

ANNA UNIVERSITY, CHENNAI

AFFILIATED INSTITUTIONS

R-2009

M.ARCH. (REAL ESTATE DEVELOPMENT)

SEMESTER I

SL NO.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	MR 9211	Introduction to Real Estate Development and Design	3	0	0	3
2.	MR 9212	Urban policy and development regulation	3	0	0	3
3.	MR 9213	Urban design principles & Retrofitting of buildings / properties [and adaptive reuse – methods & mechanisms]	3	0	0	3
4.	MR 9214	Construction Planning, Scheduling & Control	3	0	0	3
5.	*****	Elective – 1	*	*	*	3
STUDIO						
6.	MR 9215	Project – 1 Corporate Development, Land Development	0	0	12	6
Sub Total						21

SEMESTER II

SL NO.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
7.	MR 9221	Real estate Finance	3	0	0	3
8.	MR 9222	Law relating to Land & property procurement	3	0	0	3
9.	MR 9223	Management Information system for Real Estate Business	3	0	0	3
10.	MR 9224	Valuation and arbitration in Real Estate	3	0	0	3
11.	*****	Elective – 2	*	*	*	3
STUDIO						
12.	MR 9225	Project – 2 Mega Project Township Land and building	0	0	12	6
Sub Total						21

INTERNSHIP - 4 WEEKS DURING SUMMER VACATION

SEMESTER III

SL NO.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
13.	MR 9231	Turnkey Approach to corporate commercial and residential development	3	0	0	3
14.	MR 9232	Construction project management	3	0	0	3
15.	MR 9233	Contract law and regulation	3	0	0	3
16.	MR 9234	Project Formulation & Appraisal	3	0	0	3
17.	*****	Elective - 3	*	*	*	3
STUDIO						
18.	MR 9235	Project – 3 Specialized Activities SPV – infra structure / SEZ	0	0	16	8
19.	MR 9236	Dissertation	0	0	6	3
Sub Total						24

SEMESTER IV

SL NO.	COURSE CODE	COURSE TITLE	L	T	P	C
20.	MR 9241	Thesis	0	0	16	8
21.	MR 9242	Seminar / workshop on selected theme for each scholar	0	0	2	1
Sub Total						9
Total no of credits required for the award of the degree						75

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

SEMESTER – I

SL NO.	COURSE CODE	COURSE TITLE	L	T	P	C
22.	MR 9251	Elements of Sociology & Economics	3	0	0	3
23.	MR 9252	Developmental Economics	3	0	0	3

SEMESTER – II

SL NO.	COURSE CODE	COURSE TITLE	L	T	P	C
24.	MR 9253	Services in high rise building Development	3	0	0	3
25.	MR 9254	Heritage properties & Conservation practices	3	0	0	3
26	MR 9255	Environmental Impact Assessment Techniques.	3	0	0	3

SEMESTER – III

SL NO.	COURSE CODE	COURSE TITLE	L	T	P	C
27.	MR 9256	Ecology and Landscape	3	0	0	3
28.	MR 9257	Capital markets and Real Estate	3	0	0	3
29.	MR 9258	Performance evaluation of buildings.	3	0	0	3

ANNA UNIVERSITY CHENNAI : : CHENNAI – 600 025

Affiliating Institutions

M.ARCH. (Real Estate Development) CURRICULUM – R 2009

PART-TIME

SEMESTER I

Sl. No.	Course Code	Course Title	L	T	P	C
1	MR 9211	Introduction to Real Estate Development and Design	3	0	0	3
2	MR 9212	Urban policy and development regulation	3	0	0	3
3	MR 9213	Urban design principles and retrofitting of buildings / properties (and adaptive reuse-methods and mechanisms)	3	0	0	3
4	MR 9214	Construction Planning, Scheduling and Control	3	0	0	3
						12

SEMESTER II

Sl. No.	Course Code	Course Title	L	T	P	C
5	MR 9221	Real Estate Finance	3	0	0	3
6	MR 9222	Law relating to land and property procurement	3	0	0	3
7	MR 9223	Management information system for Real Estate Business	3	0	0	3
8	MR 9224	Valuation and arbitration in Real Estate	3	0	0	3
						12

SEMESTER III

Sl. No.	Course Code	Course Title	L	S	P	C
9	MR 9231	Turnkey approach to corporate commercial and residential development	3	0	0	3
10	MR 9233	Contract Law and Regulation	3	0	0	3
11	xxxxx	Elective – I	3	0	0	3
12	MR 9215	Project – I – Corporate Development, Land Development	0	0	12	6
						15

