OUTCOME/OUTPUT:

(a) Study of an Urban Context/ Precinct compiled and presented as drawings, models and report explaining the intent and inferences from the study undertaken (25% grade)

(b) Detailed and resolved Architectural Design Project with analog or digital drawings and models explaining the various iterations and final design (75% grade)

Note:

(a) The design shall be sensitive to the needs of differently abled, aged people and children.
(b) One major project and one minor/ time problem to be tackled in semester.
(c) Detailing of public space and selected architectural features of the major project like entrance lobby, skylights and staircases shall be attempted.

REFERENCES:

(a) Donald Watson , "Time Savers Standard for Urban Design", 2005, McGraw Hill.
(b) Jon Lang , "Urban Design: A Typology of Procedures and Product", 2005, Routledge.
(c) Edmund Bacon , "Design of Cities", 1976, Penguin Books.
(d) Gosling and Maitland , "Urban Design", 1984, St. Martin's Press.
(e) Kevin Lynch , "Site Planning", 1967, MIT Press, Cambridge.

15ARC 8.2 – MATERIALS AND METHODS IN BUILDING CONSTRUCTION VIII

CONTACT PERIODS: 6 (1 Lecture + 5 Studio) per week
THEORY MARKS : 100
PROGRESSIVE MARKS : 50
DURATION OF EXAM - 4 Hrs

OBJECTIVE: *To study contemporary building construction systems, as an integrative discipline, connecting across various technology areas impacting the construction industry. The focus to be on methods, materials and technology prevailing in the industry, with case study examples.*

OUTLINE:

MODULE - 1

Innovations in Construction industry:

1. New directions in Construction Industry: Impact of Automation, Information, Prefabrication, Modular Construction, New Materials, Equipment and Environmental concerns on Building Construction.

2. Special Constructions: Under water constructions, underground constructions, kinetic constructions

High Rise Buildings:

3. Form work in High-rise buildings: Issues and Constraints. Materials used; some examples like Maivan, Doka. PERI

4. Enclosure Systems: Types, properties and materials

5. Special and Light Weight materials, eg. Concretes, plastics

MODULE - 2

Technology integration:

Influence of Informatics in construction Industry: Big Data, Cloud Collaboration, Information Management, Modeling, Simulation, 3D Printing
Construction Equipment: New advances in Construction Equipment

MODULE - 3

Retrofit and Repairs:

Life Cycle concept of buildings and materials.
Repairs: Types of damage to buildings; Types of Repairs used
Retrofit: Reuse of buildings, Renovations

MODULE - 4

Green Building Concepts:

Green Building Concepts, Construction, Materials
Zero Energy building Concepts

MODULE - 5

High Performance Materials:

Smart Materials: Properties of Smart Materials, Applications in Building Industry
Nano Materials: Introduction to Nano technology in building materials, Applications in Building Industry

REFERENCES:

1. Andrew Watts, "Modern Construction Handbook", : 4th Edition
2. Andrew Watts, "Modern Construction Case Studies: Emerging Innovation in Building Techniques", Birkhauser Basel.

15ARC 8.3 – THESIS SEMINAR

CONTACT PERIODS: 3 (Lecture) per week
PROGRESSIVE MARKS : 50

INTRODUCTION/OVERVIEW:

The Thesis Seminar course is designed to discover, frame and develop a Proposal for 15ARC91 Architectural Design Project (attempted in the X Semester). The objective of the Thesis Seminar is to expand the scope and focus of the student by introducing diverse topics in architecture (allied disciplines) and to nurture design/research projects that can make creative and technically competent contributions to the field of architecture. Every undergraduate student is required to undertake Thesis Seminar during their penultimate year.

