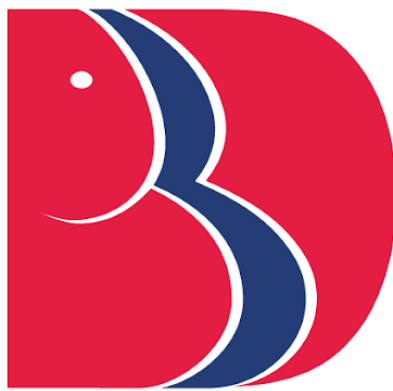


BABU BANARASI DAS UNIVERSITY

COURSE STRUCTURE
AND
SYLLABUS
FOR
MASTER OF ARCHITECTURE
AS PER CBCS SYSTEM

M. Arch.
ARCHITECTURE
(FULL TIME)



**School of Architecture and Planning,
BBD University**

NAME OF COURSE: MASTER OF ARCHITECTURE
M. ARCH (ARCHITECTURE)(Course structure)

Teaching Scheme			Contact Hrs. per week						Exam. Scheme Marks				Exam Duration (Hrs)					
			L: Lectures, T: Tutorials, P: Practical T: Theory, S: Sessional															
Course Category	Subjects	Subject Title	Theory/Practical	L	T	P	Total	Total Credits	T	S	Viva	Total						
1st YEAR I SEMESTER																		
CC	MAR1101	Contemporary Architecture: Theories and Trends	Theory	2	2	-	4	4	60	40	-	100	3					
CC	MAR1102	Urban Design	Theory	2	2	-	4	4	60	40	-	100	3					
FC	MAR1103	Ecology in Architecture	Theory	2	2	-	4	4	60	40	-	100	3					
FC	MAR1104	Vernacular Architecture	Theory	2	2	-	4	4	60	40	-	100	3					
EC	MAR1105	Elective-I	Theory	2	1	-	3	3	60	40	-	100	3					
CC	MAR1151	Architectural Design Studio-I	Practical	1	-	6	7	4	-	100	100	200	-					
LAB	MAR1152	Computer Applications in Architecture	Practical	-	-	4	4	2	-	40	60	100	-					
Sub Total												30	25			800		
1st YEAR II SEMESTER																		
CC	MAR1201	Sustainable Development	Theory	2	2	-	4	4	60	40	-	100	3					
CC	MAR1202	Remote Sensing & GIS in architecture	Theory	1	1	-	2	2	60	40	-	100	3					
CC	MAR1203	Urban Infrastructure Planning	Theory	2	-	-	2	2	60	40	-	100	3					
FC	MAR1204	Housing	Theory	2	1	-	3	3	60	40	-	100	3					
FC	MAR1205	Transportation Planning	Theory	2	1	-	3	3	60	40	-	100	3					
EC	MAR1206	Elective-II	Theory	2	2	-	4	4	60	40	-	100	3					
CC	MAR1251	Architectural Design Studio-II	Practical	1	-	6	7	4	-	100	100	200	-					
LAB	MAR1252	Remote Sensing & GIS in architecture	Practical	-	-	2	2	1	-	-	50	50	-					
FC	MAR1253	Housing	Practical	-	-	4	4	2	-	-	50	50	-					
Sub Total													31	25			900	

Teaching Scheme			Contact Hrs. per week					Exam. Scheme Marks				Exam Duration (Hrs)	
			L: Lectures, T: Tutorials, P: Practical T: Theory, S: Sessional										
Course Category	Subjects	Subject Title	Theory/Practical	L	T	P	Total	Total Credits	T	S	Viva	Total	
2nd YEAR III SEMESTER													
CC	MAR1301	Research Techniques in Architecture	Theory	2	2	-	4	4	60	40	-	100	3
CC	MAR1302	Disaster Management	Theory	2	2	-	4	4	60	40	-	100	3
FC	MAR1303	Resource Conserving Architecture	Theory	2	2	-	4	4	60	40	-	100	3
CC	MAR1351	Architectural Design Studio-III	Practical	1	-	6	7	4	-	100	100	200	-
CC	MAR1352	Dissertation	Practical	-	-	2	2	1	-	200	-	200	-
EC	MAR1353	Specialization Elective-III	Practical	2	1	1	4	4	-	40	60	100	-
EC	MAR1354	Interdisciplinary Elective-IV	Practical	2	1	1	4	4	-	40	60	100	-
Sub Total							29	25				900	
2nd YEAR IV SEMESTER													
CC	MAR1451	Thesis	Practical	-	25	-	25	25	-	450	450	900	-
Sub Total							25	25				900	

Electives			
1	MAR1105(1)	High Rise Buildings	Elective-I
2	MAR1105(2)	Futuristic Architecture	
3	MAR1105(3)	Advanced Building Technologies	
5	MAR1206(1)	Theory of Landscape Architecture	Elective-II
6	MAR1206(2)	Climatology	

Specialization Electives			
1	MAR1353(1)	Low-Cost Building Design and Techniques	Elective-III
2	MAR1353(2)	Advanced Landscape Design	Elective-III

Interdisciplinary Electives			
1	MAR1354	Project Management	Elective-IV

SEMESTER I

SUBJECT CODE: MAR 1101	SCHEME OF TEACHING					SCHEME OF EVALUATION				
SUBJECT NAME-CONTEMPORARY ARCHITECTURE: THEORIES AND TRENDS	L	T	P	HOURS	CREDIT	T	S	VIVA	TOTAL	Hrs
SUBJECT CATEGORY- CC	2	2	-	4	4	60	40	-	100	3

OBJECTIVE:

- To impart knowledge of contemporary theories and trends in architecture through the examples of emerging building typologies.
- To enrich the student's awareness of the theories and ideas that inform contemporary practice and debate.
- To complement the design studio by surveying and analyzing historical precedents, investigating their meaning, and evaluating their usefulness as formal or programmatic models.

LEARNING OUTCOME:

- Understanding about contemporary theories and trends in architecture.
- Developing the student's awareness of the parallels and divergences between Western and non-Western architecture as they relate to contemporary practice.
- Effective application of the various theories to express the idea of architectural history, theory and criticism on contemporary practice.

MODULE-1:

Overview of world architecture since 1970 with the study of Late Modernism, Post Modernism and Deconstructivism. Theories governing contemporary architecture through case studies, evolving architectural trends and their impact on urban built environment.

MODULE-2:

Emerging building typologies with emphasis on residential developments, offices, skyscrapers, institutional and public buildings.

Evolving building materials and technologies, contemporary approach towards disaster mitigation in the built environment.

MODULE-3:

Energy efficient and built environment with emphasis on the use of energy simulation modeling embodied energy estimation and application of governing codes, viz., LEED and ECBC in contemporary buildings.

MODULE-4:

Applications of advanced software by architects, viz, virtual reality, parametric design, programme generated architecture and building information modeling (BIM) in contemporary architecture.

