

BABU BANARASI DAS UNIVERSITY

COURSE STRUCTURE
AND
SYLLABUS
FOR
MASTER OF ARCHITECTURE

**M. ARCH.
(ARCHITECTURE- PART TIME)**



School of Architecture, BBD University

School of Architecture, BBD University

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

Teaching Scheme			Contact Hrs. per week L: Lectures, T:Tutorials, P: Practical				Exam. Scheme Marks T: Theory, S:Sessionals				Exam Duration (Hrs)
S. No.	Sub. Code	Course Title	L	T	P	Total	T	S	Viva	Total	
1st YEAR			I SEMESTER								
THEORY SUBJECTS											
1.	MAR-103	Contemporary Architecture: Theories and Trends	2	1	-	3	50	50	-	100	3
2.	MAR-105	Urban Design	2	1	-	3	50	50	-	100	3
3.	MAR-107	Ecology in Architecture	2	-	-	2	50	50	-	100	3
PRACTICAL SUBJECTS											
4.	MAR-101P	Architectural Design Studio-I	1	-	6	7	-	100	100	200	-
Sub Total						15				500	

1st YEAR			II SEMESTER								
THEORY SUBJECTS											
1.	MAR-104	Sustainable Development	2	1	-	3	50	50	-	100	3
2.	MAR-106	Remote Sensing & GIS in architecture	1	-	-	1	50	50	-	100	3
3.	MAR-108	Urban Infrastructure Planning	2	-	-	2	50	50	-	100	3
PRACTICAL SUBJECTS											
4.	MAR-102P	Architectural Design Studio-II	1	-	6	7	-	100	100	200	-
5.	MAR-106P	Remote Sensing & GIS in architecture	-	-	2	2	-	-	50	50	-
Sub Total						15				550	

School of Architecture, BBD University

Teaching Scheme			Contact Hrs. per week L: Lectures, T:Tutorials, P: Practical				Exam. Scheme Marks T: Theory, S:Sessionals				Exam Duration (Hrs)
S. No.	Sub. Code	Course Title	L	T	P	Total	T	S	Viva	Total	
2nd YEAR			III SEMESTER								
THEORY SUBJECTS											
1.	MAR-203	Research Techniques in Architecture	2	1	-	3	50	100	-	150	3
2.	MAR-205	Disaster Management	2	1	-	3	50	100	-	150	3
3.	MAR-207	Resource Conserving Architecture	2	1	-	3	50	50	-	100	3
4.	MAR-113/ MAR-115/ MAR-117	Elective-I	2	1	-	3	50	50	-	100	3
PRACTICAL SUBJECTS											
5.	MAR-111P	Technical Communication in Architecture	1	1	1	3	-	100	100	200	-
Sub Total						15				700	

2nd YEAR			IV SEMESTER								
THEORY SUBJECTS											
1.	MAR-110	Housing	2	1	-	3	50	50	-	100	3
2.	MAR-112	Transportation Planning	2	1	-	3	50	50	-	100	3
3.	MAR-114/ MAR-116	Elective-II	2	1	-	3	50	50	-	100	3
PRACTICAL SUBJECTS											
4.	MAR-109P	Computer Applications in Architecture	1	-	3	4	-	50	50	100	-
5.	MAR-110P	Housing	-	-	1	1	-	-	50	50	
Sub Total						14				450	

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Teaching Scheme			Contact Hrs. per week L: Lectures, T:Tutorials, P: Practical				Exam. Scheme Marks T: Theory, S:Sessionals				Exam Duration (Hrs)
S. No.	Sub. Code	Course Title	L	T	P	Total	T	S	Viva	Total	

3 rd YEAR V SEMESTER											
PRACTICAL SUBJECTS											
1.	MAR-201P	Architectural Design Studio-III	1	-	6	7	-	100	100	200	-
2.	MAR-211P/ MAR-213P	Specialization Elective	1	1	1	3	-	50	50	100	-
3.	MAR-209P	Dissertation - I		-	2	2	-	100	-	200	-
4.	MAR-215P	Interdisciplinary Elective	1	1	1	3	-	50	50	100	-
Sub Total						15				600	

