies in Brazil and India (Urban Challenges: Volume 1)’, Imperial College Press, 2013

SYLLABUS FOR III SEMESTER M.ARCH (HOUSING) (EXECUTIVE) COURSE

PAH 201	URBANISATION AND LAND MANAGEMENT	3 Credits	L T P C
			3 0 0 3
Goal	To enable the student to understand urbanization and land management processes		
Objectives		Outcome	
<p>The main objective is to develop an understanding of:</p> <ul style="list-style-type: none"> • Land as a resource and its role in urban development, • Locational determinants of economic activities, Urban land policies. • Property investment and housing market. 		<p>The students should :</p> <ul style="list-style-type: none"> • Comprehend the potential of land as a resource. • Understand how real estate markets functions with respect to land tenure agreements. • Recognize the importance of land, and how land policy affects the social and economic fabric of our life. • Realize how government intervenes in our cities urbanization process and what all its impacts are. • Comprehend the importance of housing in the economy development of the country. 	

UNIT I INTRODUCTION 9

Introduction to urbanization, urban land problems, land as resource.

UNIT II URBAN LAND VALUES AND LAND TENURE 9

Market determined values and social needs. Price mechanism and the inequalities of wealth
 Urban Land Tenure: Special characteristics of land and its tenure. Policy objectives and types of laid tenure. Advantage and disadvantage of main form of tenure

UNIT III URBAN LAND POLICY 9

Economic and social dimension of urban land policy. Urban location theory. Variables of urban land use location ,Urban Land Policy in India. Objectives of urban land policies. Instruments of urban land policies and Government.

UNIT IV ECONOMICS OF DEVELOPMENT 9

Property development and investment. Development cycle. Government Interventions: Case for intervention, Intervention through public policy and taxation, Intervention through regulations

UNIT V PROPERTY AND INVESTMENT MARKETS 9

Property markets and price determination. Housing as economic good. Housing Markets. Tenure and price. House price and macro-economy. House price and land cost

TOTAL 45

REFERENCES

1. Model guidelines for urban land policy, town and country planning organization, government of India, ministry of urban development, July 2007.
2. Housing for all: essential to economic, social, and civic development, prepared for the world urban forum iii, Vancouver, prepared by Padco in collaboration with the international housing coalition, June 2006
3. Alain Durand and Lasserre Lauren Royston, 'Holding Their Ground: Secure Land Tenure for the Urban Poor in Developing Countries 1st Edition' Routledge; 2002

PAH 203	HOUSING STRATEGIES	3 Credits	L T P C
			3 0 0 3
Goal	To introduce to the students the methods of calculating the housing demand and shortage and studying the various methods of forming strategies for creating opportunities for providing housing to all		
Objectives		Outcome	
<ul style="list-style-type: none"> To study the housing demand and supply and access the housing needs. To study the roles of different housing and funding agencies. To study the various policies and programmes related to housing at different level of planning and understand the various innovative and inclusive approaches for housing development and finance. 		The students should be able to: <ul style="list-style-type: none"> Frame policies, sensitive to all the various participants of the society without marginalizing the weaker sections. Utilize the various Schemes made available by the government and private sectors so that housing is available to all. Enable strategies so that access to basic services and opportunities is provided for all 	

UNIT I HOUSING DEMAND AND SUPPLY 7

Socio-economic analysis of housing demand; supply and mobility calculations for the same. Housing needs assessment, affordability assessment.

UNIT II RESOURCES 6

Land, Finance – Government funded and Informal sector, Multiple Delivery systems – Land bank, Transfer of Development Rights (TDR), GO / NGO platform and participation of stakeholders, Night Shelters, Facilitate creation of old age home, Rental housing stock.

UNIT III INNOVATIVE APPROACH 12

HUDCO's innovative design approach ,Hyderabad Municipality's Multistoried Core House Approach, Bangalore Urban Poverty Alleviation Programme (BUPP) / NGO's / Self-help housing – AWAS, Public Private partnership model, Cost effective Technology , Secondary market, Access to basic Services.

UNIT IV INCLUSIVE APPROACH 10

Inclusive market , Inclusive Public finance, Micro Finance, Inclusive City, Access and conveyance of basic services.

UNIT V CASE STUDIES 10

Housing design standards for various income group housing, analysis and design for HIG, MIG and LIG housing schemes. Selected case studies of housing schemes by government and private developers in India and abroad.

TOTAL: 45

REFERENCES

1. National Trends in Housing-production Practices- Amitabh Kundu- UN HABITAT
2. Financing urban shelter: global report on human settlements 2005
3. Twelfth five year plan, Govt. of India
4. National Housing Policy
5. National Housing Strategies – Summary of papers - Australian Govt. Pub. Service, 1992

ADDITIONAL READING:

1. Balaji V. & Rajmanohar, “Housing Sector in India; Issues, Opportunities and Challenges”, ICFAI University Press, 2008
2. Christian Schittich(ed), “High Density Housing; Concepts, Planning, Construction”, Birkhauser, 2004
3. French H., “Key Urban Housing of the Twentieth Century”, Lawrence King, 2005
4. Reeves P., “Introduction to Social Housing”, Elsevier, 2005
5. Susan Goltsman and Daniel Iacofano, ' The Inclusive City: Design Solutions for Buildings, Neighborhoods, And Urban Spaces', Mig Communications; 2007

PAH 209	HOUSING STUDIO – II	8 Credits	L T P C
			0 0 12 8
Goal	To enable the students to be conversant with the challenges of the natural disasters and design for the same		
Objectives		Outcome	
<ul style="list-style-type: none"> To familiarize students with the complexities of designing of disaster prone housing by studying the vulnerability of the settlement and taking design and structure mitigative measures for construction in the vulnerable areas 		The students should be able to: <ul style="list-style-type: none"> Evolve guidelines for disaster mitigative construction Design appropriately to fulfill community needs with an understanding of mitigative measures required 	

DESIGN STUDIO

180

Design of a disaster resistant housing complex for a disaster prone area (Earthquake/ Tsunami/ Cyclone and Storm surge) for an approximate population of 2000- 2500.