The intent of the Thesis Seminar is to encourage new ideas/ research avenues/ design experimentation in architecture (allied disciplines); to provide a larger framework (structure) within which systematic research on a chosen topic can be undertaken; to develop a proposition, narrative and methodology for the chosen topic which can be tested through design in X Semester.
The Thesis Proposals can be developed from important issues on architecture (inter-disciplinary), hypothetical scenarios connected with architecture (theoretical premise) or live/ current projects proposed by government or other organizations.

OBJECTIVES:

(a) To outline the larger focus and relevance of the Thesis topic (design/research), its architectural implications and projected design results.
(b) Alternatively to conceptually formulate an architectural proposition, explore and articulate ideas through research and critically evaluate the feasibility of the Thesis Proposal. This includes determining the Project, context where it shall be explored and its significance to architecture.
(c) To encourage students to pose relevant questions on the discipline (theoretical/design); to undertake self- directed study with inquisitiveness, rigor and demonstrate a depth of inquiry in exploring the chosen topics.
(d) To focus on innovation, experimentation (theoretical premise/ tectonics/modes of representation/other) as some of the learning outcomes and draw inspiration/build on the various Electives/ Design Studios proposed/taken through the undergraduate Program

OUTLINE/ DESCRIPTION:

The Thesis Seminar can be conducted as a combination of interactive workshops, presentations/ seminar, key lectures and focused discussions with individual students on chosen topics. Each topic should be studied using extensive literature reviews including readings in relevant critical theoretical/ philosophical premise; case studies (site visits); focused meetings with external subject/ topic experts and design research methods. The Thesis Seminar should be seen as an opportunity to engage with a topic/ question on the discipline architecture through reading, writing, drawing, diagramming and modelling ideas.

The role of the Tutors / Thesis advisors is to introduce the students to issues relevant to architecture (allied disciplines), significant design research methodologies and discuss the new research directions

in the discipline through readings, exercises and workshops. The Tutor/ Thesis advisors shall also critique student ideas/ research and help formulate/ shape a design/ research method. The dedicated discussion sessions on each topic should clarify the intent, type of project, location, scope and limitations.

OUTCOME:

The final outcome shall include a formal submission of

(a) Written Synopsis (key ideas on the topic including premise, description/ justification and conclusion) and Thesis Proposal Document (booklet) clearly highlighting/explaining the Project type; architectural Proposition/ Premise; Site/ Location; Scope and Limitations; Program (includes basic documentation with drawings, images or photographs of context, case studies, citations to various sources)
(b) Portfolio of presentations, critical readings, drawings/ models produced by the student on the chosen topic (urban issue/ conservation/ sustainability/ digital architecture/ other)

The grading shall consider the participation and depth of inquiry presented by each student and the various submissions/ reviews on each topic organized through the term.

Note:

a) The students are encouraged to continually read, discuss, clarify further and engage with their chosen topics through IX Semester (Professional Training)
b) Professional Training in the IX Semester should be seen as an opportunity to bring in new learning from the field/ industry into the chosen topic and be applied during designing and detailing in the Architectural Design Project in the X Semester.

SUGGESTED REFERENCES:

- All references will be project specific and will include a wide range of subjects (history, theory and criticism; services; material and construction) from architecture and allied fields addressed through critical papers, essays, documented studies and books.
- Linda Grant and David Wang, Architectural Research Methods, John Wiley Sons, 2002
- Iain Borden and Katerina Rüedi, The Dissertation, Architectural Press, 2000

15ARC 8.4 – PROFESSIONAL PRACTICE II

CONTACT PERIODS : 3 (Lecture) per week
PROGRESSIVE MARKS : 50
DURATION OF EXAM: 3 Hrs
THEORY MARKS : 100

OBJECTIVES: *To understand the Professional responsibilities within the ambit of the laws of the land, building codes, contract documents and ethics.*

OUTLINE:

MODULE 1

1. Arbitration: Arbitration and conciliation; arbitrator, umpire, order of reference, selection of arbitrators, powers and duties of arbitrators, arbitration award and implementation of award.