SEMESTER IV

Sl. No.	Course Code	Course Title	L	T	P	C
13	xxxxx	Elective-II	3	0	0	3
14	MR 9236	Dissertation	0	0	4	2
15	MR 9225	Project II – Mega Project Township, Land and Building	0	0	12	6
						11

SEMESTER V

Sl. No.	Course Code	Course Title	L	T	P	C
16	MR 9234	Project formulation and appraisal	3	0	0	3
17	MR 9232	Construction and Project Management	3	0	0	3
18	MR 9235	Project – III - Specialized activities – SPV – infrastructure / SEZ	0	0	14	7
						13

SEMESTER VI

Sl. No.	Course Code	Course Title	L	T	P	C
19	xxxxx	Elective - III	3	0	0	3
20	MR 9242	Seminar / workshop on selected theme for each scholar	0	0	2	1
21	MR 9241	Thesis	0	0	16	8
						12

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

SL NO.	COURSE CODE	COURSE TITLE	L	T	P	C
22.	MR 9251	Elements of Sociology & Economics	3	0	0	3
23.	MR 9252	Developmental Economics	3	0	0	3

24.	MR 9253	Services in high rise building Development	3	0	0	3
25.	MR 9254	Heritage properties & Conservation practices	3	0	0	3
26.	MR 9255	Environmental Impact Assessment Techniques	3	0	0	3

27.	MR 9256	Ecology and Landscape	3	0	0	3
28.	MR 9257	Capital markets and Real Estate	3	0	0	3
29.	MR 9258	Performance evaluation of buildings	3	0	0	3

MR 9211

**INTRODUCTION TO REAL ESTATE
DEVELOPMENT & DESIGN**

**L T P C
3 0 0 3**

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:

1. Gerald R Cortesi, “Mastering Real estate principles” (2001); Dearborn Trade Publishing, New York, U.S.A.
2. Fillmore W Galaty, “Modern Real estate practice” (2002); Dearborn Trade Publishing, New York, U.S.A.

REFERENCES:

1. Tanya Davis, “Real estate developer’s handbook”, (2007), Atlantic pub company, Ocala, USA.
2. Mike .E. Miles, “Real estate development – Principles & Process 3rd edition, (2000); Urban Land Institute, ULI – Washington DC
3. Richard B Peiser & Anne B. Frej, “Professional real estate development” – The ULI guide to the business – (2003), Urban Land Institute U.S.A.

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 9

Basics of Urban Planning- dynamic forces driving Urban growth – Urban spatial configuration. Regional influences on settlement hierarchy.

UNIT II LOCATIONAL DETERMINANTS 6

Land use structure – Community & Neighbourhood Dynamics - Urban Land rent & Location Theories

UNIT III QUALITY OF DEVELOPMENT 10

Urban Quality – degeneration –Urban Renewal – regeneration - Sustainable development

UNIT IV URBAN POLICIES 10

Government Policies – on public & private housing – Urban Fiscal Policies – Property Taxation – local Govt. Finance – Public policies on land & real estate – Impact of Govt. Regulations

UNIT V PUBLIC PRIVATE PARTICIPATION 10

System drawn and informal participation, various models of public participation, participatory plan formulation, resource mobilisation, maintenance and management.

TOTAL: 45 PERIODS

TEXT BOOKS:

1. David T Betto, "The Voluntary city Markets, Communities & Urban Planning" (2006)
2. Frieden, Bernard & Lyne Sagalyn, "Enterpreneurial cities & marverik developers, deal amking, getting & spending", (1990) MIT. Press, U.S.A

REFERENCES:

1. Jonathan Barnett; "Urban design as a public policy", (1974), Mc graw hill book co; New York.
2. Robert Freestone; "Urban Planning in a changing world – the 20th century experience 2000; Taylor & Francis pub. U.K.
3. John Ratcliffe; "Urban Planning & Real estate development, (2004); Taylor & Francis pub. U.K.

**MR 9213 URBAN DESIGN PRINCIPLES & RETROFITTING OF BUILDINGS / PROPERTIES [AND ADAPTIVE REUSE – METHODS & MECHANISMS] L T P C
3 0 0 3**

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 pr prolonging the life for longer time with consistency in price.

UNIT I INTRODUCTION TO URBAN DESIGN THEORY 6

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 10

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 10

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 10

Methods & mechanisms – Urban Renewal – Rehabilitation, Redevelopment & Conservation – Basic principles, values, conservation importance of sites, area, typology, techniques of conservation.

