

40. SEVENTH SEMESTER SYLLABUS

Sem	Subject Group	Course Code	Subject	Hours/week			Credits	Marks			
				T	S	W/L		CA	University Exam		Total
									Jury	Written	
VII	I (a)	19AR07001	Architectural Design 7		10		10	250	250		500

Course Overview:

To familiarize students with housing design from a socio-economic perspective

- To observe lifestyles, social needs, human interaction, human normative behavior, tendencies, limitations and experiment with various housing typologies
- To introduce fundamental economics of project and density-based design
- To emphasize on dwelling community, neighborhood and housing infrastructure and services as major design parameters
- To introduce various tools and techniques of housing design- Land use survey, infrastructure, house hold survey etc.
- To experiment with various construction methods and techniques suitable for mass housing
- To learn the efficiency of housing typology in various climatic zones, planning and circulation, health and hygiene, sanitation etc.
- To learn various techniques of affordable construction applicable in the housing typology
- **Sustainable design objectives:** To equip the students to adopt sustainable housing design principles considering climate, building envelope, site selection and planning, water efficiency, energy efficiency, indoor air quality, green materials and resources, green infrastructure, renewable energy, natural lighting and fresh air ventilation, efficient landscape etc. Various green building rating systems such as IGBC (Green Homes), GRIHA, ECOHOUSING or any applicable rating systems may be considered. Advanced simulation and modeling techniques to orient the buildings and decide energy performance parameters may be explored

Course Outcomes:

Upon completion of the course, the student should:

- Understand the Housing economics, public policy and formulate appropriate spatial response
- Learn principles of housing standards and evolution of settlement patterns
- Sensitize the students about land scarcity and expose them to different typologies of high-density housing
- Understand the challenges of bigger scale site planning

Major Project

The focus of the studio is to create housing typologies suitable to the context and experiment with different housing concepts. The project may focus on the design of a housing precinct/community with several housing types along with necessary amenities.

Projects can be formulated based on low-rise high-density housing and high-rise high-density housing depending on the context. Methodology may involve case studies, user interviews, questionnaire surveys, architect interviews, behavioral observations, meeting with housing

developers and job contractors, engineers, state housing department etc. may be used for collecting, comparing and analyzing information necessary for design decision making. Elaborate use of physical models and 3D models in addition to detailed drawings will be required to effectively communicate the design. Sample quantity estimates and specifications are to be prepared. Application of concepts of project phasing, fundamental economics of the project etc. may be considered.

Emphasis may be given on:

- Unit plan, cluster plan, zoning and block design
- Structure, density, land use, coverage
- Urban infrastructure, Site and service schemes
- Housing shortages
- Basics of housing finance
- Incremental housing
- Slums and squatter settlements
- Sustainability and energy efficiency
- Ventilation and daylighting
- Water and waste management
- Walkability and universal access
- Affordable technology and prefabrication techniques
- Participatory and community-oriented design approach
- Parking and amenity sharing
- Residents associations and conflict resolution
- Building regulations

Safety and security services

Minor project

Detailing of a prototype unit and different permutations to achieve efficiency can be explored. Various techniques involved in modular construction/Prefabrication/ affordable construction techniques may be detailed out

Time bound project

Design of a simple public building/spaces such as banks, restaurants, food courts, supermarkets, public squares, monumental arches, memorials or any of similar scale and scope may be introduced for time bound evaluation of the student project

Reference:

- Christopher Alexander, “A pattern Language”, Oxford University press, New York 1977
- Saxena A.K., “Sociological Dimensions of Urban Housing and Development”, Commonwealth Publications, 2004
- Leuris (S), Front to back: “A Design Agenda for Urban Housing”, Architectural Press, 2006.
- Richard Kintermann and Robert Small, “Site planning for Cluster Housing”, Van Nostrand Reinhold company, London/New York 1977.
- Correa, C. (2010). A Place in the Shade: The New Landscape and Other Essays. New Delhi: Penguin Books.
- Brooks, R. G. (1988). Site Planning: Environment, Process and Development. Michigan.
- Clapham, D., Clark, W. A. V. and Gibbs, K. (2012). The Sage Handbook of Housing Studies. London: Sage Publications.
- HUDCO publications – Housing for low income, sector model.
- Greater London Council. (1978). An Introduction to Housing Layout: A GLC Study. London.
- Lee, K. E. (1984). Time Saver Standards for Site Planning. McGraw-Hill Ryerson.
- Levitt, D. and Levitt, B. (2010). The Housing Design Handbook. New York: Routledge.
- Root, B. J. (1985). Fundamentals of landscaping and site planning. AVI Publications.
- Untermann, R. and Small, R. (1977). Site Planning for Cluster Housing. Van Nostrand Reinhold.
- National Building Code
- KPBR/KMBR/ Other relevant local building code
- CPCB / State PCB regulations/impact study guidelines