MODULE 2

2. Valuation and Dilapidation: Definitions and architect's role in preparation of valuation and dilapidation reports and certifications; Physical and Economic life of buildings.

Introduction to Valuation, essential characteristics, classifications and purpose of classifications. Methods of valuation, standard rent and cost of construction.

MODULE 3

3. Building Industry: General overview of the industry; various participants and dimensions of building industry.

Finance, statutory controls, construction procedures, enforcement issues related to building industry and the role of architect, employer, and contractor.

Types of insurance necessary during contract; fire insurance

MODULE 4

4. Easements: easement rights, architect's role in protecting easement rights.

Laws related to Property and Land: Land tenure, types of land holdings, land registration, easement rights, covenants, trespass and nuisance etc.

MODULE 5

5. General Law: Understanding of common law, statute law, equity, criminal law, civil law etc., Role of courts in dispensing various types of cases.

Overview of recent Bills and Acts: Real Estate (Regulation and Development) Act 2016; Land Acquisition, Rehabilitation and Resettlement Act 2013; Consumer Protection Act.

REFERENCES:

1. Namavathi, Roshan, Professional Practice for Architects and Engineers, Lakhani Book, New Delhi, 2001
2. Krishnamurthy K G and Ravindra S V, Professional Practice, S V Ravindra, 2009, Bangalore

15ENG 8.5– CONSTITUTIONAL LAW

CONTACT PERIODS : 3 (Lecture) per week
PROGRESSIVE MARKS : 50

COURSE OBJECTIVES:

1. *To educate students about the Supreme Law of the Land.*
2. *To create an awareness about Civil Liberties.*
3. *To raise awareness and consciousness of the issues related to the profession and discuss the issue of liability of risks and safety at work place.*

MODULE-1

Framing of the Indian constitution: Role of the Constituent Assembly - Preamble
And Salient features of the Constitution of India, Fundamental Rights and its limitations.
Fundamental Duties and their significance.

MODULE -2

Directive Principles of State Policy: Importance and its relevance.
Special Constitutional Provisions for Schedule Castes, Schedule Tribes & Other Backward Classes.
Constitutional provisions for safety and protection of rights of women and children in society and at workplaces.

MODULE -3

The Union Executive – The President and The Vice President, The Prime Minister and the Council of Ministers. The Union Parliament – LokSabha & RajyaSabha.
State Executive – The Governors, The Chief Ministers and The Council of Ministers. The State Legislature – Legislative Assembly and Legislative Council. State High Courts.
Functioning of Judiciary in India.

MODULE -4

Election Commission of India – Powers & Functions – Electoral Process in India.
Methods of Constitutional Amendments and their Limitations.
Important Constitutional Amendments.

MODULE -5

Definition of ethics, Professional ethics as laid down by Council of Architecture, RIBA, Indian Institute of Architects, Institution of Engineers & Valuers etc.

TEXT BOOKS:

1. Merunandan K.B. and B.R. Venkatesh, "An Introduction to Constitution of India and Professional Ethics" , Meragu Publications, 3rd edition, 2011.
2. Phaneesh K. R. , "Constitution of India and Professional Ethics", Sudha Publications, 7th edition, 2014.

REFERENCES:

1. Pylee M. V. , "An Introduction to Constitution of India" , Vikas Publishing, 2002.
2. Martin, W. Mike., Schinzinger, Roland, "Ethics in Engineering" McGraw-Hill, New York 10020, fourth edition, 2005.
3. Ghai K .K. &. RoohiMakol E R , "Constitution of India and Professional Ethics", Kalyani Publishers.1stedition, 2009.

E-BOOK:

1. https://books.google.co.in/books/about/Constitution_of_India_and_Professional_ E.ht ml?id=VcvuVt-d88QC
G.B. Reddy and MohdSuhaib, I.K , "Constitution of India and Professional Ethics", International Publishing House Pvt. Ltd., 2006.