3 rd YEAR VI SEMESTER											
PRACTICAL SUBJECTS											
1.	MAR-202P	Dissertation - II		-	6	6	-	450	450	900	-
Sub Total						6				900	

Open Electives			
1.	MAR-113	High Rise Buildings	Elective-I
2.	MAR-115	Futuristic Architecture	
3.	MAR-117	Advanced Building Technologies	
4.	MAR-114	Theory of Landscape Architecture	Elective-II
5.	MAR-116	Climatology	

Specialization Electives			
1.	MAR-211P	Low Cost Building Design and Techniques	Elective-III
2.	MAR-213P	Advanced Landscape Design	Elective-III

Interdisciplinary Electives			
1.	MAR-215P	Project Management	Elective-IV

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SEMESTER - I

School of Architecture, BBD University

M. ARCH. – AR-PART TIME SEM- I MAR-103 Contemporary Architecture: Theories and Trends

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	S/T	P/V	Total	S	Exam. T	Exam P/V.V	Total	
2	1	-	3	50	50	-	100	3 Hrs

OBJECTIVE:

- To impart knowledge of contemporary theories and trends in architecture through the examples of emerging building typologies.

CONTENTS:

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

SUGGESTED 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

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M. ARCH. – AR-PART TIME SEM- I MAR-105 Urban Design

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	S/T	P/V	Total	S	Exam. T	Exam P/V.V	Total	
2	1	-	3	50	50	-	100	3 Hrs

OBJECTIVE:

- To impart knowledge on various aspects, elements, concepts and principles of urban design.

CONTENTS:

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

SUGGESTED 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”

School of Architecture, BBD University

M. ARCH. - AR-PART TIME SEM- I MAR-107 Ecology in Architecture

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	S/T	P/V	Total	S	Exam. T	Exam P/V.V	Total	
2	-	-	2	50	50	-	100	3 Hrs

OBJECTIVE:

- The course is a condensed package of basic and advanced level fundamentals related to Environment, Environmental issues and Environmental planning.
- In this course the issues and techniques of environmental planning are seen from different angles such as development, urbanization, human activities and landuse. Conceptually, the course is designed in a balanced approach.
- Attention has been given to clarify the theoretical base of the students, as well as to make it a research based program. The course will be delivered through lectures, group assignment (case studies) and group discussions.

CONTENTS:

- 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 concerns.
- 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.
- 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.
- 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.

SUGGESTED 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.

School of Architecture, BBD University

M. ARCH. - AR-PART TIME SEM- I MAR-101 Architectural Design Studio-I

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	T	P	Total	S	Exam. T	Exam P/V.V	Total	
1	-	6	7	100	-	100	200	No Theory Exam.

OBJECTIVE:

- The objective of this exercise is to develop personal attitudes, values and independencies of mind with professional approach to design process.
- Development of design of buildings in urban context, phasing and development; Understanding relationship of buildings amongst themselves and with a given environment.

CONTENTS:

- Development Projects containing group of buildings with multiplicity of constraints such as relationship of land uses, space, architectural character, circulation, movement, landscape and buildings.
- Site planning and environmental considerations.
- Physical and economic constraints in designing.
- Study of planning regulations.

DESIGN 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.

SUGGESTED 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

School of Architecture, BBD University

SEMESTER - II

School of Architecture, BBD University

M. ARCH. - AR-PART TIME SEM- II MAR-104 Sustainable Development

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	S/T	P/V	Total	S	Exam. T	Exam P/V.V	Total	
2	1	-	3	50	50	-	100	3 Hrs

OBJECTIVE:

- To make aware of the Sustainable building design aspects and Green buildings design concepts.

CONTENTS:

- Introduction to sustainable development in relation to natural resource conservation,
- energy conservation, environmental pollution and conservation of bio-diversity;
- Global issues such as global warming, ozone layer depletion, green house gases,
- and depletion of natural resources in relation to energy generation;
- Sustainable development from the perspective of regional and urban planning;
- Issues at regional and micro level;
- Climate considerations in design of buildings in various climates;
- Eco-friendly architecture.

SUGGESTED BOOKS AND REFERENCES:

- 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.