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VII	I (c)	19AR07002	Working Drawings 2		4		4	100	100		200

Course Overview:

The subject aims to build upon what was taught in the previous semester by introducing ‘Good for Construction drawings’, preparation of structural, electrical, water supply and sanitation drawings for the design project of the previous semester.

Course Outcomes:

Upon completion of the course, the student should:

- Develop necessary skills required to prepare ‘Good for construction’ working drawings
- Learn to draft and decipher supplementary working drawings of other disciplines and prepare coordinated working drawing sets.

Module 1: Project work

Learning Strategies:

- CAD Drafting Studios
- Workshops from industry experts including BIM as applicable.

Module Contents:

- Project Work: Project continued from previous semester; Preparation of structural and services drawings and details.
- Structural drawings: Conventions & symbols; Foundations, Columns, Beams, Slab.

Module 2: Services Working Drawing I**Learning Strategies:**

- CAD Drafting Studios
- Workshops from industry experts

Module Contents:

- Electrical drawings: Conventions & symbols; Plans at all levels.
- Water Supply drawings: Conventions & symbols; Plans at all levels
- Sanitary drawings: Conventions & symbols; Plans at all levels; Site Plan, Terrace Plan

Module 3: Services Working Drawing II**Learning Strategies:**

- CAD Drafting Studios
- Workshops from industry experts

Module Contents:

- Mechanical drawings: Conventions & symbols; Plans at all levels; Details of Lift.
- Complete integration of Architectural, Structural and Services drawings and details

Reference:

- Architectural Graphics by Francis D. K. Ching
- Building construction illustrated by Francis D. K. Ching
- Building construction metric Vol 1-5 by W. B. McKay

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				T	S	W/L		CA	University Exam		Total
									Jury	Written	
VII	I (c)	19AR07003	Professional Skill Enhancement 7			4	2	50	50		100

Course Overview:

This course intends to provide/ enhance the soft skills in order that students perform well in their academics and beyond. These skills are intended to support the student to perform better in her/his core subjects and also build up robust performance through hands-on workshops and laboratory training. This course is subdivided into two categories – Mandatory and Optional. Mandatory courses help in preparations for respective semester subjects. The optional category helps students to take personal initiatives to develop in specific areas that can widen their horizon of their understanding of architecture and also initiate action at the society level. There are also options to work on competitive exercises alongside other similar institutions.

Course Outcomes:

Upon completion of the course, the student should:

- be given an exposure of varied skills that can bring in confidence in handling their core subjects such as workshops, communication skills, computer applications etc.
- be able to develop team spirit and interpersonal skills to manage complex situations.
- be able to cope with stress and develop multi-tasking capabilities.

Module 1: Team work skills

Learning Strategies:

- Practical hands on sessions
- Outdoor Workshops

Module Contents:

- Learning to work in a team as part of a large endeavour.
- Learning to contribute with strategy suggestions, ideas and effort.
- Cooperation and coordination.
- Assigning roles & responsibilities
- Resolving conflicts
- Reliability

Module 2: Entrepreneurship skills

Learning Strategies:

- Group discussions
- Interactive sessions

Module Contents:

- Identifying viable opportunities
- Ingenuity and creativity in conceptualising something that can take advantage of the identified opportunity.
- Establishing the resources needed for the conceptualised enterprise.
- Starting and establishing the new enterprise.
- Managing the enterprise
- Accepting risks
- Reaping the anticipated reward.

