## AFFILIATED INSTITUTIONS
ANNA UNIVERSITY, CHENNAI
M.ARC. (REAL ESTATE DEVELOPMENT)
R-2013
I TO IV SEMESTERS OF CURRICULA AND SYLLABI

### SEMESTER I

<table>
<thead>
<tr>
<th>SL. NO.</th>
<th>COURSE CODE</th>
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<td>1</td>
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**STUDIO**

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### SEMESTER II

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### INTERNSHIP - 4 WEEKS DURING SUMMER VACATION

### SEMESTER III

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Total no of credits required for the award of the degree: 75

Total No. Credits to be earned for the award of Degree: \(21 + 21 + 21 + 12 = 75\)

### LIST OF ELECTIVES FOR M.ARCH – (REAL ESTATE DEVELOPMENT)

#### SEMESTER – I

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AIM:
To create an interface between real estate development as a continuous process and design as an input into such process.

OBJECTIVES:
- To understand land as a resource.
- To appreciate the role of team work to make a successful project.
- To provide adequate inputs so as to make to the whole development as a smooth activity and ultimately be aware of the tactical aspects of marketing the completed property.

UNIT I      CONCEPTS  4
Fundamental Concepts & Techniques involved in Real Estate Development Process

UNIT II     EVENTS AND PRE PROJECT STUDIES  6
Modeling Sequential events in real estate development process – Site evaluation – Land Procurement – Development Team assembly – market study

UNIT III    DEVELOPMENT PLANNING & APPROVAL PROCESS  10
Identifying technical inputs required, planning objectives, front end clearances from various authorities, timing of the project and scheduling.

UNIT IV     CONSTRUCTION & PROJECT MANAGEMENT  10
Identifying the elements of infra structure and the resource mobilization, disaggregating the project components, mobilizing the human and fiscal resources procuring and storing materials.

UNIT V      PROJECT MARKETING & HAND-OVER OF THE COMPLETED PROJECT  15
Communication tools required for presenting the project, In house sales promotion, franchisee system, joint venture and sharing issues, procedure and laws relating to transfer of completed project.

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES
1. Tanya Davis, “Real estate developer’s handbook”, (2007), Atlantic pub company, Ocala, USA.
AIM:
To obtain an overview of the policy implication at national and state level and their relevance at the micro level.

OBJECTIVES:
- To understand the implications of the urbanisation on urban land.
- To capture the form and pattern of cities growth and market prices.
- To provide inputs for keeping tag of quality even while trying to make profit taking note of various regulatory regimes on land and development present in the country.

UNIT I UNDERSTANDING URBAN GROWTH

UNIT II LOCATIONAL DETERMINANTS
Land use structure – Community & Neighbourhood Dynamics - Urban Land rent & Location Theories

UNIT III QUALITY OF DEVELOPMENT
Urban Quality – degeneration – Urban Renewal – regeneration - Sustainable development

UNIT IV URBAN POLICIES

UNIT V PUBLIC PRIVATE PARTICIPATION
System drawn and informal participation, various models of public participation, participatory plan formulation, resource mobilisation, maintenance and management.

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES
AIM:
To impress upon the professionals to look at the Real Estate from a broader perspective of urban aesthetics rather than islands of excellence / dreary development.

OBJECTIVES:
- To provide adequate inputs to understand the larger implications of the property as an integral part of the urban fabric.
- To demonstrate the value addition to property development by adhering to urban aesthetics as a leverage for price mechanism.
- Emphasizing the need for sustainability of the existing morphology through adaptive reuse prolonging the life for longer time with consistency in price.

UNIT I  INTRODUCTION TO URBAN DESIGN THEORY
City as a three – dimensional entity, study of volumes & open spaces, a brief historic review of the development of the urban design discipline and principles.

UNIT II  ELEMENTS OF URBAN DESIGN
Urban form as determined by the inter-play of masses, voids, building typology, scale, harmony, symmetry, colour, texture, light & shade, dominance, height, urban signage & graphics, organization of spaces & their articulation in the form of squares, streets, vistas & focal points, image of the city & its components.

UNIT III  PHYSICAL & NON –PHYSICAL DETERMINANTS OF URBAN FORMS
Activity & Morphology of space, form, size & structure of cities, related geometry co-related with their determinants, case studies of urban design characteristics of cities in India & abroad, issues for public intervention.

UNIT IV  RETROFITTING OF BUILDINGS / PROPERTIES AND ADAPTIVE REUSE
Methods & mechanisms – Urban Renewal – Rehabilitation, Redevelopment & Conservation – Basic principles, values, conservation importance of sites, area, typology, techniques of conservation.