Objective

To design a cluster of approx. 400 houses

Design Approach:

1. Site Analysis

- Study of the existing site condition
- Family size and occupation, way of life, vehicles, etc.
- Shops in the area
- Ancillary activities happening on the beachfront and fishing related activities, market, how fish caught, stored, distributed and sold chain, etc.
- Study of existing dwellings and their organization and their vulnerability to disaster.
- Weather conditions throughout the year and how weather behaves,
- Electricity and sewage system, garbage disposal, transport links

2. Case Studies

For example:

- Tsunami projects in Tamilnadu, Indonesia, SriLanka
- Aranya Project on incremental housing- B V Doshi

3. Stages of design and requirements

- Site Analysis
- Inference from Case Studies – mitigative measures of design
- Listing Disaster Mitigation measures of the design
- Preliminary design Idea
- Detailing out the design idea – exploring criteria
- Finalizing design and Final presentation
- (Reviews at each stage)

TOTAL 180

SYLLABUS FOR IV SEMESTER M.ARCH (HOUSING) (EXECUTIVE) COURSE

PAH 301	HOUSING SOCIOLOGY AND ECONOMICS	3 Credits	L	T	P	C
			3	0	0	3
Goal	To study the socio-economic aspects of housing growth and development and incorporating for design and planning of housing					
Objectives			Outcome			
`To study the population growth and the impact of urbanization on the society. <ul style="list-style-type: none"> • To study the social structure of the Indian society and the social aspects of housing and community planning. • To study the theories of economics and its use in urban planning. 			The students should be able to: <ul style="list-style-type: none"> • Resolve problems rising due to migration and urbanization. • Design not only based on physical aspects but also social and physiological needs. • Take policy decisions understanding the economic principles thus resolving issues in spatial planning. 			

UNIT I POPULATION GROWTH AND ITS INTERRELATION 10

Population growth, development and urbanization, theory of demographic transition, population problems in the context of Indian experience, sources of demographic data in India, analysis of demographic data for housing migration and urban population forecast and projections.

UNIT II SOCIAL ASPECTS OF HUMAN SETTLEMENTS 10

Nature and scope of the field of sociology of man, environment and society, deterministic theories and their implication, sociological concepts, social norms, groups, structures and institutions, meaning of sociological perspective. Profile of structure of Indian society nature and change with particular reference to caste, kinship, village, community, family, culture and religion, human ecology. Role of socio-cultural aspects in housing, effect of urbanization in social life, urban sociology, role and significance of tradition and modernity in contemporary India. Urban social issues.

UNIT III SOCIAL ASPECTS OF HOUSING AND COMMUNITY PLANNING 7

Social aspects of housing and community planning in urban and rural context, the nature of social problems, slums and health as illustrative cases, sociological aspects of renewal, informal sector economy and its impact on housing., housing and income linkages, home base economic activities, economic determinants in housing areas.

UNIT IV THEORIES OF ECONOMIC DEVELOPMENT 8

Basic concepts of economics, economic principles and land use planning, location economics, environmental economics, urban economics, economic theory and urban development.

UNIT V URBAN LAND USE AND SETTLEMENT ORGANISATION 10

Land use determinants, Locational Dynamics of urban Land use spatial organization of urban settlement, location decision for housing, theories of land values, economic issues in urban growth.

TOTAL: 45

REFERENCES

1. Census of India
2. Jens Beckert, International Encyclopedia of economic sociology, Routledge, oxford, UK, 2006,
3. C.N. Shankar Rao- Sociology – An introduction to social thought –, Chand & co, New Delhi, 2002
4. Introduction to Sociology, Kitab Mahal New Delhi, Vidya Bhushan & D R Sachadev-2005
5. Edward Alsworth Ross,' The Principles of Sociology (Classic Reprint)', Forgotten Books, 2015

PAH 302	REAL ESTATE PLANNING AND MANAGEMENT	3 Credits	L T P C 3 0 0 3
Goal	To enable the students to understand the concept of real estate management and provide exposure, at an advanced level to the wide range of issues that reflect the principle areas of specialization in real estate profession		
Objectives		Outcome	
<ul style="list-style-type: none"> To give an overview of the real estate development and market potential Stimulating an awareness of the issues involved in international real estate Developing analytical and methodological skills that are critical for management decision making and problem solving roles To gain knowledge about the leverage that real estate could provide in the overall development process. 		The students should be able to: <ul style="list-style-type: none"> Assemble and manage a project team. Manage properties and provide advice on strategic planning of real estate investment. 	

UNIT I REAL ESTATE DEVELOPMENT 8

Fundamental concepts and techniques, recognizing institutional and entrepreneurial elements issues encountered in various phases of development like site evaluation and land procurement, Leasehold and freehold property, development team assembly, market potential and demand estimation study and development scheme, construction and project management, project marketing

UNIT II DEVELOPEMENT AND PROJECT FINANCING 10

Project feasibility, best use option, development financing, asset disposal and redevelopment options, analysis of development sites and case studies, integrated case study on a specific development project which requires reviewing and analysis and resolving the problems or strategic issues

UNIT III URBAN POLICY AND REAL ESTATE MARKET 10

Impact of government regulations and public policies on real estate markets, include urban land rate and location theories, land use structures, community and neighborhood dynamics, degeneration and renewal in urban dynamics, private public participation, government policies on public and private housing and urban fiscal policy including property taxation, local government finance

UNIT IV CORPORATE REAL ESTATE ASSET MANAGEMENT 7

Strategic plans to align real estate needs with corporate busiess plans, performance measurement techniques to identify assets acquisition or disposal, methods for enhancing values through alternative uses efficient space utilization or improving user’s satisfaction

UNIT V REAL ESTATE APPRAISAL 10

Determination of the capitalization rates across different types of properties, appraisal of freehold and leasehold interest; critical analysis of valuation approaches adopted for securitized real estate; asset pricing model; investment flexibility and future redevelopment opportunities