Module 3: Social initiatives or any other co-curricular activities

Learning Strategies:

- Technical and hands on workshops
- Group discussions and Interactive sessions
- Self-initiatives

Module Contents:

- Optional content to be developed by each institution in order to help students to take part in activities that involve larger groups and facilitate peerlearning.
- The activities could be student initiated societal activities or participation in NASA or similar student led group initiatives which has an academic content aswell.

Reference:

- HILL, N. (2019). *THINK AND GROW RICH*. SIMON & BROWN.

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				T	S	W/L		CA	University Exam		Total
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VII	II	19AR07004	Urban Design	2			2	50		100	150

Course Overview:

The subject is an overall understanding of urbanism and urban morphology as rising from history. The subject introduces the components of the modern city and their interdependencies, the scope and nature of urban design as a discipline. The key theories associated with urbanism and cities, an awareness of contemporary urban issues are addressed. The course introduces ways to perceive, document and explore cities.

Course Outcomes:

Upon completion of the course, the student should:

- Develop awareness on the evolution and characteristics of urban forms, their components and interdependencies.
- Understand urbanism through theories, aspects, issues and solutions.
- Attain skills to observe, interpret and analyze the various urban scenario in present day.

Module 1: Introduction & Theory**Learning Strategies:**

- Lectures on urban design terminology, elements and principles.
- Book Reviews

Module Contents:

- Relationship between Architecture, Urban Design and Urban Planning, Brief review on urban design as a discipline – Objectives and scope of urban design.
- Principles of urban design – Character, Continuity and Enclosure, Scale and mass, Quality of Public Realm, Ease of Movement, Legibility, Adaptability, Diversity, Sustainability. Skyline studies.
- Circulation – Shape of city - Road forms and hierarchy, Road pattern – Grid, Radial, Concentric, etc. Pedestrian areas.
- Theories of Urban Design – Figure Ground, Linkage and Place theory - Urban solid and void
- Urban morphology – Urban form – Determinants of urban form, Open space and urban space, Urban spaces and their characteristics, urban square /plaza.
- Elements of urban form (Urban structure, urban fabric, urban grain and tissue, Density & mix, Height and massing, Streetscape - street character, façade, materials, street furniture, lighting, signage.)

Module 2: History and surveying methods**Learning Strategies:**

- Lecture on evolution on urban design through various civilizations.
- Debates on traditional and modern cases and projects of urban design.

Module Contents:

- Texts and theories of cities and urbanism – Imageability and Lynch, Townscape and Cullen, Genius Loci and Schulz.
- Understanding of urban forms and spaces at various scales through examples from historic cities - river valley civilizations (Mesopotamia, Indus Valley, Harappa), Classical cities (Greek and Roman cities).
- Urban design elements in Medieval times (Castle town, Siena). Renaissance urbanism (Rome, ideal cities).
- Impact of industrialization on urbanism - modern concepts (Haussmanisation of Paris, Eixample district Barcelona, Garden cities, City beautiful movement, Parks movement.)
- Urban design projects in various scales: National, Metropolitan, City and project levels through Case studies.
- Perceiving cities - Surveying methods and techniques - Demographic surveys, Infrastructure survey, Visual Survey, ecological survey and infrastructure survey- surveying building use and condition, color coding.

Module 3: Urban design – issues, opportunities & related terms and Urban Interventions**Learning Strategies:**

- Lectures on various components of urban fabric, urban massing, urban conservation, various agencies involved.
- Seminar on understanding the stages involved in urban design process.

Module Contents:

- Zoning, land use, Place making, urban decay, change and renewal, heritage & conservation
- Suburban sprawl, TOD, gated communities, gentrification, modal split, waterfront development, globalization, community participation.
- Evolution of regulation, Urban design policies, formulation of policies for environment, conservation, transportation, parking, streetscape, built form and character, skyline through case studies.
- Legal aspects – LA act and town Planning act, Land Pooling, TDR.
- Agencies involved in the execution - Urban development authority, Municipal corporation / Municipality, Town and country planning organisation (TCPO), State Industrial Development & Investment Corporation, Housing and Urban development corporation Ltd. (HUDCO), role of Urban Arts Commission
- Understanding aspects, issues and solutions related to urbanism today through study of literature and best practices/case studies (International and Indian) in urban design.