REFERENCE BOOKS:

- Ballard B. and Rank, V. P., "Materials for Architectural Design", Laurance King. 2006
- Frampton, K., "Modern Architecture-A Critical History", 3rd ed. Thames and Hudson.2002
- Gossel, P. and Leuthauser, G., "Architecture in the 20th Century", Vol. 1, Taschen.2005
- Troman, R. (ed.), "History of Architecture, From Classic to Contemporary", Parragon.2009

SUBJECT CODE: MAR 1102	SCHEME OF TEACHING					SCHEME OF EVALUATION				
SUBJECT NAME- URBAN DESIGN	L	T	P	HOURS	CREDIT	T	S	VIVA	TOTAL	Hrs
SUBJECT CATEGORY-CC	2	2	-	4	4	60	40	-	200	3

OBJECTIVE:

- To impart knowledge on various aspects, elements, concepts and principles of urban design.
- To understand working of public, private and international planning institutions.

LEARNING OUTCOME:

- Understanding experimentation with different approaches to sustainable urban development in an environmentally sustainable manner.
- Developing analytical research within the urban design and planning projects, actively utilizing data from a wide range of sources and fields such as history, theory, communications, sociology, architecture, engineering, landscaping, economics, political science, history, geography
- Application of the study outcomes on any existing site for a better proposal

MODULE-1:

Various aspects of urban design; relationship of urban design to architecture, planning and landscape; Evolution of professional discipline.

MODULE-2:

Review of urban forms, patterns and spaces in different periods of history viz. ancient river valley civilization, Greek, Roman, Medieval, Renaissance, Baroque, post industrial revolution period in Europe and India and their influencing factors.

MODULE-3:

Elements of urban environment-urban form, townscape, urban spaces, streetscapes, building forms and facades, public art.

Concepts of urban design, public perception, imageability and townscape.

MODULE-4:

Emerging concepts in urban design, modern examples of urban settlements, town centers and urban spaces in India and foreign countries.

Urban design principles, tools, techniques and paradigms; Role and types of urban design guidance.

REFERENCE BOOKS:

- Broadbent, G., “Emerging Concepts of Urban Space Design”, Van Nostrand Reinhold.1990
- Cowan, R., “Urban Design Guidance by UD Group”, Thomas Telford Publishing.2002
- Punter, J. and Carnoma, M., “The Design Dimension of Planning-Theory, Content and Best Practices for Design Policies”, E&FN Spon.1997
- Spreiregen, P. D., “Urban Design; Architecture of Towns & Cities”, McGraw Hill.1965
- Watson D. et. al (ed), “Time Saver Standard for Urban Design”, McGraw Hill.2003\
- Jane Jacobs, “Death and life of Great American Cities”
- Colin Rowe, “Collage City”

SUBJECT CODE: MAR 1103	SCHEME OF TEACHING					SCHEME OF EVALUATION				
SUBJECT NAME- ECOLOGY IN ARCHITECTURE	L	T	P	HOURS	CREDIT	T	S	VIVA	TOTAL	Hrs
SUBJECT CATEGORY-FC	2	2	-	4	4	60	40	-	100	3

OBJECTIVE:

- To Impart basic and advanced level knowledge of fundamentals related to Environment, Environmental issues and Environmental planning.
- To understand the issues and techniques of environmental planning are seen from different angles such as development, urbanization, human activities and land use.
- To identify and clarify the theoretical base of the students, as well as to make it a research-based program.

LEARNING OUTCOME:

- Understanding fundamentals related to environment, environmental issues and environmental planning.
- Analyzing alternative energy systems in different building typologies
- Application of alternative green building concepts, recognizing their qualities and limits in lowering environmental impact

MODULE-1:

Introduction to ecology- understanding the concept of environment and ecology as environmental biology, and study of ecosystems.

Importance of ecology to man in general and environmental designer, planner and technologist in particular in the context of growing global environmental concern

MODULE-2:

Structure and functions of eco-systems in general. Ecosystem components and functional inter relationships; Food chain, food web, bio-geochemical cycles, energy flow and productivity.

Community organization, species and population, inter-species interactions, habitat, niche, natural selection; Growth, decline and balance in populations. Concept of environmental resistance.

MODULE-3:

Factors responsible for development of diverse ecosystems; Role of climate and geochemical factors. Ecological succession; Study of representative samples of different ecosystems.

Summary of principles of ecology derived from ecosystem study and useful guidelines for human beings. Comparison of natural ecological system and man-made systems.

MODULE-4:

Application of ecological and environmental principles and guidelines to architecture and planning; Designing ecologically sustainable settlements and other man-made systems; Ecological foot print analysis and other contemporary concepts.

REFERENCE BOOKS:

- Perlman, D. and Milder, J., "Practical Ecology for Planners Developers and Citizens", Island Press.
- Platt, R.H., "The Ecological City: Preserving and Restoring Urban Bio diversity", N.Y. Academy of Sciences.
- Register, R., "Ecocities: Building cities in balance with Nature", New Society Publishers.
- Todd, N.J. and Todd, J., "Principles of Ecological Designs", North Atlantic Book.
- Paolo, S., "Arcology: The City in the Image of Man", Rev. Edn. MIT Press

- Voula, M., “Sustainable Development, Energy and the city: A Civilization of Concepts and Actions”, Elsevier.

SUBJECT CODE: MAR 1104	SCHEME OF TEACHING					SCHEME OF EVALUATION				
SUBJECT NAME- VERNACULAR ARCHITECTURE	L	T	P	HOURS	CREDIT	T	S	VIVA	TOTAL	Hrs
SUBJECT CATEGORY-FC	2	2	-	4	4	60	40	-	100	3

OBJECTIVE:

- To understand the importance of the instinctive attitude of vernacular design and embody the sustainable and creative aspect in contemporary design.
- To formulate a state specific data bank of untapped vernacular design through on-site studies.

LEARNING OUTCOME:

- Understanding vernacular design and the aspects of sustainable design.
- Developing a clear concept of contextualism of a region and how they have an impact on vernacular architectural forms.
- Application of various traditional materials and construction techniques used in vernacular architectural forms.

MODULE-1

Introduction to Vernacular architecture

Introduction to Vernacular architecture - nature, purpose and scope. Importance of sustainable material, resources, climate sensitivity. Creativity and design in limited means.

MODULE-2

Vernacular as shelter

Study of examples of Vernacular architecture in history of the world architecture, with a special emphasis on Indian architecture to understand shelter based on functions, building materials and construction techniques, art and craft, local conditions, traditions, climate and geography, religion & culture.

MODULE-3

Learning from Vernacular

Works of architects in contemporary architecture whose works are influenced by the Vernacular Architecture of the region. Details adapted in modern context by using old/new materials, systems and contexts.

MODULE-4

Primary survey of a region in Uttar Pradesh

Measured drawing of a typical vernacular settlement in India with details of construction, joinery, furniture etc. to be catalogued in hard as well as soft copy.

REFERENCE BOOKS:

- Vernacular Architecture: An Illustrated Handbook By R.W. Brunskill, 4th ed 2000, Faber and Faber ISBN-10: 0571195032
- Architecture Without Architects: A Short Introduction to Non-pedigreed Architecture by Bernard Rudofsky
- Bhatia, Gautam, Laurie Baker, Life, Work, Writings, New Delhi, India, 1994, Penguin Books, ISBN 0-14-015460-4
- Voluntary Agencies and Housing: A Report on Some Voluntary Agencies Working in the Field of Housing in India, by Madhao Achwal. Published 1979, UNICEF
- Handmade Houses and Other Buildings The World of Vernacular Architecture by John May, 2010, Thames & Hudson

- Hassan Fathy- Architectural Monographs, By James Steele, 1988, St. Martin's Press
- Encyclopedia of Vernacular Architecture edited by Paul Oliver.
- The Well-tempered Environment by R. Banham.
- House. Form and Culture by Amos Rappaport.
- Shelter and Society by Paul Oliver.