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M. ARCH. - AR-PART TIME SEM- II MAR-106 & MAR-106P Remote Sensing & GIS in Architecture

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	S/T	P/V	Total	S	Exam. T	Exam P/V.V	Total	
1	-	2	3	50	50	50	150	3 Hrs

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 subsurface geology.

CONTENTS:

- Introduction, development of remote sensing technology, advantages; Different platforms of remote sensing; EM spectrum, solar reflection and thermal emission remote sensing.
- 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 spaceborne remote sensing; Spectrogonal photography using various camera, film, filter combinations; Applications and limitations.
- 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, QuickBird, GeoEye sensors and
- their applications.
- 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:

1. 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.
2. Basic principles, dual induction logs, geometric factors; Applications
3. Basic principles of different types of radiation logs including gamma ray, gamma-gamma, neutron thermal and chlorine logs; Porosity determination and cross plots; Applications
4. Basic principles, sonic logging tools, porosity determination; Applications
5. Permeability, bound and free-water estimation using NMR logging techniques; Applications
Caliper, dipmeter, cement bond logging, casing collar locators, temperature logging; Applications
6. Rock sampling, fluid sampling and pressure measurements

SUGGESTED BOOKS:

- Drury, S. A., "Image Interpretation in Geology", 2nd Ed., Allen and Unwin.
- Gupta, R. P., "Remote Sensing Geology", 2nd Ed., Springer

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- 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

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M. ARCH. - AR-PART TIME SEM- II MAR-108 Urban Infrastructure Planning

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	S/T	P/V	Total	S	Exam. T	Exam P/V.V	Total	
2	-	-	2	50	50	-	100	3 Hrs

OBJECTIVE:

- To understand importance and management of infrastructure planning for appropriate development schemes.

CONTENTS:

- 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.
- 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
- 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
- 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.

SUGGESTED 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.

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M. ARCH. - AR-PART TIME SEM-II MAR-102P Architectural Design Studio-II

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	S/T	P/V	Total	S	Exam. T	Exam P/V.V	Total	
1	6	-	7	100		100	200	No Theory Exam.

OBJECTIVE:

- To explore challenging aspects of building design through architectural design studio exercises.

CONTENTS:

- Building functional efficiency in relation to space, form and aesthetics.
- 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.
- Specialized buildings design such as hospital, airport and hotel.
- Disaster resistant building design.
- 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.

SUGGESTED 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.

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SEMESTER – III

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M. ARCH. - AR-PART TIME, SEM- III, Architecture

MAR-203: Research Techniques in

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	P/V	S/T	Total	S	Exam. T	Exam P/V.V	Total	
2	-	1	3	100	50	-	150	3 Hours

OBJECTIVE:

- To train students in research design and methods.

CONTENT:

- 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.
- 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.
- 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.
- 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

APPROACH:

- Guest lectures by experts.

SUGGESTED 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
- Ross, R., "Research: An Introduction", Barnes and Noble Books. 1974

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M. ARCH. - AR-PART TIME SEM- III MAR-205: Disaster Management

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	P/V	S/T	Total	S	Exam. T	Exam P/V.V	Total	
2	-	1	3	100	50	-	150	3 Hours

OBJECTIVE:

- Aims at providing public sector policy makers, professionals engaged in Architecture, with useful insights and better understanding of: disaster management, mitigation, preparedness, response, rehabilitation and reconstruction.

CONTENT:

- An overview of Disaster Management
- Definition of basic concepts related to disaster management
- Disaster Types
- Disaster Statistics
- Earthquake , Tsunami, Flood, Cyclone, Technological Disaster
- Disaster Policy
- Disaster Mitigation and Preparedness
- Impact assessment
- Community based disaster management
- Rehabilitation and Resettlement

APPROACH:

- Guest lectures by experts and case studies.

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M. ARCH. - AR-PART TIME SEM- III, MAR-207: ResourceConserving Architecture

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	P/V	S/T	Total	S	Exam. T	Exam P/V.V	Total	
2	-	1	3	50	50	-	100	3 Hours

OBJECTIVE:

- To acquaint students with principles, techniques and relevant guidelines for planning and design of resource-conserving architecture.