Reference:

- Paul D. Spreiregen, "Urban Design: The Architecture of Towns and Cities", 1965, McGraw Hill
- Kevin Lynch, 'The Image of the City' MIT Press, 1960.
- Gordon Cullen, 'The Concise Townscape', The Architectural Press, 1978.
- 'Urban Design Reader', 2006, Mathew Carmona and Steve Tiesdell.
- Jonathan Barnett, 'An Introduction to Urban Design', Harper Row, 1982.
- A.E.J. Morris, 'History of Urban Form before the Industrial Revolution', Prentice Hall, 1996.
- Gosling and Maitland, 'Concepts of Urban Design', St. Martin's Press, 1984.
- Edmund Bacon, 'Design of Cities', Penguin, 1976.
- 'Time Saver Standards for Urban Design', Donald Natson, McGraw Hill, 2003.

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									Jury	Written	
VII	II	19AR07005	Project Management	2			2	50		100	

Course Overview:

- To make the students familiar with the various facts of construction planning and network analysis
- To familiarize students on project management procedures and methods.
- To give an introduction to material management and safety measures in construction projects scheduling, resource and material management
- To introduce digital tools related to the subject

Course Outcomes:

Upon completion of the course, the student should:

- Be able to understand different stages of construction.
- Be able to use different equipments.

Module 1: Planning Process and Network Methods

Learning Strategies:

- Site visit should be there to understand different stages of construction

Module Contents:

- Introduction, Project Planning, Role of decision in project management
- Pre construction Planning Process, Pre construction planning Activities
- Scheduling and controlling, Importance of time, cost and resources
- Methods of planning and programming
- Introduction to Bar Chart, Development of bar chart
- Shortcomings of bar chart and remedial measures: - Lack of degree of details, review of project progress, Activity inter relationships, time uncertainties
- Network Method, Elements of network: -Event-Tail Event, Head Event, Dual Role Event,
- Activity –Representation and Identification, Inter relationships. PERT, CPM
- Network Analysis
- Network Crashing

Module 2: Construction equipment, Resource scheduling, Material Management**Learning Strategies:**

- Students are introduced to different construction equipments.
- Students are introduced different systems in material management and site.

Module Contents:

- Introduction to construction equipments
- Construction Equipments-earth moving, handling, pneumatic and hoisting equipment – pile driving equipment– soil compaction & stabilization.
- Resource scheduling- resource allocation and resource leveling
- Material management, Material control systems
- Inventory principles, Procurement planning, ABC Analysis
- Fundamentals of Quality management
- Fundamentals of Quality Assurance

Module 3: Safety management, Risk Management, Maintenance Management**Learning Strategies:**

- Site visit to understand the safety factors.

Module Contents:

- Recommended safety factors-Adjustment stress theory, Distractions theory. Chain of events theory
- Safety measures in different stages of construction – Pre planning programme. Implementation
- Risk Management, Types of risk in construction.
- Introduction to maintenance management in construction
- Introduction to software in project management

Reference:

- Robert Peurifoy, Clifford J. Schexnayder Construction Planning, Equipment and Methods, Mc GrawHill
- Callaghan,M.T,Quackenbush,D.G.andRowings-,J.E,‘ConstructionProjectScheduling’,McGraw-Hill
- 3. Robert B. Harris-, ‘Precedence and Arrow Network Techniques for Construction
- Stevens James D, ‘Techniques or Construction NetworkScheduling’
- Bhattacharjee S.K-,‘Fundamentals of PERT/CPM and ProjectManagement’.
- N. P. Vohra- ‘Quantitative Techniques inManagement’
- Construction Project management by Eddy MRojas
- Project Planning and Control with PERT and CPM by Dr. B C Punmia, K. KKhandelwal

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				T	S	W/L		CA	University Exam		Total
									Jury	Written	
VII	II	19AR07006	Environmental Science for Architecture	2			2	50		100	150

Course Overview:

- To enable understanding of the environment, and its interrelationship with living organisms.
- To help understand the importance of environment by assessing its impact on humans and to envision the surrounding environment, its functions and its value.
- To give understanding of dynamic processes and features of the earth’s interior and surface.
- To give awareness about integrated themes and biodiversity, natural resources, pollution control and waste management.
- To inform about scientific, technological, economic and political solutions to environmental problems.