UNIT V CASE STUDIES 9

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

TOTAL: 45 PERIODS

TEXT BOOK

1. Jonathan Barnett, "Designing cities without designing building", (1982), Harper & Row, New York.
2. Edmond Bacon, "Design of cities", (1976), revised edition, Viking Penguin Inc; U.S.A.

REFERENCES:

1. Jon Lang, "Urban design" – a typology pf procedures & products 2005, Glsevier, North America.
2. Gcoffrey Broadbent, "Emerging concepts in Urban Space Design-(1995), Jayker & Fravels.
3. Cliff Monghtin, "UD-Street & Squace," (2003), Architectural Press.

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

Basic concepts of development of construction plans – Choice of Technology & Construction method - defining Work Tasks – Precedence relationships among activities – Estimating Activity Durations – Resource requirements for work – Coding Systems.

UNIT II SCHEDULING PROCEDURE & TECHNIQUES 12

Relevance of Construction Schedule – Critical Path method – Calculations for critical path Scheduling – Presenting Project Schedules – Activity Float. Critical Path scheduling for activity - on –node with leads. Lags & Windows – Calculations for scheduling with lags & windows – resource oriented Scheduling – scheduling with resource constraints and precedence – use of advanced scheduling techniques – scheduling with uncertain durations – calculations for Monte – Carlo Schedule Simulations – crashing and time-cost trade-offs – scheduling in poorly structured problems – improving the scheduling process.

UNIT III COST CONTROL MONITORING & ACCOUNTING 10

The cost control problem – the project Budget – Forecasting for activity cost control – Financial accounting systems and cost accounts – Control of project Cash Flows – Schedule control – Schedule & Budget Updates – Relating cost & Schedule information.

UNIT IV QUALITY CONTROL & SAFETY DURING CONSTRUCTION 7

Quality & Safety Concerns in construction – Organising for Quality & Safety – work and material specifications -Total quality control – quality control by statistical methods – statistical quality control by sampling and Variables – Safety.

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 BOOK:

1. John Rodger Illingworth, (2000), “Construction methods & Planning”, Taylor & Francis, U.K
2. Frank Harris, “Modern Construction management”, (2006), Blackwell publishing, U.S.A.

REFERENCES:

1. Jimmie W. Hinze, “Construction planning & scheduling” (1997), Pretince hall. USA.
2. Calin M Popescn, “Project Planning, Scheduling & Control in Construction (1995), John Wiley & Sons. USA.
3. James O’ Brien, “CPM in Construction Management” (2006) Mc.Graw hill, USA.

MR 9215	PROJECT – 1 CORPORATE DEVELOPMENT LAND DEVELOPMENT	L T P C 0 0 12 6
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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

MR 9221	REAL ESTATE FINANCE	L T P C 3 0 0 3
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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 BOOK

1. Terrence M Clauritie, “Real estate finance: Theory & practice”, (2005), Prentice hall, U.S.A
2. Steve Bergsman, “Maverick real estate financing”, (2006), John Wiley & Sonss Inc, New Jersey, U.S.A.

MR 9223

**MANAGEMENT INFORMATION SYSTEM
FOR REAL ESTATE BUSINESS**

**L T P C
3 0 0 3**

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 4

Information Systems – Establishing the framework – Business model – Information system architecture – Evolution of Information Systems

UNIT II SYSTEM DEVELOPMENT 9

Modern Information System – System development Life cycle – Structured Methodologies – Designing computer based methods – Procedures, control, designing structured programme – development of urban forms, Land use planning process, property development process.

UNIT III INFORMATION SYSTEMS 15

Integrated construction management Information System – Project Management Information System – Functional Areas – Finance, Marketing, Production – Personnel Levels – DSS, EIS, ES-Comparison, and Concepts & Knowledge Representation – Managing International Information System – Property & Facility Management – Management of different types of property developments – formulating management plan – Tools & Techniques in managing physical assets – corporate business plan.

UNIT IV IMPLEMENTATION & CONTROL 7

Control & testing - Detection of error – validating – Cost Benefit Analysis – Assessing the value & risk of Information System – Outsourcing – benchmarking.

UNIT V SYSTEM AUDIT 10

Software engineering qualities – Design –Production & Service – Software Specification – Software metrics – Software quality assurance – systems methodology – objectives – time & logic – Knowledge & Human Dimension – Software lifecycle models – Verification & Validation.

TOTAL: 45 PERIODS

TEXT BOOKS

1. Michael E Whiteman, "The handbook of Information systems research", (2004), Idea group Inc (IGI), U.S.A.
2. Hossein Bidgoli, "Intelligent Management support systems', (1998), Quorum, Greenwood. UK.