CONTENT:

- 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.
- 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.
- Fundamentals of planning and design of resource conserving architecture; innovative and appropriate design concepts and construction technologies.
- Discussion of Indian and foreign case studies

APPROACH:

- Guest lectures by experts and case studies

SUGGESTED 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
- Yudelso 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

School of Architecture, BBD University

M. ARCH. - AR-PART TIME SEM- III

**MAR-113 ELECTIVE-I
High Rise Buildings**

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	S/T	P/V	Total	S	Exam. T	Exam P/V.V	Total	
2	1	-	3	50	50		100	3 Hrs

OBJECTIVE:

- At the end of this course the student should have understood the problems associated with large heights of structures with respect to loads (wind and earthquake and deflections of the structure).

CONTENTS:

- 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.
- Dispersion of Vertical Forces- Dispersion of Lateral Forces - Optimum Ground Level Space - Shear Wall Arrangement - Behaviour 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
- BuildingSystems - Flat Slab Building Structures - Shear Truss - Frame Interaction System with Rigid -Belt Trusses - Tubular Systems-Composite Buildings - Comparison of High - Rise StructuralSystems Other Design Approaches Controlling Building Drift
- Efficient Building Forms - TheCounteracting 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

SUGGESTED 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

School of Architecture, BBD University

M. ARCH. - AR-PART TIME SEM- III MAR-115 ELECTIVE-I Futuristic Architecture

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	S/T	P/V	Total	S	Exam. T	Exam P/V.V	Total	
2	1	-	3	50	50		100	3 Hrs

OBJECTIVE:

- To understand and explore new building materials, future building technologies and various futuristic architectural concepts

CONTENTS:

- 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.
- Evolution of contemporary architectural concepts such as biomimcry, Adaptive reuse, low cost development and urban regeneration.
- “Zero energy” and “Energy +” buildings with emphasis on an integrated approach. Green buildings.
- 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.
- Applications of advanced software by architects, viz, virtual reality, parametric design, programme generated architecture and building information modeling (BIM) in futuristic architecture.

SUGGESTED 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

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M. ARCH. - AR-PART TIME SEM- III

**MAR-117 ELECTIVE-I
Advance Building Technology**

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	S/T	P/V	Total	S	Exam. T	Exam P/V.V	Total	
2	1	-	3	50	50		100	3 Hrs

OBJECTIVE:

- An advanced study of building technology and structures. Includes consideration of sustainable techniques, technologies, building enclosure, structural behavior and systems, the integration of heating, cooling and ventilating systems, lighting, acoustics, electrical, plumbing and water, security, vertical circulation, and site and transportation for new and existing buildings.

CONTENTS:

- Advanced building materials.
- Advanced fabrication techniques.
- High performance facades.
- Contemporary applications of passive climatic design strategies.
- Building integrated renewable energy systems.
- Advanced mechanical and electrical building systems.
- Building performance analysis techniques.
- Building performance simulation tools.
- Integrated design methods
- High performance, zero energy, and carbon neutral buildings.
- Building performance metrics and rating frameworks

SUGGESTED 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.

School of Architecture, BBD University

M. ARCH. - AR-PART TIME SEM- III MAR-111P TECHNICAL COMMUNICATION IN ARCHITECTURE

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	S/T	P/V	Total	S	Exam. T	Exam P/V.V	Total	
1	1	1	3	100		100	200	No Theory Exam.

OBJECTIVE:

- To impart knowledge of Basics of Technical Communication in architecture and planning projects

CONTENTS:

UNIT- I

Basics of Technical Communication:-

- Technical Communication features; Distinction between General and Technical Communication language as a tool of communication; Levels of communication interpersonal, Organizational, Mass communication, the flow of communication Downward Upward, Lateral or Horizontal (Peer group) importance of technical communication, Barriers to communication.

UNIT- II

- Forms of Technical Communication: Business Letters: Sales and Credit letters; letter of Enquiry; Letter of Question Order, Claim and Adjustment letters; Job Application and Resume. Official Letters: D.O Letters; Govt. Letters, Letters to Authorities etc.
- Reports: - Types, Significance, Structure, Style and writing of Reports.
- Technical Proposal, Parts; Writing of Proposal, Significance.
- Technical Paper, Project. Dissertation and Thesis Writing Features, Methods and Writing.