2. http://www.scribd.com/doc/82372282/Indian-Constitution-M-Raja-Ram-2009# scribd
M. Raja Ram , "Indian Constitution", New Age International Pvt. Limited, 2009.

15ARC 8.6 – PROJECT AND CONSTRUCTION MANAGEMENT

CONTACT PERIODS : 3 (Lecture) per week
PROGRESSIVE MARKS : 50
DURATION OF EXAM: 3 Hrs
THEORY MARKS : 100

OBJECTIVE: *To enhance the professional ability of the student to manage a construction project by exposing the students to the currently prevalent techniques in the planning, programming and management of a construction project.*

OUTLINE:

MODULE 1
(Introduction to Construction Project Management & Construction Organization)

1. **Introduction to Project, its Stages and Construction Project management**: Project, Organisation, need for management of building/construction projects, Principles and Objectives of Project Management, brief understanding about study areas in Project Management. Types of Construction Projects, Life Cycle Stages of a Project (Construction Project).

2. **Construction Organisation**: Types of construction firms/ companies. Types of organization, study of organizational structures suitable for building and construction projects, the roles of the various members of a typical construction organization, qualities of an ideal construction organization, ethics in construction industry.

MODULE 2
(Decision Making & Role of Project Managers)

3. **Decision making and Feasibility Study**: Involvement and Roles of Consultants and Contractor in decision making at various stages. Basic understanding of decision making principles and tools (e.g. Decision Tree, SWOT Analysis, Cost-Benefit Analysis), Value Engineering, Investment Criteria, Project Feasibility Study.
   Computer applications in Project Management: Introduction to use of computers for solving inventory, scheduling and other issues related to construction and management.

4. **Roles of Project Manager:** Roles & Responsibilities of Project/ Construction Managers,
   Scope Management in Construction: Scope Planning, Definition, Verification and Control
   Project Management Stages: Project planning, project scheduling and project controlling.

MODULE 3
(Construction Management Techniques: Project Planning & Scheduling)

5. **Time, Cost and Resource Management in Construction:** Activity definition, Activity Sequencing, Estimation of Resource Requirements, Time & Cost for an Activity, Schedule Development, Budgeting, Schedule control, Cost Control.
   Construction Management Techniques: Project Planning – Work Breakdown Structure;

6. **Construction Management Techniques: Project Scheduling** – Bar Chart, Milestone Chart, Network Theories (CPM and PERT analysis) - Event, activity, dummy, network rules, graphical guidelines for network, numbering of events;
   Project Cost analysis (Indirect project cost, direct project cost, slope of the direct cost curve, total project cost) & brief understanding of about time, cost and resource optimization; Project Crashing (using CPM).

MODULE 4
(Construction Management Techniques: Project Monitoring and Control)

7. **Construction Management Techniques: Project Monitoring and Control** – Role of the project manager in monitoring the specifications, Follow-up for quality control, the measurement book (MB), RA bills, interim and final checking and certification of works on site based on the BOQ and terms of contracts. Project updating, Progress Curves.

8. **Quality Management in Construction:** Quality Planning and Quality Control. Technical Specifications and Procedures. Codes and Standards.
   Construction Health and safety and management: Safety Measures and management: Integrating workers' Health and Safety into management.

MODULE 5
(Use of Construction Equipment)

9. **Construction Equipment**: The role of equipment/machinery in construction industry, factors affecting selection of construction machinery, standard versus special equipment, and understanding of the various issues involved in owning, operating and maintaining of construction equipment, economic life of equipment.

10. **Types of Construction Equipment:** earth moving (JVB, tractors, excavators, dragline, trenching equipment, etc.,) transporting (various types of trucks), spreading and compacting (motor graders and various types of rollers) and concreting equipment (including concrete mixers, transporting and pumping equipment), hoisting machines, form work, shoring material etc.