UNIT V  CASE STUDIES
Legal & administrative aspects, policies, charters, case studies of proposals for conservation / adaptive reuse from India & Abroad.

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES
AIM:
To emphasize the need to integrate the building design process into development cycle.

OBJECTIVES:
- Packing adequate knowledge to work with multi disciplinary team.
- To make aware of the scheduling and accounting issues which will affect the cost.
- Capacity to identify and develop the data base for quality, control and safety.

UNIT I CONSTRUCTION PLANNING 8

UNIT II SCHEDULING PROCEDURE & TECHNIQUES 12

UNIT III COST CONTROL MONITORING & ACCOUNTING 10

UNIT IV QUALITY CONTROL & SAFETY DURING CONSTRUCTION 7

UNIT V ORGANISATION & USE OF PROJECT INFORMATION 8
Types of project information – accuracy and use of information – computerized organisation & use of information – organizing information in databases – relational model of databases – other conceptual models of databases - centralized databases. Management systems – databases & application programmes - Information transfer and flow.

TOTAL: 45 PERIODS

TEXT BOOKS
2. Frank Harris, “Modern Construction management”, (2006), Blackwell publishing, U.S.A.

REFERENCES
Projects on Corporate Development as well as Land Development to sensitize students to the issues of land and corporate development is to be undertaken

TOTAL: 180 PERIODS

AIM:
To provide an insight into the financial aspects of Real estate.

OBJECTIVES:
- Basic analytical methods for investment and financing in properties.
- Influences of international modes of decision making.
- Understanding risks in real estate as a tool in mortgaging and investment performance.

UNIT I FUNDAMENTAL CONCEPTS 8
Principles, analytical methods and tools useful for making investment and finance decisions regarding individual properties (Commercial, Industrial, Residential)

UNIT II NON CONVENTIONAL FINANCE 7
Institutional real estate decision making (pension funds, banks, life insurance companies, investment trusts, joint venture)

UNIT III RISK ANALYSIS 10
Forecasting cash flows and estimating risk in real estate investments

UNIT IV SECURITIZATION 10
Development of real estate securitization and structured financing including mortgage contract – Mortgage and options including calculation of various durations to evaluate risk sharing

UNIT V PRICING AND BENCH MARKING 10
Equilibrium pricing of assets clauses – investment performances measurement – bench marking – counseling for purchase and sale.

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES
RE7202 LAW RELATING TO LAND AND PROPERTY PROCUREMENT

AIM:
Introducing the various laws that affect land and property.

OBJECTIVES:
• To expose to land ownership, transfer, lease and mortgage regulations.
• Development control rules as the affect the property market.
• To relate the land use to property market.

UNIT I REGULATORY REGIME
Laws and regulatory Framework – Understanding and appraisal of the regulatory regime

UNIT II REGISTRATION
Law of Property, examining the rules relating to the transfer of land, the system of registration of title, co-ownership of land - Land title – Tenancy

UNIT III TRANSFER OF PROPERTY

UNIT IV DEVELOPMENT CONTROL

UNIT V LAWS SUPPORTING PLAN IMPLEMENTATION
Town and country planning Act, municipalities and local bodies act, Acts relating to environmental quality and infra structure development.

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES

RE7203 MANAGEMENT INFORMATION SYSTEM
FOR REAL ESTATE BUSINESS

AIM:
To develop a comprehensive global information system in the area of Real estate business.
OBJECTIVES:
- To develop easily updatable and retractable information system Architecture for Real estate business.
- Modular system for each layer of the business cycle.
- Conceiving and put in practice the facility management for managing different types of property.

UNIT I INTRODUCTION TO INFORMATION SYSTEM
Information Systems – Establishing the framework – Business model – Information system architecture – Evolution of Information Systems

UNIT II SYSTEM DEVELOPMENT

UNIT III INFORMATION SYSTEMS

UNIT IV IMPLEMENTATION & CONTROL

UNIT V SYSTEM AUDIT

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES

RE7204 VALUATION AND ARBITRATION IN REAL ESTATE

AIM:
Build up a cadre of professional Architects for valuation and arbitration in the long run.
OBJECTIVES:
- To teach the techniques of valuation of properties.
- To provide the required input to create space for specialization in this area.
- To strengthen the defence in presenting the procedural rules, dispute resolution.

UNIT I  FUNDAMENTAL PRINCIPLES AND CONCEPT OF VALUE  7
Open market value – Property and Property Market – Property as an Investment.