UNIT- III

- Presentation Strategies**:- Defining purpose, Audience and Locale, Organizing Contents, Preparing Outline, Audio-visual Aids, Nuances of Delivery, Body Language Space, Setting nuances of Voice Dynamics; Time Dimension.

UNIT- IV

Value-Based Text Readings:-

Following essays from the suggested text book with emphasis on Mechanics of writing in Architecture.

- The Amis of Science and the Humanities by ME. Prior.
- Man and Nature by J. Bronowski
- The mother of the sciences by A.J. Bahm
- Humanistic and scientific approaches to Human activity by Moody E. Prior.
- The effect of scientific temper on man by Bertrand Russell.

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SUGGESTED BOOKS :

- Improve your writing ed. V.N. Arora and Laxmi Chandra, Oxford University Press New Delhi. 14
- Technical Communication- Principals and Practices by Meenakshi Raman and Sangeeta Sharma, Oxford University Press 2007, New Delhi.

REFERENCE BOOKS:-

- Effective Technical Communication by Barun K Mitra, Oxford University Press 2006, New Delhi.
- Business Correspondence and Report Writing by Prof. R.C. Sharma And Krishna Mohan, Tata McGraw Hill & Co. Ltd. New Delhi.
- How to Build Better Vocabulary by M. Rosen Blum Bloomsbury publications London.
- Developing Communication skills by Krishna Mohan, Meera Banrji-Macmillan Indra Ltd. Delhi.
- Manual of practical communication by L.U.B. Pandey and R.P. Singh, A.I.T.B.S. Publication India Ltd. Krishna Nagar Delhi.

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SEMESTER – IV

School of Architecture, BBD University

M. ARCH. - AR-PART TIME SEM- IV MAR-110 & MAR-110P HOUSING

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	S/T	P/V	Total	S	Exam. T	Exam P/V.V	Total	
2	1	-	3	50	50	50	150	3 Hrs

OBJECTIVE:

- To impart comprehensive knowledge about housing design, planning and finance

CONTENTS:

- 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.
- Housing finance and schemes, HUDCO and other housing/ building financial institutions, role of revolving funds in housing.
- 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.
- Selected case studies of housing schemes by government and private developers in India and abroad.

SUGGESTED BOOKS:

- Balaji V. & Rajmanohar, "Housing Sector in India; Issues, Opportunities and Challenges", ICFAI 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.

School of Architecture, BBD University

M. ARCH. - AR-PART TIME SEM- IV

MAR-112: Transportation Planning

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	S/T	P/V	Total	S	Exam. T	Exam P/V.V	Total	
2	1	-	3	50	50	-	100	3 Hrs

OBJECTIVE:

- To acquire professional capacity in traffic and transportation planning

CONTENTS:

- 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;
- 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.
- 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.
- 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

SUGGESTED 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.

School of Architecture, BBD University

M. ARCH. - AR-PART TIME SEM- IV

**MAR-114: Elective-II
Theory of Landscape Architecture**

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	P/V	S/T	Total	S	Exam. T	Exam P/V.V	Total	
2	-	1	3	50	50	-	100	3 Hours

OBJECTIVE:

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

CONTENT:

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

APPROACH:

- Assignments & Work Presentations

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M. ARCH. - AR-PART TIME SEM- IV

MAR-116: Elective-II (Climatology)

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	P/V	S/T	Total	S	Exam. T	Exam P/V.V	Total	
2	-	1	3	50	50	-	100	3 Hours

OBJECTIVE:

- To have an understanding of the Impact of natural and manmade features on climate

CONTENT:

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

APPROACH:

- Guest lectures by experts and site visits.

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M. ARCH. - AR-PART TIME SEM- IV MAR-109P Computer Applications in Architecture

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	S/T	P/V	Total	S	Exam. T	Exam P/V.V	Total	
1	-	3	4	50	50		100	No Theory Exam.

OBJECTIVE:

- To impart knowledge of computer and GIS applications in architecture and planning projects.

CONTENTS:

- Application of software such as Revit Architecture Suite including building information modeling (BIM) and 3D Max.
- Application of Presentation software: Photoshop, coral draw, etc
- Application of software such as Sketchup, Podium and E-view.
- Application of software such as Catia, Primavera for construction planning management.
- Application of software such as Design Builders and other software related to energy simulation 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.