REFERENCES

1. Mark Rowh, "Careers in R.E, 2002, Mc – Graw hill professional, NT.
2. Peter Wyatt, "GIS in land & property management, 2003, Taylor & francis.
3. Jmaes. O' Brien, "M.I.S" (2008) Mc. Graw Hill , USA.

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

Valuation function – Role and functions of valuer – Scope – Value Theory – Process.

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

Discounting and compound interest – Income Estimation and forecasting – debt financing – capitalization and discount rates – tax considerations – introduction to mortgage equity analysis – financial residual techniques.

UNIT V ARBITRATION 10

Arbitration agreement – statement of defense – proceedings – Arbitral Body – Multi – party Arbitration – Independence of arbitrators – acceptance – forwarding act – procedural rules – disputes – settlements – arbitral award – Time Limit – Contents of award – Costs of Proceedings.

TOTAL: 45 PERIODS

TEXT BOOKS

1. "Valuation of Immovable properties" (Under Direct Taxes) edn(2002), Grish Chand Gupta, Bharath Law House, New Delhi-83.
2. "Law Relating to Arbitration and A.D.R, New Edn(2002), N.K. Acharya's Asia Law House, Hyderabad, India.

REFERENCES

1. Ko Wang, Real estate valuation theory, (2001) Kluwer Academic publishers, S. America.
2. Howard C Gelbtuch, "Real estate valuation in global markets", (1997), Appraisal institute.
3. Aswanth Damodaran, Investment Valuation (2002), John Wiley & Sons, UK.

MR 9225

**PROJECT – 2 MEGA PROJECT TOWNSHIP
LAND AND BUILDING**

**L T P C
0 0 16 8**

Large scale corporate, commercial & mixed use of development including issues involved in various stages of construction, financial implications and saleability.

TOTAL: 240 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

MR 9231

TURNKEY APPROACH TO CORPORATE COMMERCIAL & RESIDENTIAL DEVELOPMENT

**L T P C
3 0 0 3**

AIM:

To create a platform for encoring 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 know about the leverage the real estate could provide in the overall development process.

UNIT I

9

Real Estate Marketing & Negotiation – Fundamentals of Real Estate Marketing & Negotiation – concepts - Principles & Practices in marketing & testing of various types of real estate developments. Nature of real estate conflicts – disputes - negotiation theory - principles - skills - Practice & application of negotiation skills.

UNIT II

8

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

10

Real Estate Practice & Ethics – Exploring common business forms – development of real estate practices – legal - ethical duties of a real estate professional – strategic

planning – marketing professional services – professional liability – ethical theory – ethical issues in real estate business – expert witness in court testimonies.

UNIT IV **10**

Real Estate Investment – Skills to analyse a real estate investment problem – real estate investment objectives – leasing structure – property income analysis – characteristics of real estate returns and risks – financial leverage – after tax returns – diversification – equity versus debt investment – analysis of real estate asset – portfolio performance – real estate equity investment strategies.

UNIT V **8**

Turnkey Approach – System - contractual actions – testing - training – logistical - operational support – procurement process – management contract –licensing

TOTAL: 45 PERIODS

TEXT BOOKS:

1. David M Geltener - Commercial Real estate Analysis & Investments (2000), South western Educational Publication.
2. CT. Walker, “Privatised infrastructure: The Build, Operate, Transfer approach”, (1995), Thomas Telford, Publishing, Westminster, London..

REFERENCES

1. JW Rully, “The language of Real estate, “, (2000), Dearborn Real estate education, Chicago.
2. Mathew S Chan, Real estate partnership & alliance, Ascend beyond Publishing, Columbus, USA.
3. Robert Alan Corporate Real estate Development (1976), Rowan & Littlefield Publication.

MR 9232

CONSTRUCTION PROJECT MANAGEMENT

L T P C
3 0 0 3

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.
- Coperationalising the design and construction through scheduling the construction activity.
- Be clear about cost control methods and their implication in reality market.

UNIT I **9**

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 **9**
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 **9**
The design and construction process – design and construction as an integrated system – innovation and technological feasibility – design methodology – functional design – physical structure – geotechnical engineering – investigation – construction site environment – value engineering – construction planning – Industrialized construction and Prefabrication – Computer aided engineering.

UNIT IV **9**
Labour, Material and Equipment Utilization – Historical perspective – Labour production – factors affecting job site – Productivity – Labour relations in construction – Problems in collective bargaining – Materials management – Materials procurement and delivery Inventory control – Tradeoffs of cost in material management – Construction Equipment – Choice of Equipment – Standard production rates – Construction Processes – Queues and Resource Bottlenecks.