Course Outcomes:

Upon completion of the course, the student should:

- Be able to make the students aware about the scientific knowledge and current debates on the environment at three nested scales, including their interlink ages – Global, Regional and Local.
- Enable the students to understand cause-and-effect relationships between various human, natural and climatic factors that impinges upon ecological systems and their linkages.
- Be thorough with its focus on real-life examples and through the medium of studio exercises, the student learns ways in which ecological and environmental concerns can be integrated (synthesis) into Architectural programs.
- Familiarize students with global & national environmental issues, the scale of impacts, important conventions, laws and policies in the field of biodiversity, and environmental protection.
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- Integrate with higher level studios that have complex briefs, including environmental and ecological concerns.

Module 1: Environment, Ecosystems and Biodiversity

Learning Strategies:

- Lecture notes
- Journals
- E-journals

Module Contents:

- Clean earth, nature and environment, environmental balance, the importance of environmental balance and sensitivity
- Natural cleansing and replenishing processes, life cycle systems, environmental models
- Environmental carrying capacity, pollution, environmental damage, reversible and irreversible changes
- Types of ecosystems - Forest, Grassland, Desert, Aquatic (lakes, rivers and estuaries)., details of each type with examples
- Energy flow in the ecosystem, ecological succession, food chains, food webs, ecological pyramids and other schematic models
- Biodiversity, the importance of biodiversity, biodiversity at global, national and local levels, biogeographical classification of India, social, ethical and aesthetic perspectives on biodiversity and conservation
- Conservation of biodiversity, in-situ and ex-situ approaches

Module 2: Human Impact on The Environment

Learning Strategies:

- Lecture notes
- Journals
- E-journals

Module Contents:

- Causes, cases, effects and control measures of different types of pollution including air, water, soil, marine, noise, thermal pollution, nuclearcontamination
- Consumerism, waste generation, waste management, causes, effects and control measures of municipal wastes, role of an individual in reduction and prevention of pollution
- Over extraction and exploitation of natural resources, mineral resources, ecological impact of mining, case studies fromKerala.
- Water resources, use and overutilization of surface and groundwater, conflicts over water, water quality, toxicity, contaminants, construction of dams and their effects on forests and tribal people, case studies fromKerala.
- Forest resources, over-exploitation, deforestation with case studies fromKerala.
- Food resources, land use conversion, world food problems, overgrazing, effects of modern agriculture, monoculture, fertilizer-pesticide related problems, toxicity, soil salinity, case studies fromKerala.
- Energy resources - growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources. casestudies.
- Land resources - land as a resource, land degradation, desertification, human link in disasters such as floods and landslides, human vulnerability, introduction to disaster mitigation, case studies fromKerala.
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents, potential human extinction events, casestudies.
- Social impact, population growth, population explosion, disparity, skewed development, social/economic imbalance, inclusivegrowth

Module 3: Environmentally Sustainable and Conscious Development**Learning Strategies:**

- Lecturenotes
- Journals
- E-journals

Module Contents:

- Vision of sustainability, environmental sustainability, social sustainability, models and approaches to sustainability, conscious decision making, inclusive planning, reduce-reuse-recycle concepts, introduction to sustainable, ecological and greendesign
- Cost-benefit comparison of developmentprojects
- Environmental mitigation, landscape ecology andreforestation
- Environmental legislation, environmental protection act, air (prevention and control of pollution) act, water (prevention and control of pollution) act, wildlife protection act, forest conservation act, law enforcement machinery, central and state pollution controlboards.
- Role of governmental and non-governmental and multilateral organizations in environmental debate, policymaking, mitigation, management and remediation, Ramsar convention, Gadgil Report and Kasturirangan Report on WesternGhats.