REFERENCES:

‘

1) Dr. B.C.Punmia et al. "*Project planning and control with PERT and CPM", Laxmi Publications*, New Delhi
2) S.P.Mukhopadyay, "*Project management for Architects' and civil Engineers*", IIT, Kharagpur, 1974
3) Jerome D.Wiest and Ferdinand K.Levy, *"A Management Guide to PERT/ CPM"*, prentice Hall of India Pub, Ltd.,New Delhi, 1982
4) R.A. Burgess and G.White, *"Building production and project Management"*, The construction press, London,1979.
5) A Guide to Project Management Body of Knowledge; 5th ed. – An American national standard – ANSI/PMI 99 – 001-2004
6) Krishnamurthy K. G., Ravindra S. V., *"Construction and Project management for Engineers, architects, planners and Builders",* CBS Publishers
7) Codes and standards –
   - NBC 2016 – Part 7
   - IS 3696 Safety code for scaffolds and ladders:

  - (Part 1) : 1987 Scaffolds
  - (Part 2) : 1991 Ladders
- IS 3764 : 1992 Code of practice for excavation work (first revision)
- IS 4082 : 1996 Recommendations on stacking and storage of construction materials and components atsite (second revision)
- IS 4130 : 1991 Safety code for demolition of buildings (second revision)
- IS 4912 : 1978 Safety requirements for floor and wall openings, railing and toe boards (first revision)
- IS 5121 : 2013 Code of safety for piling and other deep foundations (first revision)
- IS 5916 : 2013 Safety code for construction involving use of hot bituminous materials (first revision)
- IS 7205 : 1974 Safety code for erection of structural steel work
- IS 7969 : 1975 Safety code for handling and storage of building materials
- IS 8989 : 1978 Safety code for erection of concrete framed structures
- IS 13415 : 1992 Safety code for protective barrier in and around buildings
- IS 13416 Recommendations for preventive measures against hazards at work places:
  - (Part 1) : 1992 Falling material hazards prevention
  - (Part 2) : 1992 Fall prevention
  - (Part 3) : 1994 Disposal of debris
  - (Part 4) : 1994 Timber structures
  - (Part 5) : 1994 Fire protection
- IS 13430 : 1992 Code of practice for safety during additional construction and alteration to existing buildings
- IS 15883 (Part 1) : Guidelines for construction project management: Part 1 General2009
- IS 16601 : 2016 Guidelines for habitat and welfare requirements for construction workers

15ARC 8.7 – URBAN PLANNING

CONTACT PERIODS : 3 (Lecture) per week
PROGRESSIVE MARKS : 50
DURATION OF EXAM: 3 Hrs
THEORY MARKS : 100

OBJECTIVE: *To familiarize students with the origins and basic concepts of urban planning.*

OUTLINE:

MODULE 1

1. Evolution, origins and growth of settlements:- Characteristics of Rural and Urban settlements; Urban form based on different determinants – Natural (climate, topography, resources, geography) and Man-made (cultural, economic, religious, administrative, political).

2. Planning efforts and impacts on historical cities - Ancient civilizations (Mesopotamia, China, Egypt, Indus Valley, Mayan); Classical cities (Greek, Roman, Medieval, Neoclassical, Renaissance, Baroque, City Beautiful); Indian cities – (Vedic/Indo-Aryan, Colonial, Dravidian, Mughal).

MODULE 2

3. City Planning in Post-Industrial Revolution Era: - Responses to impacts of industrialization in cities: Legislative reforms to public health, work and living conditions; Spatial responses to Poor Living Conditions (Railroad tenements, Dumbbell plan); Utopian visions - Model Towns (Robert Owen, J.S. Buckingham, George Cadbury), Tony Garnier (*Cité Industrielle)*.