UNIT V **9**
Cost Estimation – Costs associated with construction facilities – Approaches to cost estimation – Type of construction – Cost estimates – Effect of scale on construction cost – Unit cost – Method of Estimation – Methods for allocation of Joint costs – Historical cost data – Cost indices – Applications of Cost Indices to estimating – Estimate based on Engineers List of Quantities – Allocation of Construction costs over time – Computer aided Cost estimation - Estimation of Operating costs.

TOTAL: 45 PERIODS

TEXT BOOKS:

1. Frank Haris, Modern Construction Management (1988), Vlackwell Publications, U.K.
2. Richard H Clough Construction Project Management (2000), John Wiley & Sons, U.S

REFERENCES

1. Denny Mc George & Angela Palmer, “Construction Management”, (2002), 2nd ed. Blackwell science, Oxford.
2. P.K. Joy Construction Management (2005) Macmillan, New Delhi.
3. B. Sengupta & H Guha Construction management and Planning (1995), Mc Graw Hill publishing company ltd, New Delhi.

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**9**

Construction Contracts – Indian Contracts Act – Elements of Contracts – Types of Contracts – Features – Suitability – Design of Contract Documents- International Contract document - Standard Contract Document – Law of Torts.

UNIT II**9**

Tenders – Prequalification – Bidding – Accepting – Evaluation of Tender Form – Technical – Contractual – Commercial points of View – Contract Formation and Interpretation – Potential Contractual Problems – World Bank Procedures and Guidelines

UNIT III**9**

Arbitration – Comparison of actions and laws – Agreements – Subject Matter - Violations – Appointment of Arbitrators - Conditions of Arbitration – Powers and Duties of Arbitrator – Rules of Evidence – Endorsement of Award – Costs.

UNIT IV**9**

Legal Requirements – Insurance and Bonding – Laws governing sale- Purchases and use of Urban and Rural land – Land revenue codes- Tax Laws – Income tax – Sales tax – Excise and customs duties and their influence on construction –costs – Legal Requirements of Planning – Property Law – Agency Law – Local Government laws for Approval – Statutory Regulations

UNIT V**9**

Labour Regulations – Social Security – Welfare Legislation – Laws relating to wages – Bonus and Industrial disputes – Labour Administration – Insurance and safety Regulations – Workmen’s Compensation A ct – Other Labour Laws.

TOTAL: 45 PERIODS**TEXT BOOKS:**

1. Barlow Burke, “Law of R.E brokers”, 1992, Aspen Publications.
2. James Karp, RE law, 2003, Dearborn Real estate education.

REFERENCES:

1. Catherine Elliioth, Contract Law (2003) Longmen Publications.
2. Richard Willmot Constructions Contracts – Law & Practice (2006), Oxford University Press, U.S.A.
3. Daniel F Hinkel, “Practical R Elano”, 2003, Thomas Delimar Learning.

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**9**

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**6**

Pre – Implementation Planning Phase – Work breakdown structure – network analysis – CPM, PERT, resource leveling and allocation, time – cost trade –off aspects.

UNIT III**9**

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

UNIT IV**12**

Project Management – Planning & Control, Human Aspects – Development of project networking- critical path, PERT & CPM, Project organization, contracting, Procurement and recruitment Budget,, Fund flow statement, stabilization & finish. Organisation of project , matrix organization, task forces, project teams, monitor & control of project, Project management strategies, tools & techniques, Classical persuasive & non-persuasive techniques. New techniques of management by Objectives (MBO). Integrated reporting system, flow diagrams, bar charts, milestone charts, CPM & PERT.LOB... Techniques of monitoring of development works – standard oriented cost control, turn key system, vertical production method, inventory cost control techniques & unified status, index techniques. Project monitoring – Management Information Systems, Environmental care, Safety.

UNIT V**9**

Project Appraisal Techniques –Technical, Financial, Organisational criteria. Appraisal Criteria (NPV/B/C. Ratio / I.R.R – Financial Analysis –Capital Costs, Financial plans, Operation costs, Projections of costs & revenues, Financial Viability, Debt servicing, Tariff & Revenues, Income & Expenditure Statements, Project balance sheets, Rate of returns. Special Cost benefit Analysis – Rationale for SCBA, UNIDO Approach.

TOTAL: 45 PERIODS**TEXT BOOKS:**

1. GE Greer, "Investment analysis for R E decision", (2003), Dearborn R E education.
2. K.Lyons, Impact assessment & project appraisal, (2001), Beach tree publishing, England.