UNIT II  NATURE AND SCOPE OF VALUATION  9

UNIT III  DETERMINATION OF VALUES  9
Techniques to determine the values for loan, sale and insurance – Professional standards – report writing – Leasehold Valuation – different methods.

UNIT IV  EVALUATION OF INCOME AND PROPERTY  10

UNIT V  ARBITRATION  10

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES

RE7211  PROJECT – II (MEGA PROJECT TOWNSHIP  LAND AND BUILDING)  0 0 12 6
Large scale corporate, commercial & mixed use of development including issues involved in various stages of construction, financial implications and saleability.

TOTAL: 180 PERIODS

INTERNSHIP
During the summer, students are placed into an internship / practical experience. This provides a unique opportunity for the students to gain hands-on work experience in the real estate industry, with a company in the same area as their desired career path. The Real Estate Internship Program aims to provide real world learning experience of both the private & public real estate organizations. Industry specialization areas include development activities, professional consultancy services, fund management as well as policy exposure in Government agencies.
AIM:
To create a platform for encouraging qualified professionals to take up Turkey developments.

OBJECTIVES:
- To acquire additional skills from being a mere designer to negotiator and a person capable of conflict resolutions.
- Adequately equipped to manage properties and provide advice on strategic planning of real estate investment.
- To get to know about the leverage the real estate could provide in the overall development process.

UNIT I

UNIT II
Real Estate Management – Basic concepts and fundamental principles of property & facility management – tenure arrangements – Relevant Legislations – Ownership – Management of different types of Property developments

UNIT III

UNIT IV

UNIT V

TOTAL: 45 PERIODS

TEXT BOOKS
1. David M Geltener - Commercial Real estate Analysis & Investments (2000), South western Educational Publication.

REFERENCES
2. Mathew S Chan, Real estate partnership & alliance, Ascend beyond Publishing, Columbus, USA.
AIM:
To be capable of appreciating the construction related issues that are to be kept in mind while in the business of real estate.

OBJECTIVES:
- Knowledgeable enough to advise clients on selection of professional services.
- Operationalising the design and construction through scheduling the construction activity.
- Be clear about cost control methods and their implication in reality market.

UNIT I
The Owner’s Perspective – Introduction – project life cycle – major types of construction – selection of professional services – construction contractors – functioning of constructed facilities - legal and regulatory requirements – the changing environment of the construction industry – the role of project managers

UNIT II
Organising for Project Management – What is project management – trends in modern management – Strategic planning and project programming – Effects of project risks on organization – organisation of project participants – traditional designer – constructor sequence - professional construction management – Owner – builder – operation – turnkey operation – leadership and motivation for the project team – Interpersonal behaviour in project organisation – perceptions of owners and contractors

UNIT III

UNIT IV

UNIT V

TOTAL: 45 PERIODS

TEXT BOOKS:
REFERENCES

RE7303 CONTRACT LAW AND REGULATION

AIM
To develop understanding and skills to provide advise to the client in this area.

OBJECTIVE
- Construction contracts, bidding evaluation.
- Legal requirements of land and its development.
- Adequately informed to overcome labour related issues.

UNIT I

UNIT II

UNIT III

UNIT IV

UNIT V

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES
AIM
Confidence building for making the projects saleable, ultimately.

OBJECTIVES
- To prepare projects based on realizable cost and targets within the stipulated time.
- To develop skills for the smooth implementation.
- To be capable of appraising the project proposals from the financial cost and benefit angles of the concerned company / organisation.

UNIT I
Project Formulation / Planning – Methodology for project identification & formulation, detailed project report, feasibility studies, techniques of financial appraisal, payback period, IRR, DCF, NPV, CBR, financial cost – benefit analysis – economic cost benefit analysis.

UNIT II

UNIT III
Introduction to project management – Importance of project management – reasons for shortfall in performances – scientific management – life cycle of a project.

UNIT IV

UNIT V

TOTAL: 45 PERIODS

TEXT BOOKS
1. GE Greer, “Investment analysis for RE decision”, (2003), Dearborn RE education.

REFERENCES
The dissertation provides scope for independent study opportunity to explore specific areas of interest pertaining to Real Estate Development. The scholar shall select a topic of his / her choice with the approval of the HOD and write a comprehensive discourse.