SUBJECT CODE: MAR 1105(1)	SCHEME OF TEACHING					SCHEME OF EVALUATION				
SUBJECT NAME- HIGH RISE BUILDINGS	L	T	P	HOURS	CREDIT	T	S	VIVA	TOTAL	Hrs
SUBJECT CATEGORY-EC	2	1	-	3	3	60	40	-	100	3

OBJECTIVE:

- To translate design principles and material features into sustainable and energy efficient designs for high rise buildings and getting acquainted with performance-based design objectives.
- To interpret design principles of high-rise concrete, steel, engineered timber and hybrid structures.

LEARNING OUTCOME:

- Understanding the problems associated with large heights of structures with respect to loads (wind and earthquake and deflections of the structure).
- Analyzing the design criteria and loading conditions for buildings.
- Application of discussed theories and principles to high rise buildings.

MODULE-1:

The Tall Building in the Urban Context - The Tall Building and its Support Structure - Development of High-Rise Building Structures - General Planning Considerations. Dead Loads -Live Loads-Construction Loads -Snow, Rain, and Ice Loads - Wind Loads-Seismic Loading – Water and Earth Pressure Loads - Loads - Loads Due to Restrained Volume Changes of Material - Impact and Dynamic Loads - Blast Loads -Combination of Loads.

MODULE-2:

Dispersion of Vertical Forces- Dispersion of Lateral Forces - Optimum Ground Level Space - Shear Wall Arrangement - Behavior of Shear Walls under Lateral Loading.
The Floor Structure or Horizontal Building Plane Floor Framing Systems-Horizontal Bracing- Composite Floor Systems
The High - Rise Building as related to assemblage Kits Skeleton Frame Systems - Load Bearing Wall Panel Systems - Panel – Frame Systems - Multistory Box Systems.
The Bearing Wall Structure- The Shear Core Structure - Rigid Frame Systems- The Wall -Beam Structure: Interspatial and Staggered Truss Systems - Frame - Shear Wall

MODULE-3:

Building Systems - Flat Slab Building Structures - Shear Truss - Frame Interaction System with Rigid - Belt Trusses - Tubular Systems-Composite Buildings - Comparison of High - Rise Structural Systems
Other Design Approaches Controlling Building Drift

MODULE-4:

Efficient Building Forms - The Counteracting Force or Dynamic Response. Approximate Analysis of Bearing Wall Buildings the Cross Wall Structure - The Long Wall Structure the Rigid Frame Structure Approximate Analysis for Vertical Loading – Approximate Analysis for Lateral Loading - Approximate Design of Rigid Frame

REFERENCE BOOKS:

- High Rise Building Structures by Schuellar, W.
- Structural Analysis & Design of tall Buildings by B.S. Taranath.
- Handbook of Concrete Structures by M. Fintal.
- Tall Building Structures: Analysis & Design by B. Stafford Smith & A. Coule.
- Advances in Tall Buildings, by CBS Publishers and Distributors Delhi, 1986.

SUBJECT CODE: MAR 1105(2)	SCHEME OF TEACHING					SCHEME OF EVALUATION				
SUBJECT NAME- FUTURISTIC ARCHITECTURE	L	T	P	HOURS	CREDIT	T	S	VIVA	TOTAL	Hrs
SUBJECT CATEGORY-EC	2	1	-	3	3	60	40	-	100	3

OBJECTIVE:

- To understand and explore new building materials, future building technologies and various futuristic architectural concepts.
- To foster the analytical and critical potential of the built environment.
- To promote Interdisciplinary approaches.

LEARNING OUTCOME:

- Understanding about new building materials, future building technologies.
- Developing "cultural literacy" with respect to modern and contemporary architecture and urban design.
- Analyzing the futuristic architecture principles in new and old buildings.

MODULE-1:

Future concepts envisioned by Antonio Saint Elia, Frank Lloyd Wright, Corbusier
Future trends being evolved by Marcos Novak, Neil Denari, Greg Lynn, Toyo Ito and others.

MODULE-2:

Evolution of contemporary architectural concepts such as biomimicry, Adaptive reuse, low-cost development and urban regeneration.
“Zero energy” and “Energy +” buildings with emphasis on an integrated approach. Green buildings.

MODULE-3:

High rise and long Span Architecture Futuristic approach towards disaster mitigation
Socio-cultural and economic impacts of future urban habitat. Futuristic Homes. Futuristic building materials, building tectonics and systems of the future.

MODULE-4:

Applications of advanced software by architects, viz, virtual reality, parametric design, programme generated architecture and building information modeling (BIM) in futuristic architecture.

REFERENCE BOOKS:

- Bell, J., “21st Century House”, Laurence King Publishing. 2006
- Jodidio, P., “Building a New Milleneum”, Vol.1 Taschen2003
- Jodidio, P., “Architecture Now”, Vol. 2, Taschen. 2004

SUBJECT CODE: MAR 1105(3)	SCHEME OF TEACHING					SCHEME OF EVALUATION				
SUBJECT NAME- ADVANCE BUILDING TECHNOLOGY	L	T	P	HOURS	CREDIT	T	S	VIVA	TOTAL	Hrs
SUBJECT CATEGORY-EC	2	1	-	3	3	60	40	-	100	3

OBJECTIVE:

- To understand the building technology and structures of built forms.
- To Consider the use of sustainable techniques, technologies and modern services for new and existing buildings.

LEARNING OUTCOME:

- Understanding application of scientific and technological principles of planning, analysis, design and management to construction technology.
- Developing the concepts of new technology which are applied in field of Advanced construction.
- Application of advanced technology to new architectural projects.

MODULE-1:

Advanced building materials. Advanced fabrication techniques. High performance facades.

MODULE-2:

Contemporary applications of passive climatic design strategies. Building integrated renewable energy systems.

Advanced mechanical and electrical building systems.

MODULE-3:

Building performance analysis techniques. Building performance simulation tools.

Integrated design methods.

MODULE-4:

High performance, zero energy, and carbon neutral buildings. Building performance metrics and rating frameworks.

REFERENCE BOOKS:

- Stein, B.; Reynolds, J.; et al. 2006. Mechanical and Electrical Equipment for Buildings, 10th edition. Hoboken, NJ: John Wiley and Sons.
- Kwak, A. and Grondzik, W. 2006. The Green Studio Handbook. London, UK: Architectural Press.
- Keeler, M. & Burke, B. 2009. Fundamentals of Integrated Design for Sustainable Buildings. Hoboken, NJ: John Wiley and Sons.
- Brown, G. Z. and Dekay, M. 2000. Sun, Wind & Light: Architectural Design Strategies, 2nd Edition. New York, NY: John Wiley & Sons.
- Moore, F. 1992. Environmental Control Systems: Heating, Cooling, Lighting. New York, NY: McGraw Hill Science/Engineering/Math.
- Grumman, D. 2003. ASHRAE Green Guide. Atlanta, GA: American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc.