Reference:

- Gilbert M. Masters, 'Introduction to Environmental Engineering and Science', 2nd edition, Pearson Education, 2004.
- Benny Joseph, 'Environmental Science and Engineering', Tata McGraw-Hill, New Delhi, 2006.
- R.K. Trivedi, 'Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standards', Vol. I and II, EnviroMedia.
- Cunningham, W.P. Cooper, T.H. Gorhani, 'Environmental Encyclopedia', Jaico Publ., House, Mumbai, 2001.
- Dharmendra S. Sengar, 'Environmental Law', Prentice hall of India PVT LTD, New Delhi, 2007.
- Rajagopalan, R, 'Environmental Studies-From Crisis to Cure', Oxford University Press, 2005.
- "Report of the Western Ghats, Ecology Expert Panel". Madhav Gadgil Commission. The Ministry of Environment and Forests, Government of India

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				T	S	W/L		CA	University Exam		Total
									Jury	Written	
VII	II	19AR07007	Professional Ethics & Practice	2			2	50		100	150

Course Overview:

The Architects Act 1972, was the turning of in the history of Professional practice in India. This course is to define a value system in the architecture profession (practicing architecture) in the given diverse socio-cultural and economic-political context of India. The course will develop the correct attitude towards the highest standards of professionalism, integrity and competence. The Main goal is to equip the future architects to handle the social responsibility to ensure harmony, environmental protection, building social justice and the development of healthy communities within a high moral framework.

Course Outcomes:

Upon completion of the course, the student should:

- Be aware of the professional responsibilities of becoming an Architect.
- Develop an understanding of the ethical responsibilities expected from an Architect.
- Familiarise with the professional engagements with other stakeholders in the profession

Module 1: Legalities of Profession

Learning Strategies:

- Analysis of judicial case studies
- Study of Bare Acts.
- Tender Documents and Contracts.
- Measurements and Valuation

Module Contents:

- Architectural Profession and legalities
- Identify and discuss the provisions of architectural practice in various acts namely: The Architects Act 1972, Labour Laws of India, the companies Act 2013, The Arbitration and Conciliation Act 1996, Indian Copyright Act 1957.
- Tenders – Tender Documents – EMD, Security deposit, Retention Amount, Bill of quantities and various abbreviations and Terminology used in tender document. Types of Tenders – their merits and demerits – Tendering procedure.
- Contracts – Articles of agreement and conditions of contract – Contract drawings – Contract Sum – Contract Bills – Consultants – Liquidated Damages – Variation and extras – Measurements - Certificates of Payments
- Measurements and Valuation. Mode of measurements - methods. Valuation Techniques
- Conventions and Charters
- Role of Various Bodies – Council of Architecture (Govt), Indian Institute of Architects (Professional). Being part of the collective thought of these bodies.
- Exposure to International Bodies like RIBA
- History of Architecture Profession in India

Module 2: Morals & Ethics of Practice**Learning Strategies:**

- Case studies of various case examples from professional bodies.

Module Contents:

- Code of ethics for architectural practice
- Moral duties and responsibilities of an Architect.
- Standards of Profession – Professionalism, integrity and competence, discussions on provisions of Competition Commission of India
- Intellectual Property Rights Ancient Indian Texts

Module 3: Social Responsibilities and Duties**Learning Strategies:**

- Case studies of various case examples on social issues relating to architectural profession and specific to the local context.

Module Contents:

- Social responsibilities of profession.
- Contributions to Government schemes and programmes, non-profit organisations, State and City level Improvement programmes.
- Public awareness of important architectural issues
- Inclusive design
- Architecture as an agent of change – socio-economic perspective

Module 4: Architectural Practice & Management of Office

Learning Strategies:

- Students may choose offices and present an analytical report on office structure, managements.
- Case Studies from various offices in the City as well as across India

Module Contents:

- Architectural practice and office
- Work structure of office
- Client management, office management, Human resource management, financial management
- Contracts and tenders and Fee structure
- Architectural practice and building byelaws & National Building Code

Reference:

- Architectural practice in India by Prof. Madhav Deobakta and Meera Deobakta
- Professional Practice by Roshan Namavati.

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VII	I (c)	19AR07008(A)	Elective Workshop 3: Contemporary process in Architectural Design	1		2	2	50	50		100

Course Overview:

- To introduce theories of media and its influence on the perception of space.
- To enable study of the various aspects of digital architecture and its exploration through emerging phenomena that relies on abstraction of ideas.
- To give understanding of the works of contemporary architects who have illustrated the influence of the digital media in architecture.