REFERENCES

1. UNIDO (1972) "Guidelines for project evaluation", UN, New York.
2. N. Imboden, A Management appraisal to Project Appraisal & Evaluation (1978), Development centre, Paris.
3. Punekar S.D, Aspects of evaluation & Project Appraisal, Popular Prakashan Pvt. Ltd.

MR 9235

PROJECT – 3

L T P C
0 0 16 8

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

TOTAL: 240 PERIODS

MR 9236

DISSERTATION

L T P C
0 0 6 3

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

MR 9241

THESIS

L T P C
0 0 16 8

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

MR 9242 SEMINAR / WORKSHOP ON SELECTED THEME L T P C
FOR EACH SCHOLAR 0 0 2 1

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 9

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 9

Planning for communication – Telecommunication – cable T.V., -Wireless – digital – inter and intranet facilities – outline of transportation and networking in urban areas.

UNIT III 9

Planning for Social Infrastructure – Health – Education – Religion – Recreation – Cultural – Planning standards – spatial standards – Hierarchy of provisions – Types of Units and scales - Critical issues in Public and private development – ownership – management and maintenance

UNIT IV 9

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 9

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

2. PRINCIPLES OF INSURANCE AND LOSS ASSESSMENT

UNIT I 10

Introduction to Financial Planning – Communication and Internal Analysis

UNIT II 12

Risk – The problem of risk – Introduction to risk management – Risk management application – managing personal and property based risks - Risk assessment: rating and underwriting.

UNIT III 10

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

UNIT IV 7

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

UNIT V 6

Legal principles of contracts: insurance contracts

3. ADVANCED CONSTRUCTION TECHNIQUES

UNIT I

12

Substructure Construction – Box Jacking – Pipe Jacking – Underwater Construction – Construction of Diaphragm walls and basement – Tunneling techniques – piling techniques – driving well and caisson – sinking cofferdam – cable anchoring and grouting – driving diaphragm – sheet piles – laying operations for built – up offshore system – shoring for deep cutting – large reservoir construction with membranes and earth system – well points – dewatering and stand by plant equipment for underground open excavation

UNIT II

9

Superstructure Construction – Vacuum dewatering of concrete flooring – concrete paving technology – techniques of construction – for continuous concreting operation – in tall buildings – of various shapes – and varying sections – launching techniques – suspended formwork

UNIT III

9

Erection techniques of tall structures – large span structures – launching techniques for heavy decks – in situ pre - stressing in high rise structures – aerial transporting – handling – erecting light weight components on tall structures – erection of lattice towers - rigging of transmission line structures – construction sequences in cooling towers – silos – chimneys – skyscrapers – bow string bridges – cable stayed bridges

UNIT IV

9

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

6

Repair Construction – Mud Jacking grout thro' slab foundation – micro piling for strengthening floor and shallow profile - pipeline laying – protecting sheet piles – screw anchors – sub grade waterproofing – advanced techniques and sequence in demolition and dismantling.

LIST OF ELECTIVES

SEMESTER – I

MR 9251	ELEMENTS OF SOCIOLOGY & ECONOMICS	L T P C
		3 0 0 3

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 10

Basic concepts in the study of the society – ethnic groups – social groups – social institutions – social stratification - order and change – social control - Effects of physical environment on behavior. Sociology of India – Basic features of the Indian Society and culture – language, religion, caste and tribes. Social problems of the urban community – crime, delinquency and violence.

UNIT II URBAN AND RURAL VARIATION 6

Rural community and relationship with the urban community. Neighbourhood concepts – implications & limitations in the Indian context.

UNIT III URBAN AND INDUSTRIAL SOCIOLOGY 9

Urbanisation and its social aspects – rural – urban migration, Concept of industrial society, social aspects of industrialization.

UNIT IV DEFINITION & SCOPE OF ECONOMICS 10

Central problems of economics, micro and macro economic decisions. Production – theory, factors and the scale of production. Internal – external economics – division of labour, Theory of demand – supply – market mechanism – imperfection of competition.

UNIT V ECONOMIC DEVELOPMENT & ROLE OF THE GOVERNMENT 10

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 BOOK

1. Jens Beckert, "International Encyclopedia of economic sociology", (2006), Routledge, Oxford, U.K.
2. Raghendra Jha, "Modern Public Economics", (1997), Routledge, Oxford, U.K.

REFERENCES

1. C.N. Shankar Rao - Sociology – An Introduction to Social Thought (2002). Chand & Co. New Delhi
2. Introduction to Sociology, Kitab Mahal New Delhi, Vidya Bhusan & D.R.Sachadew (2005).
3. K.K DEWETT, Modern Economic Theory (2002), Shyamal Charitable Trust, New Delhi.