SUBJECT CODE: MAR 1151	SCHEME OF TEACHING					SCHEME OF EVALUATION				
SUBJECT NAME-ARCHITECTURAL DESIGN STUDIO-I	L	T	V	HOURS	CREDIT	T	S	VIVA	TOTAL	Hrs
SUBJECT CATEGORY-CC	1	-	6	7	4	-	100	100	200	--

SUBJECT OBJECTIVE:

- To develop personal attitudes, values and independencies of mind with professional approach to design process.
- To develop design concept of buildings in urban context, phasing and development;
- To understand relationship of buildings amongst themselves and with a given Environment.

LEARNING OUTCOME:

- Understanding the development of design of buildings in urban context, phasing and development;
- Developing relationship of built forms and their environment.
- Application of the discussed principles to the design project.

MODULE-1:

Development Projects containing group of buildings with multiplicity of constraints such as relationship of land uses, space, architectural character, circulation, movement, landscape and buildings.

MODULE-2:

Site planning and environmental considerations.

MODULE-3:

Physical and economic constraints in designing.

MODULE-4:

Study of planning regulations.

DESIGN STUDIO EXERCISES:

- Suggested major design exercise are in high-tech architecture/ urban design; housing estates of vast magnitude; large industrial buildings; national and international level educational institutions like IIT's and IIM's, restoration of heritage sites of national and international importance, major transport complexes like airport terminals, railway stations, freight complexes etc.
- To explore various building design aspects through architectural design studio exercises.

NOTE: Compilation of all architectural design projects in the form of report/fact-file. Submission should be done in hardcopy as well as in softcopy (PowerPoint presentation/Photoshop presentation)

REFERENCE BOOKS:

- Architectural theory by Biermann Veronica
- Architecture Style Structure and Design by Foster, Michael
- The Urban Pattern-City Planning & design by Arthur B. Gallion, Simon Eisher
- Town Design by Fredrick Gibberd
- The City Shaped: Urban patterns and meanings through history
- City transformed: Urban Architecture at the beginning of the 21st. century
- Outside Architecture by Zevon, Suzan
- Landscape Design Today by Mostaedi, Arian
- Advanced Building Systems: a Technical Guide for Architects and Engineers by Daniels, Klaus.

SUBJECT CODE: MAR 1152	SCHEME OF TEACHING					SCHEME OF EVALUATION				
SUBJECT NAME- COMPUTER APPLICATION IN ARCHITECTURE	L	T	P	HOURS	CREDIT	T	S	VIVA	TOTAL	Hrs
SUBJECT CATEGORY-LAB	-	-	4	4	3	40	-	60	100	-

OBJECTIVE:

- To understand several tools and mechanisms in teaching design process, so the research presents an experimental model to use one of computer applications in architectural design stages.
- To understand the work scenarios within the architectural design studios in coordination to the computer aided applications.

LEARNING OUTCOME:

- Understanding computer and computer aided applications in architecture Projects.
- Developing and interpreting maps, images and apps to communicate spatial data in a meaningful way to others.
- Computer aided application into design and development.

MODULE-1:

Application of software such as Revit Architecture, Suite including Building Information Modeling (BIM) and 3D Max.

Application of Presentation software: Photoshop, coral draw, etc.

MODULE-2:

Application of software such as Sketchup, Podium and E-view.

MODULE-3:

Application of software such as Catia, Primavera for construction planning management.

MODULE-4:

Application of software such as Design Builders and other software related to energysimulation modeling.

LIST OF PRACTICALS:

Revit Architectural Suite: Auto cad 2009 and 3D max for design studio problems. Photoshop, coral draw, etc. for design studio problems.

Building Information modeling for a given project. Sketchup Pouching and E-view for a given design
Catia application for at least 2 design schemes

Primavera: Construction planning management applied to ongoing design studio project

Application of Design Builder and DOE2 for energy simulation modeling of one ongoing and one new project.

REFERENCE BOOKS:

- Omura G., "Mastering Revit 2009", Sybex Publication.
- Omura G., "Bible 3D. Max 2009", Sybex Publication.
- Manuals of Sketchup, Podium, E-view, Catia and Primavera.
- Manuals of Design Builders and Energy Simulation Modeling.
- Manuals of M.S. Pro and Power Sim.

SEMESTER II

SUBJECT CODE: MAR 1201	SCHEME OF TEACHING					SCHEME OF EVALUATION				
SUBJECT NAME- SUSTAINABLE DEVELOPMENT	L	S	P	HOURS	CREDIT	T	S	VIVA	TOTAL	Hrs
SUBJECT CATEGORY-CC	2	2	-	4	4	60	40	-	100	3

OBJECTIVE:

- To understand Sustainable building design aspects.
- To provide the economic wellbeing to the present and future generation.

LEARNING OUTCOME:

- Understanding the concepts of sustainable built forms.
- Developing insight related to the working of ecosystems related to human needs.
- Application of concepts of sustainable development to address sustainability challenges in a global context.

MODULE-1:

Introduction to sustainable development in relation to natural resource conservation, energy conservation, environmental pollution and conservation of bio-diversity.

MODULE-2:

Global issues such as global warming, ozone layer depletion, greenhouse gases, and depletion of natural resources in relation to energy generation.

MODULE-3:

Sustainable development from the perspective of regional and urban planning; Issues at regional and micro level.

MODULE-4:

Climate considerations in design of buildings in various climates; Eco-friendly architecture.

REFERENCE BOOKS

- Energy, Environment and Sustainable Development by Pradeep Chaturvedi
- Sustainable Building: Design Manual by Europe aid
- Energy Technologies for Sustainable Development by Upender Pandel, M P Poonia
- World development Report 2003 Sustainable Development in a Dynamic World... by The World Bank
- Climate Responsive Architecture: A Design Handbook for Energy Efficient Buildings by Arvind Krishan.
- Ecology and Natural Resource Management for sustainable development by A K Jain
- A Textbook of Environmental Pollution and Control by H S Bhatia.

SUBJECT CODE: MAR1202 & MAR1252	SCHEME OF TEACHING					SCHEME OF EVALUATION				
SUBJECT NAME- REMOTE SENSING & GIS IN ARCHITECTURE	L	T	P	HOURS	CREDIT	T	S	VIVA	TOTAL	Hrs
MAR1202	1	1	-	2	2	60	40	-	100	3
MAR1252	-	-	2	2	1	-	-	50	50	-
SUBJECT CATEGORY-CC	1	1	2	4	3	60	40	50	150	-

OBJECTIVE:

- To introduce the principles of aerial and satellite based remote sensing for studying earth resources.
- To introduce geophysical well logging techniques for interpretation of sub-surface geology.

LEARNING OUTCOME:

- Understanding the principles of aerial and satellite based remote sensing and geophysical well logging techniques for interpretation of sub-surface geology.
- Developing and interpreting maps, images and apps to communicate spatial data in a meaningful way to others
- Application of geographical positing and climatic conditions into the projects.

MODULE-1:

Introduction, development of remote sensing technology, advantages; Different platforms of remote sensing; EM spectrum, solar reflection and thermal emission remote sensing.

MODULE-2:

Interaction of EM radiation with atmosphere including atmospheric scattering, absorption and emission. Interaction mechanisms of EM radiation with ground, spectral response curves. Photographic techniques in aerial and space borne remote sensing; Spectro zonal photography using various camera, film, filter combinations; Applications and limitations.

MODULE-3:

Stereo aerial photography, principle of stereoscopy, elements of photogrammetry. Principles of image interpretation, digital image processing.

Multi-spectral scanners and imaging devices; Salient characteristics of LANDSAT, IRS, SPOT, IKONOS, Quick Bird, GeoEye sensors and their applications.

MODULE-4:

Image characteristics and interpretation of different geological landforms, structures and major igneous, sedimentary and metamorphic rock types; Remote sensing as a fore-runner in all exploration programs.

LIST OF PRACTICALS:

Objectives of well logging, classification of well logging methods, formation evaluation and its importance. Basic principles, SP log, normal and lateral logs, focused logs, micro resistivity tools and their role in formation evaluation; Applications.

Basic principles, dual induction logs, geometric factors; Applications

Basic principles of different types of radiation logs including gamma ray, gamma-gamma, neutron thermal and chlorine logs; Porosity determination and cross plots; Applications Basic principles, sonic logging tools, porosity determination; Applications

Permeability, bound and free-water estimation using NMR logging techniques; Applications Caliper, dip meter, cementbond logging, casing collar locators, temperature logging; Applications Rock sampling, fluid sampling and pressure measurements

REFERENCE BOOKS:

- Drury, S. A., “Image Interpretation in Geology”, 2nd Ed., Allen and Unwin.
- Gupta, R. P., “Remote Sensing Geology”, 2nd Ed., Springer
- Lillesand, T.M., Kiefer, R.W. and Chipman, J.W., “Remote Sensing and Image Interpretation”, 5th Ed., John Wiley & Sons
- Sabins, F.F. Jr., “Remote Sensing-Principles and Interpretation”, 3rdEd., Freeman
- Chang, K.T., “Introduction to Geographic Information Systems”, McGraw-Hill
- Harvey, F., “A Primer of GIS: Fundamental Geographic and Cartographic Concepts” Guilford Press
- Lo, C. P., “Concepts and Techniques of Geographic Information Systems” Pearson - Prentice Hall
- Lillesand, T.M., Kiefer, R.W. and Chipman, J.W., “Remot

SUBJECT CODE: MAR 1203	SCHEME OF TEACHING					SCHEME OF EVALUATION				
SUBJECT NAME- URBAN INFRASTRUCTURE PLANNING	L	T	P	HOURS	CREDIT	T	S	VIVA	TOTAL	Hrs
SUBJECT CATEGORY-CC	2	-	-	2	2	60	40	-	100	3

OBJECTIVE:

- To understand importance and management of infrastructure planning for appropriate development schemes.
- To understand a detailed overview of municipal infrastructure sector and subsector elements, linkages with city development goals and land use.

LEARNING OUTCOME:

- Understanding the principle of infrastructure management.
- Developing city infrastructure demand assessments, components of land use integrated infrastructure planning, prioritization practices and implementation frameworks.
- Application of sustainable infrastructure into the Urban fabric.

MODULE-1:

Introduction to infrastructure planning, definition and categorization of infrastructure as applicable to urban and rural planning.

Energy- classification and characteristics of energy resources, energy use, and energy demand in different sectors of economy and settlement; Comparative energy statistics; Planning for energy needs; Concepts and guidelines.

MODULE-2:

Water supply, sewerage and drainage- basic facts on use and characteristics; Planning for integrated and sustainable management of water system, sewerage and drainage- concepts, guidelines, technologies and strategies; Case studies.

MODULE-3:

Solid waste management; Nature and classification of urban waste; Working of the existing system and shortcomings; Management of urban solid waste- guidelines, technologies and strategies; Case studies.

MODULE-4:

Social infrastructure for different size and types of human settlements- typologies and standards; Planning for educational, health, recreational and socio-cultural facilities, amenities for different categories of urban and rural settlements.

REFERENCE BOOKS:

- Dragan, S., "Sustainable Water Management Solutions for Large Cities", IAHS Publication.
- Tchobanoglous, G., "Integrated Solid Waste Management: Engineering Principles and Management Issues", McGraw Hill.
- Goodman, A.S. and Hastak, M., "Infrastructure Planning Handbook: Planning Engineering and Economics", New York: ASCE Press.
- "Solid Waste Management in Class I Cities in India".
- Report of the expert Committee constituted by Hon. Supreme Court of India.
- Baum, V., "Energy Planning in Developing Countries", Australian Govt. Publishing Service.
- Zaini, U. and Mogens, H., "Municipal Wastewater Management in Developing Countries", Elsevier.

SUBJECT CODE: MAR 1204 & MAR1252	SCHEME OF TEACHING					SCHEME OF EVALUATION				
SUBJECT NAME- HOUSING	L	T	P	HOURS	CREDIT	T	S	VIVA	TOTAL	Hrs
MAR1204	2	1	-	3	3	60	40	-	100	3
MAR1252	-	-	4	4	2	-	-	50	50	-
SUBJECT CATEGORY-FC	2	1	4	7	5	60	40	50	150	-

OBJECTIVE:

- To impart comprehensive knowledge about housing design, planning and finance.
- To understand different aspects of community housing and the relationship.

LEARNING OUTCOME:

- Understanding about housing design, planning and finance.
- Developing knowledge of the process involved in addressing a design problem with emphasis on site planning.
- Application of different aspects of design into the projects.

MODULE-1:

Introduction to housing, social and economic infrastructures in planning, housing shortage-reasons and remedies.

Housing policies and programmes, mass housing programmes, slums and renewal schemes.

MODULE-2:

Housing finance and schemes, HUDCO and other housing/ building financial institutions, role of revolving funds in housing.

MODULE-3:

Housing design standards for various income group housing, analysis and design for HIG, MIG and LIG housing schemes.

Rural and EWS housing schemes, affordable housing, cost effective housing.

MODULE-4:

Selected case studies of housing schemes by government and private developers in India and abroad.

REFERENCE BOOKS:

- Balaji V. & Raj manohar, "Housing Sector in India; Issues, Opportunities and Challenges", ICAFI University Press.
- Christian Schittich (ed), "High Density Housing; Concepts, Planning, Construction", Birkhauser.
- French H., "Key Urban Housing of the Twentieth Century", Lawrence King.
- Reeves P., "Introduction to Social Housing", Elsevier.
- Davis S., "The Architecture of Affordable Housing", University of California Press.

SUBJECT CODE: MAR 1205	SCHEME OF TEACHING					SCHEME OF EVALUATION				
SUBJECT NAME- TRANSPORTATION PLANNING	L	T	P	HOURS	CREDIT	T	S	VIVA	TOTAL	Hrs
SUBJECT CATEGORY-FC	2	1	-	3	3	60	40	-	100	3

OBJECTIVE:

- To acquire knowledge in traffic and transportation planning
- To understand finding specific transportation mode, but will use the various modes to apply the theoretical and analytical concepts.

LEARNING OUTCOME:

- Understanding the issues & challenges in the Transportation Sector.
- Developing skills required for Transport planning & formulation.
- Applying the processes for Transport project execution and control.

MODULE-1:

Introduction to traffic and transportation planning in urban and regional context; Traffic and transportation characteristics and problems of India.

Types of roads and planning standards; Road design and layout;

MODULE-2:

Road intersections; Road cross sections; Street furniture; Design for road safety.

Traffic and transportation surveys; Traffic zones, cordon lines and control stations; O and D surveys, home interviews and travel pattern data; Inventory of existing transportation facilities including parking.

MODULE-3:

Traffic Management- traffic control systems, traffic signs, signals, speed regulations etc; Design for traffic segregation; Planning for parking.

Traffic planning and forecasting- trip generation and methods of predicting trip generation; Models of traffic assignments.

MODULE-4:

Roads and transport services in urban and rural settlement; Mass transportation in urban environment; Urban form in relation to traffic and transportation patterns; Sustainable transport systems; Environmental considerations.

Case studies on best practices of traffic management and transportation services from India and abroad; New innovations and concepts in traffic and transportation

REFERENCE BOOKS:

- Bohlinger, M., "Planning Traffic Management", Springer.
- Bruton, M.J., "Introduction to Transportation Planning", Amazon Co.
- Burton E. and Mitchell, L., "Inclusive urban design: streets for life", Elsevier
- Tiwari G., "The Way Forward Transportation Planning and Road Safety", IITD Publication.
- Kadiyal, L.R "Traffic Engineering and Transport Planning", Khanna Publisher.
- Vuchic, V.R. "Urban Transport Systems and Technology", Wiley & Sons.

SUBJECT CODE: MAR 1206(1)	SCHEME OF TEACHING					SCHEME OF EVALUATION				
SUBJECT NAME- THEORY OF LANDSCAPE ARCHITECTURE	L	T	P	HOURS	CREDIT	T	S	VIVA	TOTAL	Hrs
SUBJECT CATEGORY-EC	2	2	-	4	4	60	40	-	100	3

OBJECTIVE:

- To Study the usage of elements of landscape in history & attempt to reinterpret & examine their relevancy in today's context.

LEARNING OUTCOME:

- Understanding about usage of elements of landscape in history and in today's context.
- Analyzing different theories and concepts from the history, critically assess design solutions.
- Application of design principle from the theories and concepts in the projects.

MODULE-1:

An overview of the development of landscape design from prehistoric to present with an aim to understand the generative ideology, formulation of framework for the development of landscape design.

MODULE-2:

History of Garden Planning in India – from early times till today. Impact of Rulers on Gardens/ Landscape design, Buddhist Gardens, Mughal Gardens, Colonial Gardens.

MODULE-3:

Renaissance in Europe. Italian and French gardens. Evolution of the axial plan. Development during the Baroque period. England: Evolution of the English landscape style. Japan: Japanese landscape style. Landscape design in East Asia, China, Japan, Thailand.

MODULE-4:

The 19th Century in Europe and USA; emergence of landscape architecture as a profession. The 20th Century: Development of urban landscape design; garden cities, suburbs, new towns, contemporary approaches in Landscape Architecture.

REFERENCE BOOKS:

- Theory of Landscape Architecture by – Simon Swaffield.
- Landscape Architecture theory: An ecological Approach by – Michael D. Murphy.

SUBJECT CODE: MAR 1206(2)	SCHEME OF TEACHING					SCHEME OF EVALUATION				
SUBJECT NAME- CLIMATOLOGY	L	T	P	HOURS	CREDIT	T	S	VIVA	TOTAL	Hrs
SUBJECT CATEGORY-EC	2	2	-	4	4	60	40	-	100	3

OBJECTIVE:

- To understand the impact of natural and manmade features on climate.
- To integrate and utilize the climate and its impacts in architectural design by understanding the basic and fundamental concepts of climatic design and elaborating the climatic design to site, surrounding and at building level.

UNDERSTANDING OUTCOME:

- Understanding and developing the scheme according to climatic condition.
- Analyzing the climate and its impacts in architectural design.
- Application fundamental building physics as an important aspect of designing buildings to understand the physical properties and performance phenomena of the buildings in terms of heat, light, acoustics and energy.

MODULE-1:

Elements of weather: A brief introduction to the composition of atmosphere, elements of weather, temperature, precipitation, humidity, air pressure, wind patterns, and corridors. Changes in atmosphere with altitude. Land water dynamics, Radiation.

MODULE-2:

Climatic zones of India: A brief outline of various characteristics critical aspect, duration of the critical conditions etc.

Evaluation of climatic data: Sources, methods of obtaining climatic data. Instruments, charts used for this purpose. Use of charts for onsite study.

MODULE-3:

Simplification and synthesis of climatic data and how to arrive at conclusions / Vegetation, soil, water etc. as indicators of climate; bio metrology.

MODULE-4:

Micro climate: Climatic controls in traditional building forms. Vegetation and water bodies as modifiers of climate. Climatic impact of natural elements, landforms, vegetation, wind, temperature, solar radiation control etc. wind breaks, shelter belts and site planning processes in modifying the climatic condition at site and city level. Microclimate and problems of its management in urban and rural surroundings. Weather in relation to pollution control. Effects of climatic conditions on pollution.

REFERENCE BOOKS:

- Climatic Design by - Koenigsberger
- Handbook of climatology by – Vivian Moritz

SUBJECT CODE: MAR 1251	SCHEME OF TEACHING					SCHEME OF EVALUATION				
SUBJECT NAME- ARCHITECTURAL DESIGN STUDIO-II	L	T	P	HOURS	CREDIT	T	S	VIVA	TOTAL	Hrs
SUBJECT CATEGORY-CC	1	-	6	7	4	-	100	100	200	--

OBJECTIVE:

- To explore sustainability aspects of building design.
- To explore aspects of density distribution.
- To understand disaster resistant building design parameters.

UNDERSTANDING OUTCOME:

- Understanding green building concepts in relation to density scenario.
- Developing complex building designs with sustainable approach.
- Application of discussed principles to the design projects.

MODULE-1:

Building functional efficiency in relation to space, form and aesthetics.

MODULE-2:

Building standards and building bye laws for different types of buildings in various locations. Design of low rise and mid-rise buildings with high density.

MODULE-3:

Specialized buildings design such as hospital, airport and hotel. Disaster resistant building design.

MODULE-4:

Sustainable building design aspects and green buildings design concepts.

DESIGN EXERCISES:

Major design exercises in large scale housing projects, especially mid-rise with high density, urban design projects, hospital projects etc.

Minor design exercises related to disaster resistant buildings for earthquake, cyclone etc.; Disaster mitigation and rehabilitation projects; Sustainable and green building design.

REFERENCE BOOKS:

- Agkathidis, A., Hudert, M. and Schillig, G., “Form Defining Strategies: Experimental Architectural Design”, Wasmuth International.
- Ching, F.D.K., “Architecture Theoretician”, John Wiley & Sons
- Kieran, S. and Timberlake, J., “Elements of a New Architecture”, Princeton Architectural Press.
- Smith, P.F., “Architecture and the Human Dimensions”, George Baldwin Ltd.
- Watson, D. (ed.), “Time-saver Standards for Architectural Design: Technical Data for Professional Practice”, 8th ed., McGraw-Hill.

SEMESTER III

SUBJECT CODE: MAR 1301	SCHEME OF TEACHING					SCHEME OF EVALUATION				
SUBJECT NAME- RESEARCH TECHNIQUES IN ARCHITECTURE	L	T	P	HOURS	CREDIT	T	S	VIVA	TOTAL	Hrs
SUBJECT CATEGORY-CC	2	2	-	4	4	60	40	-	100	3

OBJECTIVE:

- To train students in research design and methods.
- To understand the use of research terminology and integration of the elements of the research process within quantitative, qualitative, and mixed scientific methods approaches.

LEARNING OUTCOME:

- Understanding about research design and research methods.
- Developing qualitative, quantitative, and mixed research methodologies to conduct research in architecture.
- Applying the research process to problems in architectural design and planning.

MODULE-1:

Research in architecture and planning-its importance, purpose and scope in the professional and academic fields; common and exclusive areas of research in architecture and planning.

Overview of architectural and design research techniques in areas such as architectural technology, environment and behavior, design methods, architectural theory, design programming; post-occupancy evaluation; Users' participation.

MODULE-2:

Overview of planning research areas that contributes to the shaping of neighborhoods, communities, settlements and regions as well as infrastructure provisions and sustainable development
 Research sequence and methods; Problem identification, formulation of hypothesis, objectives and methodology; Literature survey and preparation of bibliography and sources of data.

MODULE-3:

Qualitative, interpretative, correlation, analytical, experimental and quasi-experimental, modeling and simulation research methods; Case- studies.
 Field surveys- physical, architectural, land use, environmental, organizational and household surveys;
 Preparation of schedules, questionnaires and other data sheets; Pilot surveys; Formulation of database.

MODULE-4:

Techniques and methods of analyzing architectural data, establishing correlations and interrelationships;
 Environmental network analysis and conclusions; Forecasting and modeling and validation.
 Evaluation and appraisal of architectural and planning projects; Techniques of writing thesis, project and master plan reports, research papers for publication; Presentation techniques

REFERENCE BOOKS:

- Knight, A. and Ruddock,L., "Advanced Research Methods in Built Environment", John Wiley & Sons. 2008
- Groat, L. and Wang D., "Architectural Research Methods", John Wiley & Sons. 2002
- Gibbs, J.P., "Urban Research Methods", (rev.ed.) Von Nostrand. 1988
- Khanzode, V.V., "Research Methodology -Techniques and Trends", APH Publishing. 1995
- Kothari, C.R., "Research Methodology- Methods and Techniques", New Age International. 2004

SUBJECT CODE: MAR 1302	SCHEME OF TEACHING					SCHEME OF EVALUATION				
SUBJECT NAME- DISASTER MANAGEMENT	L	T	P	HOURS	CREDIT	T	S	VIVA	TOTAL	Hrs
SUBJECT CATEGORY-CC	2	2	-	4	4	60	40	-	100	3

OBJECTIVE:

- To understand policies related to disaster management.
- To impart better understanding of disaster management, mitigation, preparedness, response, rehabilitation and reconstruction.

LEARNING OUTCOME:

- Understanding about disaster types, the impact (pre-impact and post-impact) and role of public and professional stakeholders.
- Analyzing the case studies for disaster risk assessment and its impact.
- Application of disaster management, mitigation, preparedness, response, rehabilitation and reconstruction policies.

MODULE-1:

An overview of Disaster Management, Definition of basic concepts related to disaster management.

MODULE-2:

Disaster Types Disaster Statistics. Earthquake, Tsunami, Flood, Cyclone, Technological Disaster

MODULE-3:

Disaster Policy, Disaster Mitigation and Preparedness Impact assessment

MODULE-4:

Community based disaster management Rehabilitation and Resettlement

REFERENCE BOOKS:

- Disaster Management by – Debabrata Mondal
- Fundamentals of disaster management by – Shekhawat R.S

SUBJECT CODE: MAR 1303	SCHEME OF TEACHING					SCHEME OF EVALUATION				
SUBJECT NAME- RESOURCE CONSERVING ARCHITECTURE	L	T	P	HOURS	CREDIT	T	S	VIVA	TOTAL	Hrs
SUBJECT CATEGORY-FC	2	2	-	4	4	60	40	-	100	3

OBJECTIVE:

- To acquaint students with principles, techniques and relevant guidelines for planning and design of resource-conserving architecture.
- To understand the gaps in the historical record especially in relationship to underrepresented communities.

LEARNING OUTCOME:

- Understanding about principles, techniques and relevant guidelines for planning and design of resource-conserving architecture.
- Analyzing the sustainable design parameters for creation of healthy buildings and settlements.
- Application of technologies related to resource conservation.

MODULE-1:

Classification and characteristics of resources, brief review of use/ exploitation of resource for development in human history; concepts and need for conservation, renewable and non- renewable resources.

MODULE-2:

Basic concepts, parameters and principles of energy conservation; patterns and efficiency of energy use in architecture; technologies, methods of energy conservation. Conserving building materials, water, land etc. in architecture, technologies/ methods of conservation and their implications.

MODULE-3:

Fundamentals of planning and design of resource conserving architecture; innovative and appropriate design concepts and construction technologies.

MODULE-4:

Discussion of Indian and foreign case studies

REFERENCE BOOKS:

- Greg P., “Natural Home Heating”, Sterling Hill Production. 2003
- Hyde R., Wodson S., Chehire W. and Thowson M., “The Environmental Brief Pathways for Green Design”, Taylor & Francis. 2006
- Yudelson J., “Greening Existing Buildings”, Mc Graw Hills. 2009
- Baker, N. and Steemers, K., “Energy and Environment in Architecture: A Technical Design Guide”, Routledge. 2000
- Gonzalo R. and Habermann K.J., “Energy-efficient Architecture: Basics for Planning and Construction”, Birkhauser. 2006
- Clark W.H., “Retrofitting for Energy Conservation”, Mc Graw Hills. 1997

SUBJECT CODE: MAR 1351	SCHEME OF TEACHING					SCHEME OF EVALUATION				
SUBJECT NAME- ARCHITECTURAL DESIGN STUDIO III	L	T	P	HOURS	CREDIT	T	S	VIVA	TOTAL	Hrs
SUBJECT CATEGORY-CC	1	-	6	7	4	-	100	100	200	--

OBJECTIVE:

- To develop professional approach to design specialized building design (high tech architecture)
- To learn core concepts of high-tech architecture and engineering structures.

LEARNING OUTCOME:

- Understanding about specialized building design projects.
- Analyzing the core concepts of high-tech architecture and engineering structures.
- Application of discussed concepts into design projects.

MODULE-1:

Development Projects containing group of buildings with multiplicity of constraints such as relationship of land uses, space, architectural character, circulation, movement, landscape and buildings.

MODULE-2:

Site planning and environmental considerations.

MODULE-3:

Physical and economic constraints in designing.

MODULE-4:

Study of planning regulations.

DESIGN STUDIO EXERCISES:

Major design exercises in high-tech architecture, industrial buildings, intelligent futuristic buildings etc.
Minor design exercises in engineering structures such as power houses and futuristic building forms.

REFERENCE BOOKS:

- High Tech Architecture by - Colin Davies.
- Structure and Architecture by – Angus J. Macdonald.

SUBJECT CODE: MAR 1352	SCHEME OF TEACHING					SCHEME OF EVALUATION				
SUBJECT NAME- DISSERTATION	L	S/T	P/V	HOURS	CREDIT	T	S	VIVA	TOTAL	Hrs
SUBJECT CATEGORY-CC	-	-	2	2	1	-	200	-	200	--

OBJECTIVE:

- To do the research in any subject related to architecture and submit it in the form of report.
- To understand the use of advance research techniques in report writing.