TOTAL: 45

REFERENCES

1. Barrons real estate handbook fifth editions, Hauppauge, NY, Barron, 2001
2. Deborah L. Brett and Adrienne Schmitz, 'Real Estate Market Analysis: Methods and Case Studies, Urban Land Institute, 2015
3. Walt Huber and Levin Messick, 'Real Estate Appraisal Principles and Procedures', educational textbook company, 2011
4. Mike E. Miles and Laurence M. Netherton, 'Real Estate Development - 5th Edition: Principles and Process', Urban Land Institute, 2015
5. Gerald R Cortesi, Mastering Real Estate Principles, Dearborn Trade Publishing, New York, USA 2001,
6. Filmore W Galaty, Modern Real Estate Practice, Dearborn Trade Publishing, New York, USA, 2002
7. Tanya Davis, Real Estate Developers handbook, Atlantic publication company, Ocala, USA, 2007

ADDITIONAL READING

1. Mike .E. Miles, "Real estate development – Principles & Process 3rd Edition, Urban Land Institute, ULI – Washington DC, 2000
2. Richard B Peiser & Anne B. Frej, "Professional real estate development" – The ULI guide to the business, Urban Land Institute U.S.A. ,2003
3. Nathan. S. Collier, "Construction finding – the process of RE development, Appraisal & finance, John Wiley & Sons Inc; New Jersey, 2007
4. Barry Haynes and Nick Nunnington, 'Corporate Real Estate Asset Management 1st Edition', Estates Gazette, 2010

PAR 303	RESEARCH METHODOLOGY IN ARCHITECTURE	3 Credits	L T P C 3 0 0 3
Goal	To develop a research culture among the students and study, use and understand appropriate methods in formulating problems and conduct surveys, analyse data and prepare a research report		
Objectives		Outcome	
<ul style="list-style-type: none"> To comprehend the research process and learn the method of formulating the research. To develop the ability to collect data for research and its dissemination. To develop the skill of analyzing the data. To develop the efficiency of report writing amongst the students. 		The students should be able to: <ul style="list-style-type: none"> Undertake independent research applying the basics learned 	

UNIT I INTRODUCTION 9

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

UNIT II RESEARCH PROCESS 9

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 9

Library and archives – Internet: New information and the role of internet; finding and evaluating sources – misuse – test for reliability – ethics

Methods of data collection – Form primary sources: observation and recording, interviews structured and unstructured, questionnaire, open ended and close ended questions and the advantages, sampling – Problems encountered in collecting data from secondary sources

UNIT IV REPORT WRITING 6

Research writing in general – Components: referencing – writing the bibliography – developing the outline – presentation; etc.

UNIT V CASE STUDIES 12

Case studies illustrating how good research can be used from project inception to completion – review of research publications.

TOTAL: 45

REFERENCE

1. Linda Groat and David Wang; Architectural Research Methods, Wiley 2013
2. Wayne C Booth; Joseph M Williams; Gregory G. Colomb; The Craft of Research, 2nd Edition; Chicago Guide to writing, editing and publishing, 2008
3. Lain Borden ad Kaaterina Ruedi; The Dissertation: an Architecture Student's Handbook; Architectural Press; 2000
4. Ranjith Kumar; Research Methodology–A step by step guide for beginners; Sage Publications; 2005
5. John W Creswell; Research design: Qualitative, Quantitative and Mixed Methods Approaches; Sage Publications; 2002

ADDITIONAL READING:

1. Ranjit Kumar , 'Research Methodology: A Step-by-Step Guide for Beginners 4th Edition', SAGE Publications Ltd, 2014
2. Christopher Alexander; A Pattern Language, Library of Congress, 1977
2. Helmut Leitner,'Pattern Theory: Introduction and Perspectives on the Tracks of Christopher Alexander (pattern research series) (Volume 1)' , CreateSpace Independent Publishing Platform, 2015

SYLLABUS FOR V SEMESTER M.ARCH (HOUSING) (EXECUTIVE) COURSE

PAH 304	DISSERTATION	5 Credits	L T P C
			0 0 8 5
Goal	Expose the student to scientific research on a particular topic		
Objectives		Outcome	
<p>Dissertation is a formal report written systematically on a particular topic related to Architecture.</p> <p>This exercise is taken up to widen and enrich the literature pertaining to a topic of research. It may focus upon cross section of literature of a topic with or without research hypothesis.</p> <p>The material written systematically may be useful in fourth semester when the same topic with literature reviewed systematically be confined as a part of thesis.</p>		<p>The students should be able to:</p> <p>Undertake independent research on a particular topic and submit the results in form of a written report/analysis.</p>	

TOTAL: 120

PAH 309	HOUSING STUDIO – III	8 Credits	L T P C 0 0 12 8
Goal	This design course will investigate the various socio-economic and cultural forces and the material resources and technologies. Emphasis will be on analyzing existing case studies and evolving innovative designs to address the need for low cost housing.		
Objectives		Outcome	
<ul style="list-style-type: none"> • Documentation in form of case studies of low-cost housing and socio-economic conditions. • Construction Materials and technologies and alternative energy sources 		The students should be able to: <ul style="list-style-type: none"> • Analyze the socio-economic forces that impact low-cost housing through case studies • Design innovative new typologies to address the social needs • have an understanding of technologies to realize the design project, 	

With increasing rural migration into cities, the need of the hour is that architects have to design low-cost housing since it constitutes almost 50 percent of construction in a city. With water scarcity, population increase and rising land values, low cost housing design is gaining a greater importance in the profession. Low Cost Housing in developing societies like India is influenced by socio-economic conditions, climate, environment, earthquake etc. It is one of the most urgent and complex global concern.

Design Project

Students would design a low cost housing project of about 200 units in a specific context and site. (450 sft average unit size). Understanding the housing mix, climate, low-cost technologies and detailing which are suited to the social conditions is the emphasis of the studio.