**TOTAL: 90 PERIODS**

A project on specialized activities, SPV (Special Purpose Vehicle) – Infrastructure and the Special Economic Zone (SEZ) is to be undertaken

**TOTAL: 180 PERIODS**

Thesis gives an opportunity to the scholar to showcase his / her prowess in the genesis and conceptualisation of the all round competence in real estate design. It is a normal seminal work culminating into a comprehensive real estate design and development. The integration of the implementation process, shall be demonstrated in the ultimate analysis.

**TOTAL: 240 PERIODS**

A seminar / project on any one of the following topics is to be presented

**TOTAL: 30 PERIODS**

(Any one)

1. **NEW TOWN & INFRASTRUCTURE PROJECT**

UNIT I
Rationale for Planning for New Communities – location criteria for Township and New towns – Concept of Townships and Newtown Plans – Exposure to international examples, planning standards and norms

UNIT II

UNIT III
UNIT IV
Economics of services and networks – Infrastructure pricing and financing – tax and grant – user charges – public – private partnership – BOT, BOLT, BOOT etc. – Municipal bonds – subsidies

UNIT V
Capacity building - Environmental issues – Sustainability concerns Review of programs of DFID, WORLD BANK in India

3. PRINCIPLES OF INSURANCE AND LOSS ASSESSMENT

UNIT I
Introduction to Financial Planning – Communication and Internal Analysis

UNIT II

UNIT III
The impact of competition on pricing; the impact of legislation.

UNIT IV
Insurance – the insurance device – introduction to private insurance – insurance on the person – Personal property and Liability insurance – Social insurance – insurance programs.

UNIT V
Legal principles of contracts: insurance contracts

3. ADVANCED CONSTRUCTION TECHNIQUES

UNIT I

UNIT II

UNIT III
UNIT IV
Advanced techniques in offshore construction practice – construction sequences and methods in domes and pre-stressed domes - support structure for heavy equipment and conveyor machinery in heavy industries – erection of articulated structures – braced domes and space decks.

UNIT V

RE7001 ELEMENTS OF SOCIOLOGY AND ECONOMICS

AIM:
To look at the real estate development within social, economic frame work of the community it serves.

OBJECTIVES:
- Understanding the social values and life styles.
- Urbanization and socio-economic issues of employment, demand for space in human settlements.
- Appreciating the formal and informal mechanism in real estate resulting out of socio economic characteristics.

UNIT I DEFINITION AND SCOPE OF SOCIOLOGY

UNIT II URBAN AND RURAL VARIATION
Rural community and relationship with the urban community. Neighbourhood concepts – implications & limitations in the Indian context.

UNIT III URBAN AND INDUSTRIAL SOCIOLOGY
Urbanisation and its social aspects – rural – urban migration, Concept of industrial society, social aspects of industrialization.

UNIT IV DEFINITION & SCOPE OF ECONOMICS

UNIT V ECONOMIC DEVELOPMENT & ROLE OF THE GOVERNMENT
Theory of income, employment, money, national income (GNP, NNP), Fiscal policy – inflation – Indian financial institutions. Problems of economic growth, development, characteristics of under-developed economics, balanced growth and industrialization, population problems, technological change and innovations, long term economic plans, economics of urbanization and real estate.

TOTAL : 45 PERIODS

TEXT BOOKS
REFERENCES

RE7002 DEVELOPMENTAL ECONOMICS

AIM:
To see the links between macro economic non spatial decisions on property development and the demand spectrum.

OBJECTIVES:
- Inputs in Development economics.
- Poverty as an inevitable aspect of development spectrum.
- Human development factors at national and international level and economic growth.

UNIT I BASIC PRINCIPLES AND CONCEPTS 10
The Meaning and Measurement of Economic Development - Economic Development in Historical Perspective - Characteristics and Institutions of Developing Countries – global change - Theories of Economic Development

UNIT II POVERTY ALLEVIATION & INCOME DISTRIBUTION 7
Poverty, Malnutrition, and Income Inequality - micro enterprises, policies and schemes of poverty alleviation under five year plans.

UNIT III FACTORS OF GROWTH 10

UNIT IV THE MACROECONOMICS AND INTERNATIONAL ECONOMICS OF DEVELOPMENT 9
Monetary, Fiscal, and Incomes Policy, and Inflation - Balance of Payments, Aid, and Foreign Investment - External Debt Crisis - International Trade

UNIT V DEVELOPMENT STRATEGIES 9
Development Planning and Policy Making: The State and the Market - Stabilization, Adjustment, Reform, and Privatization

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES
UNIT I
Globalization of capital markets – impact on real estate finance and investment – institutional investors – portfolio investment

UNIT II
Capital theory and trade-offs over time – financial markets and economic efficiency – discounting – present value – compound interest arithmetic

UNIT III

UNIT IV
Capital asset pricing theory – Asset allocation strategies – risk diversification – multi asset portfolios – benefits of capital market integration

UNIT V
Development of real estate investment trusts (REIT) industry – development of market for real estate debt securities.