4. Pioneers in planning theories - Ebenezer Howard (Garden City), Soria Y.Mata (The Linear City), Patrick Geddes (Outlook Tower, Valley Section, Folk-Work-Place, Civic Survey), Le Corbusier (*Ville Contemporaine*), Frank Lloyd Wright (Broadacre City), Ludwig Hilberseimer (Decentralized City), Constantinos A Doxiadis (Ekistics), Clarence Arthur Perry (Neighbourhood Unit); Clarence Stein (American Garden Cities).

5. Planned and Built Cities: - Brasilia (Oscar Niemeyer), Chandigarh (Le Corbusier), Islamabad (Constantinos A Doxiadis), Tel Aviv (Patrick Geddes).

6. Alternate visions for cities: – Arcosanti (Paolo Soleri), New Urbanism (Peter Calthorpe, Andres Duany, Elizabeth Plater-Zyberk).

MODULE 3

7. Urbanization in India: - Trends in urbanization in post-independence India; Planned cities in Post-Independence India (Bhubhaneswar, Gandhinagar, Jamshedpur); Census classification of Indian cities (based on population size); Growth, issues and management of Metropolitan cities; Slums (official definitions and slum statistics)

8. Urban housing typologies – City Development Authority layouts, Public Sector Townships, Affordable housing, Slum Rehabilitation Projects.

MODULE 4

9. Urban Structure: - Internal spatial structure of the city: Concentric Zone theory; Sector theory; Multiple Nuclei Theory; Characteristics of Central business district, Urban nodes (Origin and/or destination of trips, location of major transport nodes, interfaces of local/regional transport), Suburbs, Peri-urban areas.

10. Land use and Zoning: - Land use categories and representation; Relationship between Land use and Zoning; Zoning Types: Euclidian Zoning, Performance Zoning, Form-based Codes, Incentive Zoning, Height Zoning, Open Space Zoning.

MODULE 5

11. Planning Processes and Tools: - Urban Redevelopment: Renewal, Rehabilitation, Conservation; Scales of Planning: Masterplan/Comprehensive Development Plan, Area Plan, Regional Plan, Perspective Plan, URDPFI Guidelines; Steps of urban planning.

REFERENCES:

1. Kostof, S., Castillo, G., & Tobias, R. 1992. The city assembled: The elements of urban form through history. London: Thames and Hudson
2. Eisner, Simon; Gallion, Arthur; Eisner, Stanley. 1993. The Urban Pattern. Wiley.
3. Greed, Clara. 1993. Introducing Town Planning. Longman
4. Kostof, Spiro. 1993. The City Shaped: Urban Patterns and Meanings through History. Bulfinch.
5. Morris, A.E.J. 1994. History of Urban Form Before the Industrial Revolution. Longman Scientific & Technical.
6. Hall, Peter. 1996. Cities of tomorrow: An intellectual history of urban planning and design in the twentieth century. Oxford, UK: Blackwell Publishers.
7. Sivaramakrishnan, K. C.; Amitabh Kundu; and B. N. Singh. 2005. A Handbook of Urbanization in India: An Analysis of Trends and Processes, Oxford University Press, New Delhi.
8. Rathbone, Dominic. 2009. Civilizations of the Ancient World. Thomas & Hudson.
9. Ministry of Urban Development, GoI. 2014. Urban and Regional Development Plans Formulation and Implementation Guidelines. MoUD Government of India.

15 ARC 8.8– ELECTIVE -VI

CONTACT PERIODS: 3 (Studio) per week
PROGRESSIVE MARKS: 50

a) RESEARCH METHODS:

Objectives:

Introduction to research in architecture – its significance, research design, types of research, literature study, methods of research in architecture (interviewing / visual methods / content analysis); data documentation and analysis, introduction to statistics, presenting the data and reporting the research.

- To increase the student's understanding of the role of research in architecture.
- To increase the student's abilities to interpret and evaluate research.
- To increase the student's abilities to conduct architecture research.
- To increase the student's abilities to present research results.
- To increase the student's understanding of data, information, and knowledge.