MR 9252

DEVELOPMENTAL ECONOMICS

L T P C
3 0 0 3

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

Population and Development - Employment, Migration, and Urbanization - Education, Training, and Human Capital - Capital Formation, Investment Choice, Information Technology, and Technical Progress - Entrepreneurship, Organization, and Innovation - Natural Resources and the Environment: Toward Sustainable Development.

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 BOOK

1. James M Cypher, "The Process of economic development", (2004), Routledge, U.K.
2. David Boyce Hamilton, "Evolutionary economics a study of change in economic thought", (1991), Transaction publishers, U.S.

REFERENCES

1. Hollis Burnley, T.N. Srinivasan & Jere. R. Behrman, "Handbook of development economics, (1995), Elsevier, Amsterdam.
2. Gerald. M. Merier & Joseph M. Stiglitz, "Frontiers of development economics", 2001, Oxford University press, New York.
3. John.F. Mc Donald & Daniel P. Mc Millen, "Urban economics & real estate – Theory & Policy", (2007) – Blackwell Publishing, U.K.

SEMESTER – II

MR 9253	SERVICE IN HIGH RISE BUILDING DEVELOPMENT	L	T	P	C
		3	0	0	3
UNIT I	INTRODUCTION				6
	Standards of high rise buildings – aspects and integration of services – relative costs – Concepts of intelligent architecture and building automation.				
UNIT II	WATER COLLECTION SYSTEMS				10
	Water storage and distribution – planning and design – selection of pumps – rainwater harvesting – sewage collection systems – recycling of water – solid waste disposal.				
UNIT III	HVAC, ELECTRICAL AND MECHANICAL SYSTEMS				10
	Natural and Mechanical ventilation systems – Air Conditioning – load estimation – planning and design – energy efficiency – automation – elevators – system – services – escalators – services – safety aspects.				
UNIT IV	SAFETY AND SECURITY				9
	Access – control – perimeter protection – CCTV -intruder alarms – passive fire safety – detection and alarm – planning and design – codes –NBC.				
UNIT V	CASE STUDIES				10
	Case based learning - High rise buildings and skyscrapers thro' appropriate examples.				

TOTAL: 45 PERIODS

TEXT BOOKS

1. H. Vishwanath, "Multipurpose high – rise towers & tall buildings", (1998), Taylor & Francis, U.K.
2. Eisele, Johann, "High rise manual", (2003), Birkhavser.

MR 9254	HERITAGE PROPERTIES AND CONSERVATION PRACTICES	L T P C
		3 0 0 3

UNIT I INTRODUCTION TO HERITAGE AND CONSERVATION 7

Understanding heritage – heritage conservation – need – debate and purpose – defining conservation – preservation and adaptive reuse – International agencies – ICCROM, UNESCO and their role

UNIT II CONSERVATION IN INDIA 8

Museum – monument conservation – role of ASI – INTACH – Central and State Govt. – Policies – legislations – inventories – Projects – selected case studies – conservation project management

UNIT III CONSERVATION PRACTICE 12

Listing of monuments – documentation of historic structures – assessing character – report-guidelines for conservation – seismic retrofit – disabled access – historic site management.

UNIT IV URBAN CONSERVATION 10

Understanding the character, history of cities and historical sites – select case studies – 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

1. Gerald Glenn, "Presentation & Rehabilitation", (1996), ASTM International.
2. A History of Architectural Conservation, (1st Pub.1999, Reprint 2005) – Elsevier Butterworth, Oxford, UK.

MR 9255	ENVIRONMENTAL IMPACT ASSESSMENT TECHNIQUES	L T P C
		3 0 0 3

UNIT I INTRODUCTION 6

EIA – Environmental Impact Assessment – EIS - – Environmental Impact Statement – Environmental Risk Assessment (ERA) – Legal and regulatory aspects – types and limitations – terms of reference – issues – national – cross-sectional – social and cultural in EIA.

UNIT II COMPONENTS AND METHODS 12

Components – screening – setting – analysis- prediction of impacts – mitigation. Matrices – networks – checklists – important assessment techniques – cost benefit analysis – analysis of alternatives – methods of prediction and assessment of impacts – air – water – soil – noise – biological –social –cultural – standards and guidelines for evaluation – public participation in environmental decision making.

REFERENCES:

1. Richard T.T. Forman & Michel Godron, Landscape Ecology, John Wiley & Sons; 1986
2. Tom Turner, Landscape Planning and Environmental Impact Design, UCL Press, London, 1998.
3. Ervin H. Zube, Robert O Brush, Julios G.Y. Fabos, Landscape assessment – values, perceptions, 1975.
4. G. Tyler Miller Jr., Living in the Environment: Principles, Connections, and Solutions, Brooks / Cole publishers co., 2004.
5. William M. Marsh, Landscape planning – Environmental Application, John Wiley and sons Inc., 1997.