Students would have to evolve the design with a study of regulations. A broad understanding of economy is expected.

A prior stage of detailed case studies – both from primary visits to existing low cost neighborhoods as well as secondary sources from library and internet will be the basis of the design.

Emphasis will be given to both concept and the detailing of the project and its low-cost features

TOTAL 180

SYLLABUS FOR VI SEMESTER M.ARCH (EXECUTIVE) COURSE

PAH 409	THESIS	14 Credits	L T P C 0 0 21 14
Goal	To test whether a student has acquired the requisite skill and competence in architecture to be awarded a Master in Architecture		
Objectives		Outcome	
<ul style="list-style-type: none"> • To make a student undertake a detailed investigation/ research on a topic of his/her choice (selective design) and come out with comprehensive design proposals/ findings. 		The students should be able to: <ul style="list-style-type: none"> • Convert the results of investigation/research into a suitable design 	

TOPICS OF STUDY

TOTAL: 420

The main areas of study and research shall be on Urban design, Urban renewal, Urban Housing/Settlements, Sustainable and Environmental Design.

However, the specific thrust shall be on architectural design and environment context.

PRESENTATION REQUIREMENTS

The Thesis Project shall be submitted in the form literature and case study report, presentation drawings, models, reports, slides and CD's as required for the project.

Periodic reviews will be conducted internally consisting of a panel and at the end of the semester there will be a viva voce conducted by the university comprising of panel with two external members.

TEXT BOOKS & REFERENCES

As per requirement of Topic and as suggested by the supervisor of Thesis.

ELECTIVE - II SEMESTER

PAH 703	INFRASTRUCTURE DEVELOPMENT AND PROJECT FINANCE	3 Credits	L T P C 3 0 0 3
Goal	Impart the concepts of infrastructure development and finance for structuring and implementation of various housing projects		
Objectives		Outcome	
The course is aimed fundamentally to orient the students towards issues of infrastructure development and finance and to get through basics of infrastructure finance and project structuring. The main objective of this course is to introduce the concepts of infrastructure financing-how to prepare the financial plan, assess the risks, design the financing mix, and raise the funds in infrastructure projects. The course is framed to impart the concepts through the basic theory and principles of finance and then help the students to develop knowledge, skills and frameworks for analyzing and financing infrastructure projects through relevant case studies and hands on exercises in developing financial spreadsheets.		The students should be able to: <ul style="list-style-type: none"> • Prepare projects based on realizable cost and targets within the stipulated time. • Assure the smooth implementation of projects • Appraise project proposals from the angles of financial cost and benefit for concerned company / organization. • Apply basic analytical methods for investment decisions and finance of infrastructure. • Comprehend risks in infrastructure development and use risk as a tool in mortgaging and investment performance. 	

UNIT I INTRODUCTION TO FINANCE 4

Principles of finance. Introduction to financial systems. Introduction to public financing.

UNIT II INTRODUCTION TO INFRASTRUCTURE DEVELOPMENT 9

Overview of Infrastructure development and financing in India. Regulatory Issues and role of Government. Issues in infrastructure development and financing
Privatization of Infrastructure: Experiences

UNIT III BASICS OF INVESTMENT AND FINANCIAL DECISIONS FOR INFRASTRUCTURE PROJECTS 14

Estimating the cost of project, Means and Sources of Finance, External and internal sources of financing, Requirements of external financing, Types of debts, Leasing, Basics of income-expenditure and profit – loss, Tax and Depreciation, Cash flow projections, Present value (introduction, calculation, the net present value rule), Investment decisions (Discounted and Non-Discounted Methods), case studies and hands on exercise in developing financial spreadsheets.

UNIT IV PROJECT RISK ASSESSMENT 10

Project risks, Theory of Conventional Techniques to handle risks, Payback, Risk Adjusted discount rate, Certainty equivalent coefficient, Sensitivity and Scenario Analysis (Case Study)
Simulation Analysis and Decision trees (Case Study)

UNIT V PROJECT STRUCTURING AND IMPLEMENTATION 8

Understanding structuring of projects through 2-3 case studies, Introduction to important steps of project implementation, tor, tender, contract, implementation consultant, construction firm, Monitoring, cost control, reporting

TOTAL : 45

REFERENCES:

1. ARORA, Essentials of Cost Accounting, Vikas publishing house Pvt Ltd, 2009
2. Finance for Managers, Harvard Business Essentials , 2003
3. H.L Ahuja, Economic Environment of Business, Macro Economic Analysis, Tata Mac Grow Hill, 2001
4. D. Chandra Bose, Fundamentals of Financial Management, PHI Learning P.Ltd 2009
5. Dr. S. Gurusamy, Financial Services and Systems, The Mc Graw Hill Companies, 2009

PAR 701	URBAN DISASTER MANAGEMENT	3 Credits	L T P C
			3 0 0 3
Goal	To imbibe the processes of disaster mitigation, early warning and rehabilitation and rebuilding in urban community disaster management systems		
Objectives		Outcome	
<ul style="list-style-type: none"> To understand the nature and importance of disaster management. To gain an understanding of the tools for hazard and vulnerability assessment at the settlement level, structural mitigative measures, infrastructure and critical facilities. To enhance understanding of different types of technological hazards, their association, risk and assessment and control measures. To increase the knowledge of the theory and practice of community based approach to disaster management 		<p>The students should be able to:</p> <ul style="list-style-type: none"> Imbibe a holistic information base on the concept of disaster management in urban areas from early warning to assessment and recovery and rebuilding. Acquire an awareness of various strategies for disaster mitigation, vulnerability, hazard analysis and technologies. Comprehend the socio-economic aspects of a community based urban recovery process. 	

UNIT I INTRODUCTION

5

Introduction to the concept of disaster management and mitigation.

UNIT II RISK EDUCATION

9

Trend in urban development and challenges before urban administrators in risk reduction.