Course Outcomes:

Upon completion of the course, the student should:

- Have an understanding of the effect of contemporary theories of media on contemporary architectural design.
- Have an insight into contemporary design process/theories and their relation to computation.
- Have the ability to understand specific aspects of contemporary processes appropriate to a design situation.
- Familiarise with architectural works derived from contemporary processes.

Module 1: Introduction

Learning Strategies:

- Lectures, seminars, workshops and labs

Module Contents:

- Investigation of contemporary theories of media and their influence on the perception of space and architecture. Technology and art. Technology and architecture. Digital technology and architecture.
- Aspects of digital architecture. Design and computation. Difference between digital process and non-digital process.
- Architecture and cyberspace. Qualities of the new space. Issues of aesthetics and authorship of design.
- Increased Automatism and its influence.

Module 2: Geometry and Surfaces**Learning Strategies:**

- Workshops and labs

Module Contents:

- Fractal geometry.
- Shape grammar.
- Hyper surface.
- Liquid architecture.
- Responsive architecture.

Module 3: Contemporary process and Architect's Works**Learning Strategies:**

- Study to be undertaken in the form of assignments/discussions/seminars/presentations.

Module Contents:

- Emerging phenomena such as increasing formal and functional abstractions.
- Diagrams, diagrammatic reasoning, diagram and design process.
- Animation and design. Digital hybrid.
- Ideas and works of architects related to contemporary processes. The architects to include Greg Lynn, Reiser + Umemotto, Lars Spuybroek / NOX Architects, UN studio, Diller Scofidio, Dominique Perrault, Decoi, Marcos Novak, Foreign Office Architects, Asymptote, Herzog and de Meuron, Neil Denari, Serie Architects, BIG Architects.

Reference:

- Walter Benjamin, 'The Work of Art in the Age of Mechanical Reproduction', in Illuminations, Schocken Books, New York, 1969
- Ignaci de Sola Morales, 'Differences: Topographies of Contemporary Architecture', MIT Press, 1997.
- William J Mitchell, 'The Logic of Architecture: Design, Computation and Cognition', MIT Press, 1995.
- Ali Rahim, 'Contemporary Process in Architecture', John Wiley & Sons, 2000.
- Ali Rahim (Ed), 'Contemporary Techniques in Architecture', Halsted Press, 2002.
- Peter Eisenmann; Diagram Diaries, Universe, 1999.
- Grey Lynn, 'The Folded, The Pliant and The Supple, Animate form', Princeton Arch. Press, 1999.
- Gillian Hunt, 'Architecture in the Cyberspace II', John Wiley & Sons, 2001.
- L. Convey et al, 'Virtual Architecture', Batsford, 1995.
- Rob Shields (ed.), 'Cultures of the internet: Virtual Spaces, Real Histories, Living bodies', Sage, London, 1996.
- John Beckman, 'The Virtual Dimension, Architecture, Representation and Crash Culture', Princeton Architecture Press, 1998.
- William J Mitchell, 'City of Bits: Space, Place and the Infobahn', MIT Press, Cambridge, 1995.
- Marcos Novak, 'Invisible Architecture: An Installation for the Greek Pavilion', Venice Biennale, 2000.

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				T	S	W/L		CA	University Exam		Total
									Jury	Written	
VII	I (c)	19AR07008(B)	Elective Workshop 3: Graphic Design	1		2	2	50	50		100

Course Overview:

To expose the students to the various graphical expressions and strategies. Upon completion of the course, the student shall acquire a basic awareness in creating and developing graphically mature designs at both smaller and larger scales, such as that of corporate logos to designer portfolios. They may continue to use this portfolio for Architectural Internship.

Course Outcomes:

Upon completion of the course, the student should:

- Be introduced to the discipline of Graphic Design
- Develop basic skills required in handling simple sheet presentations
- Describe the graphic design process and account for its conditions and terms
- Use basic sketching techniques to communicate ideas
- Plan, implement and present a poster, e-book, portfolio, logo etc.
- Use any CAD-software to design with the help of effective illustrative methodology
- Create a personal portfolio.