SUGGESTED 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.

School of Architecture, BBD University

SEMESTER – V

School of Architecture, BBD University

M. ARCH.-AR-PART TIME SEM- V MAR-201P: Architectural Design Studio III

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	P/V	S/T	Total	S	Exam. T	Exam P/V.V	Total	
1	-	6	7	100	-	100	200	No Theory Exam.

OBJECTIVE:

- To develop professional approach to design more challenging specialized building design projects through architectural design studio exercises.

DESIGN 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.

APPROACH:

- Application of all the theory subjects taught in previous and present semester.

School of Architecture, BBD University

M. ARCH. - AR-PART TIME SEM- V

**MAR-211P: Specialization Elective
Low Cost Building Design and Techniques**

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	P/V	S/T	Total	S	Exam. T	Exam P/V.V	Total	
1	1	1	3	50	-	50	100	No Theory Exam.

OBJECTIVE:

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

CONTENT:

- Introduction to low cost buildings, building components influencing cost of buildings.
- Modular coordination in building design, prefabrication- total and partial, impact of prefabrication on employment
- Use of CPM and PERT methods in building construction
- Building construction detailing for cost reduction.
- Application of low cost building materials and various construction techniques.
- Building cost control techniques, research and development by various organizations in the country and foreign countries to reduce the cost.

APPROACH:

- Guest lectures by experts and case studies

SUGGESTED 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

School of Architecture, BBD University

M. ARCH. - AR-PART TIME SEM- V

**MAR-213P: Specialization Elective
Advanced Landscape Design**

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	P/V	S/T	Total	S	Exam. T	Exam P/V.V	Total	
1	1	1	3	50	-	50	100	No Theory Exam.

OBJECTIVE:

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

CONTENT:

- Introduction to landscape design, types of landscapes and their characteristics, linkages with nature and built environment.
- Elements and materials of landscapes, characteristics of various types of plants, topography and their suitability of landscaping.
- Landscape conservation- its purpose, preparatory procedure, maintenance of existing landscape.
- Urban and regional landscapes- ecological and environmental aspects of landscape design.
- 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.

APPROACH:

- Guest lectures by experts and case studies

SUGGESTED 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

School of Architecture, BBD University

M. ARCH. - AR-PART TIME SEM- V MAR- 209P:Dissertation-I

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	P/V	S/T	Total	S	Exam. T	Exam P/V.V	Total	
-	-	2	2	100	-		100	No Theory Exam.

OBJECTIVE:

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

CONCEPT

- 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.
- The materials would be documented and formally presented as a Dissertation at the end of the semester.
- The dissertation would be of a length of between 3000 and 4000 words with illustrations, references, footnotes and annotations.

APPROACH

- The internal evaluation shall be conducted by the concerned teacher through test, reports and assignment as given by the concerned teacher.

School of Architecture, BBD University

M. ARCH. - AR-PART TIME SEM- V ELECTIVE - Project Management

MAR-215P:INTERDISCIPLINARY

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	P/V	S/T	Total	S	Exam. T	Exam P/V.V	Total	
1	1	1	3	50	-	50	100	No Theory Exam.

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.

CONTENT:

- Introduction to project management and project management software
- Needs and solutions: needs identification, proposed solutions.
- Team work: problem solving in groups, the project manager, the project team, teamwork and personality: mccllelland'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.
- Schedule control: scheduling, schedule control
- Resource consideration: resource consideration, cost planning and performance

APPROACH:

- Design exercise done in teams.

School of Architecture, BBD University

SEMESTER – VI

School of Architecture, BBD University

M. ARCH-AR SEM- VI MAR- 202P

DISSERTATION-II

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	P/V	S/T	Total	S	Exam. T	Exam P/V.V	Total	
-	6		6	450		450	900	No Theory Exam.

OBJECTIVE:

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

CONTENT:

- Architecture thesis will consists of two parts:
 - (a) Research oriented towards establishing a strong theoretical background for the chosen subject.
 - (b) Application to a Architecture Planning or Architecture Design proposal with appropriate details.

APPROACH:

- Professional communication skill shall be evaluated periodically through communication skill by judgment at the time of presentation by the concerned student.