UNIT III PREVENTION OF HAZARD

13

Natural disaster : Nature, causes, impact. Hazard and vulnerability assessment, concepts, tools and techniques. Pre-disaster mitigation and protection of lifelines and critical facilities against natural hazards. Concepts and overview of technological hazards at the city level. Major accident hazards in industries, storages and ports.

UNIT IV SAFETY STRATEGIES

8

Safety management system: Strategies for the implementation of fire safety at the city level. Emergency planning, preparedness and response at city level.

UNIT V METHODS OF COMMUNITY BASED DISASTER MANAGEMENT

10

Principles and methods of community based approaches for urban disaster management. Community based disaster management practice. Building community capability. Education and training on mitigation and emergency planning.

TOTAL: 45

REFERENCES:

1. Care-Bangladesh, and, Vulnerability Assessment Report, Tongi Municipality, Tongi, Bangladesh, 2000
2. Rajib Shaw , 'Community-Based Disaster Risk Reduction (Community, Environment and Disaster Risk Management)', Emerald Group Publishing Limited, 2012
3. Stronger Together: The Global Red Cross Red Crescent Response to the 2004 Indian Ocean Earthquake and Tsunami, International Federation of Red Cross and Red Crescent Society, 2013
4. Nancy Rushford and Kerry Thomas, 'Disaster and Development: an Occupational Perspective', Churchill Livingstone; UK ed. Edition, 2015

PAH 701	LANDSCAPE, ECOLOGY AND PLANNING	3 Credits	L T P C
			3 0 0 3
Goal	The course enlightens the students about the components of landscape features and the construction of the same		
Objectives		Outcome	
<ul style="list-style-type: none"> Knowledge of the various features of innovative and modern landscape design application of innovative detailing and appropriate technologies to further better landscape planning 		The students should be able to: <ul style="list-style-type: none"> Understand the elements of Landscape Design Understand Natural systems to make them sustainable Learn details in hard and soft landscapes in relation to ecology and context Gain knowledge of appropriate technologies and resources to evolve an environment friendly landscape design 	

UNIT I ECOLOGY AND LANDSCAPE ECOLOGY 15

Fundamentals of ecology – definition, scope, ecosystem and their functioning, nature and characteristics, components, biotic and abiotic, major types, biosphere and its functioning.

Ecological processes – energy flow, food chains and trophic structure, ecological pyramids, biogeochemical cycles – hydrological, carbon, nitrogen, sulphur, phosphorous, evolution - variation, selection and speciation. Ecology of growth, regulation, limits to growth, carrying capacity. Ecological communities – spatial structure, ecological niche, species diversity and succession. Limiting factors and their operations – climate and atmospheric factors, soils, biotic factors, interaction of factors. Ecosystem inertia and resilience, Ecological balance and survival thresholds, definition and scopes, concepts of landscape ecology, elements of Coastal Ecology

UNIT II LANDSCAPE PLANNING AND DEVELOPMENT PROJECTS 12

Impact of human activities, introduction to EIA, Application of landscape planning techniques to large scale developments such as infrastructure and power projects, extractive and manufacturing industry, new towns

UNIT III LANDSCAPE PLANNING AND RECREATION 4

National parks and other protective designations. Bio diversity and biosphere reserves. Concept of eco tourism and sustainable tourism, planning for recreation – hilly terrains and water fronts.

UNIT IV LANDSCAPE ASSESSMENT TECHNIQUES 6

Basic quantitative methods of collecting and analyzing, projecting and presenting data for landscape planning, visual assessment and aesthetic dimension.

UNIT V LANDSCAPE CONSERVATION 8

Reclamation and restoration of derelict landscapes, conservation and preservation of ecological fragile areas such as wetlands, creeks etc., policies and landscape conservation ordinances. Case studies and urban extensions. Conservation of fragile coastal environments, energy efficient landscape.

TOTAL 45

REFERENCES

1. Monica G. Turner and Robert H. Gardner,'Landscape Ecology in Theory and Practice: Pattern and Process', Springer,2015
2. William M. Marsh,'Landscape Planning: Environmental Applications', Wiley,2010
3. Key Topics in Landscape Ecology – Ed Jianguo Wu and Richard Hobbs – Cambridge series, 2009

PAH 702	HOUSING BYE LAWS & PLANNING LEGISLATION	3 Credits	L T P C 3 0 0 3
Goal	To make the students aware of and understand the relevance of legislation and byelaws in terms of housing and special planning		
Objectives		Outcome	
<ul style="list-style-type: none"> To expose the students the importance of legislation and its development To facilitate the students to experience implications of existing legislation related to housing and special planning and its shortcomings 		The students should be able to: <ul style="list-style-type: none"> Relate the planning legislation to housing issues in society by and large. Take a critical stand about how bye laws affect the Development of Habitat Planning. 	

UNIT I CONCEPT OF PLANNING LEGISLATION 5

The concept of law, Indian Constitution. National Goals. Rights of Ownership and development of property. Statutory control as a positive tool in plan preparation and implementation. Evolution, scope and Significance of Planning Legislation. History and survey of development of planning legislation in India.

UNIT II ACTS AND RULES GOVERNING LOCAL BODIES 10

Panchayat Act, Municipality Act, Corporation Act, TNULB Act, Provisions in the above acts related to functions, powers, role and responsibilities of local bodies including elected representatives and officers. 73rd and 74th CAA and their implications on planning and development.

UNIT III ACTS RELATED TO PLANNING AND IMPLICATIONS OF LAWS AND LEGISLATION ON DEVELOPMENT 12

Review of Town and Country Planning Act of Tamilnadu 1972, Urban Development Act, Public Health Act, Slum Improvement Act, Housing Act, Pollution Act, Acts related to Environment. Legal aspects of Ownership, Lease and Tenancy transfers development management, law relating to utilities and services. Implications of Land ceiling, betterment levy and development charges. Concept of arbitration. Comparative study of DCR, ECBC, UDPFI Guidelines, Mandatory Clearance for approval,

UNIT IV ACTS RELATED TO HOUSING AND THEIR IMPLICATIONS ON DEVELOPMENT 12

Apartment ownership Act, Land acquisition Act, Rent Control Act, Registration Act, Stamp Act, Slum clearance and improvement Act.

UNIT V HABITAT PLANNING AND DEVELOPMENT BYE LAWS AND LEGISLATION 6

Land classification and change in land use, development control rules related to habitat and housing development, transfer of development rights, role of public/private/NGOs/Socio Economic groups in Housing development.

TOTAL: 45

REFERENCES:

1. C.K.Bikseswaran, 'The Madras Building (Lease and Rent Control Act), 1960, Sitaraman and Co., Madras, 1964, Rent Control Act 2017
2. Government of Tamilnadu, 'The Tamilnadu Town and Country Planning Act, 1971, Government of Tamilnadu, 1976,
3. The Land Acquisition Act, 2013, Govt. of India, New Delhi
4. Anil Chaturvedi, 1988, District Administration, Sage Publications India Pvt. Ltd, New Delhi, 1988
5. DCR, Chennai Master plan

ADDITIONAL READING:

1. ECBC B.I.S., , "National Building Code of India", ISI, New Delhi,2005
2. GopalBhargava, 'Socio-economic and legal implications of urban land ceiling and regulations', Abhinav Publishing Company, New Delhi, 2003

ELECTIVE - IV SEMESTER

PAH 704	HIGHRISE BUILDINGS AND SERVICES	3 Credits	L T P C
			3 0 0 3
Goal	To enable the students to have knowledge and expertise in design and construction of high rise buildings		
Objectives	Outcome		
<ul style="list-style-type: none"> • To expose the students to various types of structural systems employed for tall buildings. • To enable the students to acquire knowledge on the various building service systems required by tall buildings. 	The students should be able to: <ul style="list-style-type: none"> • Consciously chose the structural system for a particular project considering the need for consideration of building service requirements and fire safety. 		

UNIT I INTRODUCTION TO TALL BUILDINGS 9

Classification of tall building structural system – Types – Shear frames, Interacting systems, Partial tubular systems, Tubular systems, bye laws and legislation relevant to tall buildings, comparative study

UNIT II TALL BUILDING FLOOR SYSTEMS 9

Composite steel floor systems, prestressed and post tensioned concrete floor systems – Examples.

UNIT III LATERAL LOAD RESISTING SYSTEMS 9

Braced frames and moment resisting frame systems –Examples Shear wall systems – Examples Core and outrigger systems – Advantages and Disadvantages – Examples Hybrid systems – Examples

UNIT IV SERVICES FOR TALL BUILDINGS 9

Express elevators – Sky lobbies – Local elevators, Service floors etc., - Water supply systems – Skip stage pumping – Energy conservation methods – Location and sizing of water tanks. Electrical- and communication systems, Disposal of Garbage, Multilevel Car Parking

UNIT V FIRE SAFETY AND MANAGEMENT 9

Wet risers, Sumps, Smoke detectors, Alarms, Sprinkler systems, Fire escape stairs, Fire resistant doors, Fire resistant rating of materials and Firefighting equipment etc.

TOTAL: 45

REFERENCE

1. Mehmet Halis Günel (and), Hüseyin Emre Ilgin, ' Tall Buildings: Structural Systems and Aerodynamic Form' , Routledge, 2014
2. 100 of the World's Tallest Buildings, 2015, by CTBUH (Council on Tall Buildings and Urban Habitat) (Author), Antony Wood (Editor)
3. Bownass David, , Building Services Design Methodology, Routledge, 2001
4. A.K. Mittal, Electrical And Mechanical Service In High Rise Building CBS Publishers, 2009

PAH 705	CONTEMPRORY MATERIALS AND CONSTRUCTION	3 Credits	L T P C
			3 0 0 3
Goal	To expose the students to the new construction materials used in the construction industry and the state of art and technology in building construction		
Objectives		Outcome	
<ul style="list-style-type: none"> The student will learn the detailing and construction of buildings using modern building materials like stainless steel, plastics, glass reinforced concrete etc., involving new techniques in construction. 		The students should be able to: <ul style="list-style-type: none"> Build on existing techniques and develop new techniques based on existing systems of construction Innovate on systems like the geodesic dome and tensile materials 	

UNIT I CURTAIN WALLS AND WALL CLADDING SYSTEMS 12

Materials and construction details for curtain walls – glass curtain walls, steel cladding, aluminum cladding, and other metallic / non metallic cladding details for multi-storied buildings. Ribbed metal cladding systems. Sloping and curved glass walls, Steel plate shear walls. Metallic cladding – for roof.

UNIT II TENSILE AND PNEUMATIC STRUCTURES 10

Materials and construction details of Tensile structures – achievement of shape – curvature, pre-stressing and supports; Materials – fabric and high strength cables; Multiplicity of tents and achieving complexity of form; fabrication and erection details. Pneumatic structures – materials; construction details and erection procedure.

UNIT III SPACE FRAMES AND SPACE TRUSSES 10

Materials and construction details for Space frames and space trusses – long-span trussed arched roof; steel space frames using box sections, angles, channels and tubes; Geodesic domes. Materials, support systems, construction and erection details.

UNIT IV PREFABRICATION 7

Prefabrication – application in housing, steel structural system for high-rise buildings, long span structures, space trusses and RCC vierendeel trusses. Dismantable structures, movable staircases.

UNIT V RECENT ADVANCEMENT IN MATERIALS 6

Plastic as a structural material – load bearing plastic spandrel panels fiberglass plastic application in construction.

TOTAL: 45

REFERENCES:

1. Joe Boschetti, 'Details in design: Creative Detailing by Some of the World's Leading (Details in Architecture (Image)) (Vol. 6)' Images Publishing Dist , 2006
2. Yasmin Sabina Khan . 'Engineering Architecture: The Vision of Fazlur R. Khan' W. W. Norton & Company, 2004
3. Fred Nashed AIA, Time-saver details for Exterior Wall design, McGraw Hill, USA, 1996
4. Belen Garcia, Earthquake Architecture, USA, 2001.