OUTLINE:

Unit 1- Introduction: Introduction to "research" and its significance in architecture – meaning of research. Relationship between design and research. Types of research in architecture, areas of research in architecture, qualitative and quantitative paradigms.

Unit 2- Research Design: Components of research design – formulating the research questions, hypothesis, choosing the sample, methods of data collection, analysing the data and inferring from the data. Concepts of dependent and independent variables, unit of analysis. Defining the scope and limitations of a research plan, significance of the research outcome.

Unit 3- Literature Study and Research: Significance of literature study in research, different sources of information such as books, journals, newspapers, internet, magazines, audio recordings, etc. Referencing and documenting the bibliography.

Unit 4- Methods of Research in Architecture: Interview Techniques: Questionnaires /Face to face Interviews / Internet survey. Designing a Questionnaire / Interview schedule. Visual Techniques: Observations (participant / nonparticipant / direct), activity mapping, accession/erosion trace observations, cognitive maps, etc. Content Analysis: Secondary data analysis. Understanding the relative advantages, disadvantages and application of various methods mentioned above and choosing a method appropriate for a research to achieve its objectives.

Unit 5- Data Documentation and Analysis: Understanding the nature of data collected and methods of analysis suitable for that data (graphical / numerical / descriptive). Converting data into numerical form for data analysis.

Unit 6- Introduction to the Statistics: Introduction to the simple statistical methods of analysing numerical data – frequencies / percentages, mean / median / mode, inferring from the data and interpreting the meaning of those inferences. Use of MS Excel for statistical data analysis.

Unit 7- Presentation of the Data: Techniques of presenting the numerical data – graphical (pie charts, bar charts, line graphs etc.), tabulations, verbal qualitative data, architectural drawings / maps.

Unit 8 - Reporting the Research: Different sections of a research report, technical writing and language (tense, voice, etc.), formatting of a report.

REFERENCES:

1. Groat, Linda N. and Wang, David C. 2002. **Architectural Research Methods.** New York: John Wiley.
2. Norman K Denzin and Yvonna S Lincoln (Eds.) **Handbook of Qualitative Research**, Thousand Oaks : Sage Publications, pp. 377392. 1994.

b) PRINCIPLES OF REAL ESTATE DEVELOPMENT:

OBJECTIVE:

To provide students with understanding of fundamentals of real estate practices & development, and enable them widen their professional capabilities.

OUTLINE:

Introduction: Definition of real estate, economic importance of real estate, overview of real estate industry**.**

Characteristics of land / real estate: Economic and physical characteristics, personal property; Tangible and intangible personal property.

Concepts of Ownership: Forms of ownership, physical rights of ownership of land.

Transfer of Title: Voluntary and involuntary transfer of property, types of deeds and legal conveyance.

Real Estate Finance: Sources and techniques

Land use and Control: Public control of private property, zonal laws, enforcement of zonal laws, urban development energing patterns of urban land use.

Role players in real estate development: Stages in real estate development, real estate development process.

REFERENCES:

1. Mike E. Miles, Laurence M. Netherton, and Adrienne Schmitz, "*Real Estate Development Principles and Process"* (5th Edition, 2015) by Urban Land Institute (ULI): Washington, D.C.
2. Richard B Peiser& Anne B. Frej, *"Professional Real Estate Development"* – The ULI guide to the business – (2003), Urban Land Institute U.S.A.
3. Tanya Davis, "*Real Estate Developer's Handbook*", (2007), Atlantic pub company, Ocala, USA.
4. Gerald R Cortesi, "*Mastering Real Estate Principles*" (2001), Dearborn Trade Publishing, NewYork, U.S.A.
5. Donald A. Corb & Richard A. Giovangelo, "*Real Estate Principles*", 2014 , Lee Institute, Inc., Brookline, Massachusetts, USA.

c) ADAPTIVE RE-USE OF BUILT FORM:

Objective: To understand the theoretical and practical background for a systematic process to support adaptive re-use of built environment for sustainable development.

OUTLINE

1. Introduction

- Introduction to the concept of adaptive reuse – history and various theories of adaptive reuse.
- Understanding adaptive re-use of buildings as a key to sustainable development. To explore the relationship between financial, environmental and social parameters associated with the adaptive re-use of buildings.

2. Case studies

- Understanding the application of the concept of adaptive-reuse through various case studies (within the country and abroad). Critical appraisal of the design approach of the case studies.
- Case studies should include examples of domestic, commercial, industrial, ecclesiastical and public building types. Analysis of the case studies should be based on the spatial attributes, structural knowledge and materiality of the existing structures and the strategies and tactics of adaptive reuse in architecture.

3. Design generation processes in Adaptive re-use

- Analysis of the existing structure - Importance of building assessment report – process of documentation and condition mapping in deciding design recommendations.
- Understanding the design logic. Role of various parameters in concept generation.
- Strategies for re-modelling.

4. Adaptive re-use of heritage buildings

- Understanding Adaptive re-use as an important strategy towards conservation of built heritage.
- Appreciation of the various values (architectural, cultural, historical, associational, social, etc.) that is associated with heritage buildings. Developing an ethical approach for adaptive re-use.

Note: The culmination of the elective could be a smaller scale adaptive re-use project done by the students inculcating all the ideas covered throughout the subject.

- Field visits and case studies help on better understanding of the concept of adaptive re-use.

REFERENCES:

1. Liliane Wong, " Adaptive Reuse: Extending the Lives of Buildings", 2016, Birkhauser Architecture, Switzerland.
2. J. Stanley Rabun, "Building Evaluation for Adaptive Reuse and Preservation", 2009, John Wiley & Sons.
3. Robert W. Burchell, "The Adaptive Reuse Handbook", Transaction Publishing , New Jersey.
4. Chris Van Uffelen, "Re-use Architecture", 2010, Braun Publishing, Switzerland.
5. Robert T. Ratay, "Structural Condition Assessment" 2005, Wiley.

15ARC 9.1 – PROFESSIONAL TRAINING

DURATION: ONE SEMESTER(16 weeks)
MODE OF EXAM: VIVA-VOCE
PROGRESSIVE MARKS: 50
VIVA MARKS : 300

OBJECTIVE:

To provide exposure to the various aspects of architectural practice.

OUTLINE:

The student is expected to be exposed to preparation of working drawing, detailing, preparation of architectural models, computer applications in design and drafting, filing system in respect of documents, drawing and preparation of tender documents. Site experience may be given in respect of supervision of the construction activity, observing the layout on site, study of the stacking methods of various building materials, study of taking measurement and recording.

Students should also acquaint themselves with local building byelaw.

Monitoring of Training:

A. Submission of Joining report : To be submitted within one week from the date of joining. Students must report for the training from the day of commencement of 9th semester as notified by VTU.

B. Submission of periodical reports: Students shall maintain a day to day record of their engagement for the period of training. This will be recorded in an authorized diary to be counter signed by the architect at the end of each week and the same diary shall be sent to the training co-ordinator once in a month.

C. Completion certificate: At the end of the training period, a student shall produce a certificate of satisfactory completion of training in duplicate.

Submission of Portfolio:

Students shall present a portfolio containing the following works before the examiners for Viva-Voce Examination:

1) Training Report: This shall contain copies of only such drawings which have been dealt, drafted or designed by student. It shall also contain a brief description of works handled during the training along with photographs, pencil sketches etc.

2) Building Study – This shall include a detailed critical study of a building designed by the architect with whom the student has worked. The study should include of function, aesthetics, context, structure etc., This shall be presented through drawings, photographs, write ups etc.

3) Building Material Study – This shall be a detailed study of a new or relatively new building material available in the market. A study of its properties, uses, cost, maintenance etc., is expected to be done. Samples of materials shall also be obtained and presented.