MR 9257	CAPITAL MARKETS & REAL ESTATE	L T P C
		3 0 0 3
UNIT I		9
Globalization of capital markets – impact on real estate finance and investment – institutional investors – portfolio investment		
UNIT II		9
Capital theory and trade-offs over time – financial markets and economic efficiency – discounting – present value – compound interest arithmetic		
UNIT III		9
Financial Markets – Investment strategies – market hypothesis – innovations – Tobin’s Q – Portfolio selection. Investment Criteria – Present value – internal rate of return		
UNIT IV		9
Capital asset pricing theory – Asset allocation strategies – risk diversification – multi asset portfolios – benefits of capital market integration		
UNIT V		9
Development of real estate investment trusts (REIT) industry – development of market for real estate debt securities.		
		TOTAL: 45 PERIODS

MR 9258	PERFORMANCE EVALUATION OF BUILDINGS	L T P C
		3 0 0 3
UNIT I		10
Simulations and Design of Buildings – Principles of modeling and simulation – classification and validation of simulation models – analysis of input data and outputs – object oriented simulation (OSS) – Simulation languages – application of discrete event simulation in construction operations.		

UNIT II **10**
Thermal Building Simulation – Models – heat and mass transfer – radiative and convective heat transfer – application to equipment – based modeling of HVAC systems – validation of computer models

UNIT III **15**
Performance of Building Envelope – Modeling of dynamic building envelope thermal performance – thermal bridges – advanced glazing and evaluation of window performance – building envelope components for heat and moisture control – techniques for performance evaluation of the building envelope

UNIT IV **10**
Energy Management in buildings – Energy related standards – codes – by laws – methods of assessment – energy performance – conventional – innovative measurement – analysis techniques – energy oriented techniques – replacement of building subsystems – prediction of energy – cost savings – software packages – verification of compliance with standards – life cycle analysis.

TOTAL: 45 PERIODS

REQUIRED READING:

1. Energy Audit of Building Systems – Moneef Krarti (Ph.D) – CRC Press 2000
2. Clarke, J.A., “Energy simulation in building design”, Adam Hilger Ltd, Bristol, 1985
3. ESRU, “ESP-r A Building Energy Simulation Environment; User Guide Version 9 Series. “ESRU Manual U 96/1, University of Strathclyde, Energy Systems Research Unit, Glasgow, 1996.
4. Kabele, K., “Modelling and analyses of passive solar systems with computer simulation”, in Proc. Renewable energy sources, PP. 39 – 44, Czech Society for Energetics Kromeriz 1998 (in Czech)

Schedule institutional visit to the applying Institution. Submit an affiliation report to the Vice-Chancellor. Request for a letter of affiliation for the applying institution if the Committee's report is favourable. Colleges/Institutions which presently hold affiliation with the University of Cape Coast are as follows: Name of Institution. Synergies Institute-Ghana. Affiliated since 2018. Website. info@synergies.edu.gh. Programme Affiliated. Marketing and Corporate Strategy, Accounting with Computing. Affiliated institution. Quite the same Wikipedia. Just better. In Japan, an affiliated institution (shisetsu kikan, literally, an institution etc. organization), also called a facility, is a collective term for organizations such as test and research agencies or training schools that are under the controls of the Cabinet Office or other governmental organizations established due to Article 3 Clause 2 of the National Government Organization. Certificate Request. Administrative Department/ Institution. Administrative departments. Affiliated Institutions. Undergraduate, graduate school affiliated institutions. Affiliated educational Institutions. Affiliated Institutions. Yonsei University Church. Luce Chapel 02-2123-7360~1. Worship- Sunday Worship, University-Youth Worship, Wednesday Pray Worship. Programs- Sunday Bible Study, Choir, Bible School, Studies for Baptism. Friendship- Sunday Tea time, age group missionary, summer conference. Kyambogo university extensions and affiliated institutions division an update of affiliated institutions as at 16/08/2018. Institutions offering grade III teachers certificate in primary teacher education extensions (gov't owned institutions). S/No. Institution. Ownership. Location. Define Affiliated Institution. means with respect to any Indemnified Person, any investment fund, institutional investor or other financial intermediary with which such Indemnified Person is Affiliated or of which such Indemnified Person is a member, partner or employee. Affiliated Institution means with respect to any Indemnified Person, any investment fund, institutional investor or other financial intermediary with which such Indemnified