PAH 706	HOUSING IN GEO-CLIMATIC REGIONS	3 Credits	L T P C
			3 0 0 3
Goal	To provide insight about the influence of geographic and climatic condition in Housing design		
Objectives		Outcome	
<ul style="list-style-type: none"> To expose students about various eco-climatic region and climatic factors govern their housing design To enable students to know about various socio-cultural aspects, building elements and technology in different areas 		The students should be able to: <ul style="list-style-type: none"> Plan projects selecting appropriate designs for the particular region, considering geographic, socio cultural and climatic conditions 	

UNIT I HOUSING IN EARTH QUAKE PRONE AREA 10

Engineered housing, non-engineered housing, case study of post disaster housing/ rehabilitation and retrofitting, case study – Latur, Maharashtra; Bhuj, Gujarat; Orissa

UNIT II HOUSING IN COASTAL AND FLOOD PRONE AREAS 10

Introduction; Evolution of coastal settlement, genesis and growth, socio-economic characteristics, types of coastal area, characteristics of coastal area, city and country side, coastal zone management, population at risk from natural hazards, housing infrastructure, influence of infrastructure and climatology, fisherman housing, Tsunami affected area, rehabilitation and resettlement.

Snow melting, discharge from dams, flooding due to rain in cyclone prone areas having storm surge

UNIT III HOUSING IN DESERT AREAS 7

Climatic condition & its effect on housing design, Material and technology, socio-economic groups & settlement patterns

UNIT IV HOUSING IN HILLY AREAS 8

Hill area development act and rules, design with contour lines, climatic condition & its effect on housing flat roof (Leh, Ladakh), sloped roof, effect of snow in roof design, indigenous technology Case studies

UNIT V CASE STUDIES & SEMINAR/ WORKSHOP 10

TOTAL: 45

REFERENCES:

1. Rajib Shaw, 'Recovery from the Indian Ocean Tsunami: A Ten-Year Journey (Disaster Risk Reduction)', springer, 2015
2. Joseph De Chiara and Le Copplemann, Planning and design criteria, McGraw hill, Newyork 1983
3. O.H. Koenigsberger and other, Manual Tropical Housing and building- Climatic Design, Longmans, University Press, 2011
4. Arvind Krishnan, Climate Responsive Architecture, A design handbook for energy efficient buildings, tata McGraw Hill publication co., Ltd, New Delhi, 2001, reprinted 2004

ELECTIVE - V SEMESTER

PAH 707	HOUSING FINANCE	3 Credits	L T P C
			3 0 0 3
Goal	To provide an insight into the financial aspects of Housing		
Objectives		Outcome	
<ul style="list-style-type: none"> • To Understand the macroeconomic context of housing and current trends in financing of housing • Basic analytical methods for investment and financing in properties. • Influences of international modes of decision making 		The students should be able to: <ul style="list-style-type: none"> • Design financially feasible projects, according to paying capacity and demand. • Invest in projects after considering the risk involved and mitigation measures that need to be taken. • Formulate sustainable and innovative methods of raising finance for housing and developmental projects. 	

UNIT I MACROECONOMIC CONTEXT OF URBAN HOUSING 10

Patterns of economic growth, sectorial performance and productivity, income distribution and inequality, poverty and employment, savings, external debt, patterns of investment; foreign, public, private investment, impact of external factors on macro-economic performance

UNIT II FINANCIAL SYSTEM 8

Introduction to financial systems, Principles of finance, Analytical methods and tools useful for making investment and finance decisions regarding housing, forecasting cash flows and estimating risk in real estate investment, Risk analysis and Mitigation

UNIT III PUBLIC PRIVATE PARTNERSHIP 7

PPP as model for effective system to provide elements of equitable housing, delivery system. e.g Bengal Ambuja project in Kolkata, redevelopment of slums and Squatters in Mumbai Municipality etc., case study. BOT, BOOT, BOLT

UNIT IV HOUSING FINANCE: ASSESSMENT OF TRENDS 10

Mortgage finance; institutions and mechanism, securitization, financing for social and rental housing, small loans; shelter micro finance, community funds etc.

UNIT V POLICY DIRECTION TOWARDS SUSTAINABLE HOUSING FINANCE SYSTEMS 10

Assessing housing finance systems, affordability & reaching the poor and policy direction towards inclusive urban infrastructure services and its financing, formulating and implementing urban shelter policies

Strengthening urban shelter financing system towards sustainability, increasing purchasing power, lowering housing prices formulating sustainable housing and finance policies

TOTAL: 45

REFERENCES:

1. Financing Urban Shelters, Global Report on Human Settlements, 2005
2. Loic Chiquier and Michael Lea, 'Housing Finance Policy in Emerging Markets', world bank publication, 2009
3. Ferguson. B, Housing Microfinance – a key to improving habitat and the sustainability of microfinance institution, small enterprise development, 2003

PAH 708	URBAN INFRASTRUCTURE SERVICES	3 Credits	L T P C 3 0 0 3
Goal	To enable the students to be conversant with the infrastructure services related to housing and the latest trends in use of renewable resources for sustainable housing		
Objectives		Outcome	
<ul style="list-style-type: none"> To expose the students to the norms and standards for designing of the infrastructure services required for housing. To enable the students to have a sound knowledge about the current/innovative practices in water supply, sewerage system, and solid waste management. To expose the students to the services require for multistoried buildings. 		The students should be able to: <ul style="list-style-type: none"> Take a critical stand on the norms and recommendations provided by the guidelines Make new knowledge on implementation techniques and contribute to execution methods. Develop disposal systems for multi storied housing and innovate on the practice of recycling. 	

UNIT I STANDARDS AND GUIDELINES

7

Norms and standards for infrastructure planning, National and local guidelines, recommendations of Rakesh Mohan Committee.