Module 1: Fundamentals of Graphic Design

Learning Strategies:

- Lectures, Discussion, workshops

Module Contents:

- Fundamentals of Graphic Design: Introduction to Graphic Design –works of prominent designers & the graphic design process.
- Overview of design basics – colour, harmony, rhythm, balance, proportion etc.
- Visual perception & graphical thinking.

Module 2: Graphic Design in detail**Learning Strategies:**

- Workshops and labs

Module Contents:

- Tools of Graphic Expression. Styles of expression –an overview; Illustrations -developing manual presentation skills. Computer graphics - potentials & applications
- Designing for printing.
- Typography.
- Design of books, posters, promotional materials, stationery etc.
- Developing trade marks & corporate logos. Evolving a comprehensive corporate identity program.

Module 3: Project: Portfolio Design**Learning Strategies:**

- Workshop on Architectural Portfolio Design

Module Contents:

- Introduction to graphic design softwares such as Adobe Illustrator, Photoshop, InDesign, etc.
- The student has to create a portfolio design either Architectural or individual subjects or themes as decided by individual faculties. This may be based on product design, photography, interior design, landscape, corporate branding or soon.

Reference:

- White, Alex W, "The Elements of Graphic design", Allworth Press, 2011
- Lupton, Ellen, "Thinking with type", Princeton architectural press, 2004.
- Wheeler, Alina, "Designing brand identity", Jon Wiley and sons, 2012
- Rand, Paul, "A designer's art", Yale University press, 2001.

Sem	Subject Group	Course Code	Subject	Hours/week			Credits	Marks			
								University Exam		Total	
				CA	Jury	Written					
VII	I (c)	19AR07008(C)	Elective Workshop 3: Product Design	1		2	2	50	50		100

Course Overview:

To expose the students to the various theoretical and practical aspects of ergonomics and product design. Upon completion of the course, the student shall acquire a basic awareness in conceptualizing the design of a product and presenting it and develop a general understanding of the basic rules of product design as well as the physical and psychological requirements of design.

Course Outcomes:

Upon completion of the course, the student should:

- Be introduced to the discipline of Product Design
- Develop basic skills required in handling simple product design projects
- Describe the product development process and account for its conditions and terms
- Use basic sketching techniques to communicate ideas
- Plan, implement and present a product design project
- Use any CAD-software to design products and with the help of top-down methodology,
- Create small prototype of the product

Module 1: Introduction to Product Design

Learning Strategies:

- Lectures, discussions and workshops

Module Contents:

- A brief introduction to Product Designing and concept generation. Design process and stages.
- Goals of Product Design and the Role of Product Designers.
- Factors affecting product design: Form, color, symbols, user specific criteria; material, technology and recyclability; packaging, cost, fashion, function, aesthetics, environment etc.
- Multiple utility-oriented approach to product design.
- Visual Design, Typography and Product Branding basics.

Module 2: Product Design and Ergonomics

Learning Strategies:

- Lectures, discussions and workshops

Module Contents:

- Study of Ergonomics and Anthropometrics. Product Ergonomics.
- Ergonomics and Human Factors. Human physical dimension concern. Posture and movement.
- Behavior and perception. Industrial Product design, user friendly design, design for serviceability, design for environment, prototyping and testing, cost evaluation.

Module 3: Project: Simple Product Design

Learning Strategies:

- Hands on Workshops on Product Design

Module Contents:

- Generation of themes, product brief and presentation. The student has to conceptualize a product and through the various stages of development reach a design for the product. This design stages may be manual or digital in nature. Final product has to be presented as a working or non-working prototype in a 1:1 scale (exceptions as decided by the faculty).

Reference:

- Will Potts, A-Level ProductDesign,
- Michael Ashby, Kara Johnson, Materials and Design: The Art and Science of Material Selection in ProductDesign,
- W.S. Green, Human Factors in ProductDesign,
- Lesley Cresswell, Product Design: Graphics with MaterialsTechnology,
- Jacob Goldenberg, David Mazursky, Creativity in ProductInnovation,
- Charles M. Eastman, Building ProductModels
- Time Saver Standards for InteriorDesign
- An invitation to Design, Helen MarieEvans.