LEARNING OUTCOME:

- Understanding the significance of research in subject related to architecture
- Engaging in systematic discovery and critical review of appropriate and relevant information sources.
- Communicating research concepts and contexts clearly and effectively both in writing and orally.

MODULE-1:

Topics related to various aspects of Architecture would be chosen in consultation with faculty members, comprehensively researched, and findings presented in a series of seminars by individual students.

MODULE-2:

Literature review, hypothesis and research design.

MODULE-3:

Data collection, analyses and interpretation in form of presentation

MODULE-4:

Hypothesis testing, conclusion and result.

Note- The materials would be documented and formally presented as a Dissertation. The dissertation would be of a length of between 3000 and 4000 words with illustrations, references, footnotes and annotations. The students are suggested to publish a research paper (related to the topic) in authentic journal. Weightage will be given for the same.

REFERENCE BOOKS:

- Linda N. Groat, Devid Wang, Architectural Research methods.
- Hyde R., Wodson S., Chehire W. and Thowson M., “The Environmental Brief Pathways for Green Design”, Taylor & Francis. 2006

SUBJECT CODE: MAR 1353(1)	SCHEME OF TEACHING					SCHEME OF EVALUATION				
SUBJECT NAME- LOW-COST BUILDING DESIGN AND TECHNIQUES	L	T	P	HOURS	CREDIT	T	S	VIVA	TOTAL	Hrs
SUBJECT CATEGORY-EC	2	1	1	4	4	-	40	60	100	--

OBJECTIVE:

- To impart knowledge on various building materials, construction techniques for designing low-cost buildings.

LEARNING OUTCOME:

- Understanding various aspects of low-cost building design and its execution.
- Analyzing construction technologies to be implemented in low-cost buildings.
- Review the application and concepts in projects.

MODULE-1:

Introduction to low-cost buildings, building components influencing cost of buildings.

MODULE-2:

Modular coordination in building design, prefabrication- total and partial, impact of prefabrication on employment

Use of CPM and PERT methods in building construction

MODULE-3:

Building construction detailing for cost reduction.

Application of low-cost building materials and various construction techniques.

MODULE-4:

Building cost control techniques, research and development by various organizations in the country and foreign countries to reduce the cost.

REFERENCE BOOKS:

- Davis, S., "Architecture of Affordable Housing", University of California Press. 1995
- Ruiz, F.P., "Building an Affordable House", Taunton Press. 2005
- Nunan, J., "The Complete Guide to Alternative Home Building Materials and Methods", Atlantic Publishing. 1980
- Lal, A.K., "A Handbook of Low-Cost Housing", New Age International. 1995
- Mathur, G.C., "Low-Cost Housing in Developing Countries", South Asia Book. 1999
- Sowman, M. and Urquhart, P., "A Place called Home: Environmental Issues and Low-Cost Housing", Juta Academic. 1998

SUBJECT CODE: MAR 1353(2)	SCHEME OF TEACHING					SCHEME OF EVALUATION				
SUBJECT NAME- ADVANCED LANDSCAPE DESIGN	L	S/T	P/V	HOURS	CREDIT	CIA	ESE	P/V	TOTAL	Hrs
SUBJECT CATEGORY-EC	2	1	1	4	4	-	40	60	100	--

OBJECTIVE:

- To impart knowledge on advanced concepts of landscape design ranging from local to regional scales.

LEARNING OUTCOME:

- Understanding various concepts of landscape design.
- Developing skill to design landscape from local to regional scale.
- Application of theories of landscape design into the projects.

MODULE-1:

Introduction to landscape design, types of landscapes and their characteristics, linkages with nature and built environment.

MODULE-2:

Elements and materials of landscapes, characteristics of various types of plants, topography and their suitability of landscaping.

MODULE-3:

Landscape conservation- its purpose, preparatory procedure, maintenance of existing landscape. Urban and regional landscapes- ecological and environmental aspects of landscape design.

MODULE-4:

Landscape profession and practice in relation to architecture and total built environment
Landscape design schemes for various building types, formal and informal design schemes, landscaping paths, gardens and roads.

REFERENCE BOOKS:

- Barlow, R.E., “Landscape Design: A Cultural and Architectural History”, Harry N. Abrams. 2001
- Hunt, J.D., “Greater Perfections: The Practice of Garden Theory”, Thames & Hudson. 2000
- Kaplan, R., Kaplan, S. and Ryan, R., “With People in Mind: Design and Management of Everyday Nature”, Island Press. 1998
- Reid, G.W., “Landscape Graphics”, Watson-Guption. 2002
- Ruggles, D.F., “Islamic Gardens and Landscapes”, Univ. of Pennsylvania Press. 2008
- Simonds, J.O., “Landscape Architecture, A Manual of Land Planning and Design”, McGraw Hill.2006

SUBJECT CODE: MAR 1354	SCHEME OF TEACHING					SCHEME OF EVALUATION				
SUBJECT NAME- PROJECT MANAGEMENT	L	T	P	HOURS	CREDIT	T	S	VIVA	TOTAL	Hrs
SUBJECT CATEGORY-EC	2	1	1	4	4	-	40	60	100	--

OBJECTIVE:

- To provide a brief introduction to general issues of project management.
- To provide insights into problem solving and persuasive presentation of solutions.
- To increase awareness of how people work as team members and as individuals.

LEARNING OUTCOME:

- Understanding about general issues of project management, problem solving and persuasive presentation of solutions and how people work as team members and as individuals.
- Developing building designs with well-integrated systems.
- Application of systematic commencement of the projects.

MODULE-1:

Introduction to project management and project management software Needs and solutions: needs identification, proposed solutions.

MODULE-2:

Team work: problem solving in groups, the project manager, the project team, teamwork and personality: Mc Cleland's theory. Discuss who are you? Exercise. Leadership and motivation
Project communication and documentation: project communication and documentation and planning. Discuss new faculty hire exercise.

MODULE-3:

Schedule control: scheduling, schedule control

MODULE-4:

Resource consideration: resource consideration, cost planning and performance

REFERENCE BOOKS

- Basis Project Management Architecture by – Bert Bielefeld.
- Human Motivation by – David C. McClelland.
- Project management for facility construction by- De Marco.

SEMESTER IV

SUBJECT CODE: MAR 1451	SCHEME OF TEACHING					SCHEME OF EVALUATION				
SUBJECT NAME- THESIS	L	T	P	HOURS	CREDIT	T	S	VIVA	TOTAL	Hrs
SUBJECT CATEGORY-CC	-	25	-	25	25	-	450	450	900	--

OBJECTIVE:

- To do the live design project in any subject related to architecture and submit it in the form of report

LEARNING OUTCOME:

- Around successful completion of the Course, the student will be able to comminate ideas and thoughts about architectural field in a visual form.
- Analysis and formulation of various theories and principles discussed in dissertation.
- Employing the discussed principles of previous semester research subject to write the report.

MODULE

Architecture thesis will consist of two parts:

1. Research oriented towards establishing a strong theoretical background for the chosen subject.
2. Application to an Architecture Planning or Architecture Design proposal with appropriate details.