UNIT II WATER SUPPLY SYSTEMS

10

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, rain water harvesting, water recycling with special reference to Housing disposal

UNIT III WASTE WATER DISPOSAL SYSTEMS

10

Separate and combined systems; characteristics of waste water; Industrial pollutants and their effects; waste water treatment methods; planning and location of treatment plants; disposal of municipal and industrial effluents, effects on rivers and water bodies; legal aspects. Innovative approach to optimal use of waste and separations of waste water and Grey water for disposal/recycling.

UNIT IV SOLID WASTE MANAGEMENT SYSTEM

10

Elements of solid wastes management; classification and properties of solid wastes; on site collection, storage, transportation and disposal of solid wastes; processing and treatment of solid wastes; various social aspects of the solid waste management, source segregation and dispersal

UNIT V SPECIAL SERVICES FOR MULTISTOREYED BUILDINGS

8

Planning for elevators, standby electrical supply, planning for emergency escape garbage disposal system for high rise buildings, firefighting services, piped gas supply, methods for energy efficient systems in renewable and non conventional energy resources.

TOTAL: 45

REFERENCES

1. Nelson L. Nemerow and Franklin J. Agardy, 'Environmental Engineering: Water, Wastewater, Soil and Groundwater Treatment and Remediation-6th Edition', Wiley, 2009
2. Terrance McGhee, 'Water Supply and Sewerage', McGraw-Hill Education – 2013.
3. William A. Worrell and P. Arne Vesilind, 'Solid Waste Engineering: A Global Perspective-3rd Edition, CL Engineering, 2016

PAH 709	GIS MODELLING IN PLANNING	3 Credits	L T P C
			3 0 0 3
Goal	To enable the students to know about the basics of GIS and its application in Housing and planning		
Objectives		Outcome	
<ul style="list-style-type: none"> To train the candidate in building GIS models for planning applications with hands on experience of spatial data, attribute data input and experiment with GIS analysis 		The students should be able to: <ul style="list-style-type: none"> Use GIS models in Urban and Regional Planning Solve Planning Problems with GIS Spatial data's Conduct regional analysis & impact studies with GIS models 	

UNIT I INTRODUCTION

8

Definition, map and map analysis, automated cartography, history and development of GIS, Hardware requirement, system concepts, co-ordinate systems, standard GIS Packages.

UNIT II DATA ENTRY, STORAGE AND MAINTENANCE – IN URBAN AND REGIONAL PLANNING

10

Types of data, spatial and non spatial data, data structure, points, lines, polygon, vector and raster, files and file organization, database, data entry, digitizer, scanner, Dbase, files and data formats, data compression.

Classification of spatial and non-spatial data – application of spatial data in urban and regional planning – objectives and functions of GIS models in urban and regional planning.

UNIT III SPATIAL DATA INPUT

10

Defining the objectives of a GIS planning problems – Identification of required spatial data layers – coding schemes – digitization of spatial data – editing spatial data usable for the given planning problem.

UNIT IV ATTRIBUTE DATA INPUT

10

Role of attribute data in defining geographic features – adding attribute data file – topology generation – joining attribute data to its geographic features.

UNIT V SPATIAL ANALYSIS USING GIS

7

Performing overlay functions – manipulating attribute data – GIS modeling – map and report generation – case problems on regional analysis, impact assessment study, project formulation and land suitability analysis.

TOTAL: 45

REFERENCES

1. Julia Jaklitsch, 'Integration of 3D GIS into urban service processes: Research and Implementation', 2014
2. Ian Heywood and Sarah Cornelius, 'An Introduction to Geographical Information Systems', Pearson, 2012
3. Klosterman RE. "Micro Computer packages for planning analysis", American Planning Association Journal, Autrenn, 1990
4. ERSI (1992) Understanding GIS, "The ARCI INFO methods", ERSI, USA
5. Niklaus Kämpfer, 'Monitoring Atmospheric Water Vapour: Ground-Based Remote Sensing and In-situ Methods (ISSI Scientific Report Series)', springer, 2013
6. C. Dana Tomlin, 'GIS and Cartographic Modeling', Esri Press, 2012

PAR 709	VIRTUAL SOCIETY	3 Credits	L T P C
			3 0 0 3
Goal	Imbibe awareness about the presence of virtuality and its consequences		
Objectives		Outcome	
<ul style="list-style-type: none"> Expose the students to sociological and psychological aspects of social visualization with regard to identity Create awareness about changes in perception of fashion, education, etc. through virtual facilities 		The students should be able to: <ul style="list-style-type: none"> Understand issues arising with virtual development. 	

UNIT I CULTURAL BASIS

6

Social visualization through readings, drawn from sociology / Psychology and interface design.

UNIT II ISSUES OF REPRESENTATIONS IDENTITY AND EXPRESSION

12

Meaning through association - subjective - transitory - cross cultural meanings ascribed to an object / Cultural phenomena in virtual objects: nature of identity in an immaterial and intangible environment / Issues of identity deception

UNIT III COMMODIFICATION, COMMERCE AND FASHION

6

Globalization, e-com and marketing- Fashion, identity and marketing- Machines as part of fashion - Role of Fashion and status in the virtual world.

UNIT IV COMMUNICATION AND PEDAGOGY

12

Virtual education and issues of Commodification/ virtual classrooms/ universities Virtual organizational existence / Society of Audience / online social world / Chat rooms / news groups and mailing lists

UNIT V CITY AND ONLINE WORLD

9

City as a metaphor for online world/ city as a hub of information/ place of strange fears/crime and doubtful morality/surveillance and security

TOTAL: 45

REFERENCES:

1. Laurence Scott, 'The Four-Dimensional Human: Ways of Being in the Digital World', W. W. Norton & Company, 2016
2. Cameron H. Malin and Terry Gudaitis, 'Deception in the Digital Age: Exploiting and Defending Human Targets through Computer-Mediated Communications', Academic Press 2015
3. Derek S. Reveron, 'Cyberspace and National Security: Threats, Opportunities, and Power in a Virtual World', Georgetown University Press 2012
4. Grant David McCracken, 'Culture and Consumption II: Markets, Meaning, and Brand Management', Indiana University Press, 2005