REFERENCES:
2. Richard B Peiser with Anne B Frej, Professional Real Estate Development, ULI-The Urban Land Institute 2007

UNIT I

UNIT II
Landscape Planning & Developmental Projects – Impact of human activities – Introduction to EIA – Application of the techniques to large scale developments

UNIT III

UNIT IV
Landscape assessment techniques – Basic quantitative methods of collecting, analyzing – projecting and presenting data – landscape planning – visual assessment – aesthetic dimension

UNIT V
REFERENCES:

RE7005 SERVICE IN HIGH RISE BUILDING DEVELOPMENT  
L T P/S C  
3 0 0 3

UNIT I INTRODUCTION
Standards of high rise buildings – aspects and integration of services – relative costs – Concepts of intelligent architecture and building automation.

UNIT II WATER COLLECTION SYSTEMS

UNIT III HVAC, ELECTRICAL AND MECHANICAL SYSTEMS

UNIT IV SAFETY AND SECURITY

UNIT V CASE STUDIES
Case based learning - High rise buildings and skyscrapers thro’ appropriate examples.

TOTAL: 45 PERIODS

TEXT BOOKS

RE7006 HERITAGE PROPERTIES AND CONSERVATION PRACTICES  
L T P/S C  
3 0 0 3

UNIT I INTRODUCTION TO HERITAGE AND CONSERVATION

UNIT II CONSERVATION IN INDIA
UNIT III  CONSERVATION PRACTICE  12

UNIT IV  URBAN CONSERVATION  10
Understanding the character, history of cities and historical sites – select case sties – historic districts – heritage precincts – financial incentives.

UNIT V  PLANNING TOOLS  8
TDR-urban conservation and heritage tourism and national and international policies pertaining Heritage Conservation.

TOTAL: 45 PERIODS

TEXT BOOKS

RE7007  ENVIRONMENTAL IMPACT ASSESSMENT TECHNIQUES  L T P/S C
UNIT I  INTRODUCTION  6

UNIT II  COMPONENTS AND METHODS  12

UNIT III  QUALITY CONTROL  9
Trends in EIA practice and evaluation criteria – capacity building for quality assurance – expert systems in EIA – use of regulations and AQM.

UNIT IV  DOCUMENTATION AND MONITORING  10

UNIT V  CASE STUDIES  8
Case studies of EIA – developmental projects.

TOTAL: 45 PERIODS

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

UNIT I  INTRODUCTION TO BUILDING PERFORMANCE EVALUATION  3
Emerging role of performance evaluation in building design and master planning- Performance audit and rating systems- GRIHA, LEED IGBC and BREAM – Architectural Computation and performance audit- Introduction to ECOTECT.

UNIT II  PRINCIPLES OF SUSTAINABLE DESIGN  12
E’s of sustainability - Integrated approach to environmental design – Case studies – Comparative analysis of green rating systems, LEED, BREAM and GRIHA – Cognitive, analytical and simulated modeling and design of buildings. Zero Carbon Footprint Building.

UNIT III  ENVIRONMENTAL ASSESSMENT METHODS AND MODELING FOR PASSIVE SYSTEMS.  12
Modelling and experimental techniques for building assessment/ evaluation and design – Basics of thermal comfort, solar shading/access/ control, day lighting, acoustics air movement etc. – issues and opportunities with current assessment modes/ evaluation tools- Evaluation and assessment based on Building type/ function and program – Building performance with respect to function, program, micro climate, urban planning, envelope design, material – Computer studio and simulation-Mathematical models of heat and mass transfer phenomena through building components: transfer function methods and numerical methods – Models of radiative and convective heat transfer phenomena within buildings.

UNIT IV  ADVANCE ECOTECT AND ENERGY MODELLING  12
Integration of ECOTECT with BIM, RAPID ENERGY MODELLING- Modelling and performance simulation of existing buildings – residential-institutional- design of a new residential building with ECOTECT

UNIT V  SEMINAR AND CASE STUDY PRESENTATION  6
Case study presentation of students on performance evaluation of a building identified by them and approved by the course faculty – Seminar on topics approved by the course faculty.

TOTAL: 45 PERIODS

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

REFERENCES: