DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY

CIRCULAR NO.SU/Engg./CBC & GS/MCA & M.Arch.Syll./43/2015

It is hereby inform to all concerned that, being there is no Departments in University Campus the revised Curriculum under **Choice Based Credit and Grading System** submitted by the Ad-hoc Board & Board of Studies with the recommendation of Dean, Faculty of Engineering and Technology respectively which are run at college level only. The Hon'ble Vice-Chancellor has accepted the same on behalf of the Academic Council under Section-14[7] of the Maharashtra Universities Act, 1994 as under :-

Sr. No.	Name of the Course	Semester
[1]	**Master of Architecture**	**I to IV**
[2]	**M.C.A. [Engineering] First Year**	**I & II**

This is effective from the Academic Year 2015-16 & onwards progressively as appended herewith.

All concerned are requested to note the contents of the circular and bring the notice to the students, teachers and staff for their information and necessary action.

University Campus,
Aurangabad-431 004.
REF.NO.SU/ENGG./CBC & GS/
P.G.Syll./2015/ 11550
Date:- 07-08-2015.

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Director,
Board of College and
University Development.

Copy forwarded with compliments to:-

1] The Principals, affiliated concerned colleges, Dr. Babasaheb Ambedkar Marathwada University

Copy to :-

1] The Controller of Examinations,
2] The In-Charge, E-Suvidha Kendra, [Professional Unit] Rajarshi Shahu Maharaj Pariksha Bhavan, Dr. Babasaheb Ambedkar Marathwada University,
3] The Section Officer, [Engineering Unit],
4] The Programmer [Computer Unit-1] Examinations,
5] The Programmer [Computer Unit-2] Examinations,
6] The Record Keeper.

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DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD.

Curriculum under Choice Based Credit &

Grading System

Master of Architecture

Under the Faculty of Engineering & Technology

[Effective from the Academic Year 2015-16 & onwards]

FACULTY OF ENGINEERING AND TECHNOLOGY

Proposed Structure of M.Arch. (General)

Semester - I

Semester - I		Teaching Scheme			Examination Scheme						
Subject Code	Subject	Contact Hours/Week			T. W.	Viva	C. T.	Theory	Total	Th. Exam Hrs.	Credits
		Th.	St.	Total							
601	Architectural Design Studio - I	Nil	4	4	50	50	Nil	Nil	100	Nil	**4**
602	Contemporary Architecture : Theories & Trends	2	4	6	50	Nil	20	80	150	3 Hrs	**4**
603	Urban Design	2	4	6	50	Nil	20	80	150	3 Hrs	**4**
604	Computer Aided Design & Planning	Nil	4	4	50	Nil	Nil	Nil	50	Nil	**2**
605	Elective - I	4	Nil	4	Nil	Nil	20	80	100	3 Hrs	**4**
606	Advanced Studies & Research Methodologies	2	4	6	50	Nil	20	80	150	3 Hrs	**4**
		10	20	30	250	50	80	320	700		**22**

Elective - I (Any 1 of the following)

1. Tall Buildings
2. Pre Engineered Structures
3. Product Design

Prof. V. N. Tawde
Chairman
Ad hoc Board of Studies in Architecture
Dr. B. A. N. U. Aurangabad.

FACULTY OF ENGINEERING AND TECHNOLOGY

Proposed Structure of M.Arch. (General)

Semester - II

Semester - II		Teaching Scheme			Examination Scheme						
Subject Code	Subject	Contact Hours/Week			T. W.	Viva	C. T.	Theory	Total	Th. Exam Hrs.	Credits
		Th.	St.	Total							
611	Applied Design Studio - I	Nil	4	4	50	50	Nil	Nil	100	Nil	4
612	Resource Conserving Architecture	2	4	6	50	50	Nil	Nil	100	Nil	2
613	Low Cost Building Materials & Construction	2	4	6	50	Nil	20	80	150	3 Hrs	4
614	Sustainable Architecture & Design	2	4	6	50	Nil	20	80	150	3 Hrs	4
615	Elective - II	4	Nil	4	Nil	Nil	20	80	100	3 Hrs	4
616	Building Byelaws, Codes & Legislation	4	Nil	4	Nil	Nil	20	80	100	3 Hrs	4
		14	16	30	200	100	80	320	700		22

Elective - I (Any 1 of the following)

1. Re Architecture
2. Architectural Criticism
3. Land Economics

Prof. V. N. Tawde
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Ad hoc Board of Studies in Architecture
Dr. B. A. N. U. Aurangabad.

FACULTY OF ENGINEERING AND TECHNOLOGY

Proposed Structure of M.Arch. (General)

Semester - III

Semester - III		Teaching Scheme			Examination Scheme						
Subject Code	Subject	Contact Hours/Week			T. W.	Viva	C. T.	Theory	Total	Th. Exam Hrs.	Credits
		Th.	St.	Total							
701	Integrated Design Studio	Nil	4	4	50	50	Nil	Nil	100	Nil	4
702	Futuristic Architecture	4	0	4	Nil	Nil	20	80	100	3 Hrs	4
703	Advanced Landscape Design & Materials	2	4	6	50	Nil	20	80	150	3 Hrs	4
704	Elective - III	4	Nil	4	Nil	Nil	20	80	100	3 Hrs	4
705	Advanced Building Technologies	2	4	6	50	Nil	20	80	150	3 Hrs	4
706	Dissertation - I	Nil	6	6	100	Nil	Nil	Nil	100	Nil	2
		12	18	30	250	50	80	320	700		22

Elective - I (Any 1 of the following)

1. Advanced Landscape Design
2. Post Occupancy Evaluation
3. Energy Efficient Buildings

Prof. V. N. Tawde
Chairman
Ad hoc Board of Studies in Architecture
Dr. B. A. N. U. Aurangabad.

FACULTY OF ENGINEERING AND TECHNOLOGY

Proposed Structure of M.Arch. (General)

Semester - IV

Semester - IV		Teaching Scheme			Examination Scheme						
Subject Code	Subject	Contact Hours/Week			T. W.	Viva	C. T.	Theory	Total	Th. Exam Hrs.	Credits
		Th.	St.	Total							
711	Project Management	Nil	2	2	50	50	Nil	Nil	100	Nil	**4**
712	Dissertation - II	Nil	10	10	200	200	Nil	Nil	400	Nil	**10**
		Nil	12	12	250	250	Nil	Nil	500	Nil	**14**
					Total of Semesters I To IV				**2600**		**80**

Prof. V. N. Tawde
Chairman
Ad hoc Board of Studies in Architecture
Dr. B. A. N. U. Aurangabad.

SEMESTER I

Subject code no. 601	**Architectural Design Studio**
Theory Hours: Nil	Term Work : 50 Marks
Studio Hours: 4 Hours Marks	Viva Exam : 50
Total : 4 Hours Per Week	Theory Exam : Nil

Aim:

To explore the design and form of building typologies that are the result of deep minute study of ergonomics, economics, technology & ecology

Objectives:

- Understanding of functional activities to be performed in building, aspects of ergonomics
- Architectural and engineering aspects of building design
- Site planning and environmental considerations

UNIT I

Understanding of functional activities to be performed in building, aspects of ergonomics-

Understanding of interactions among humans and other elements of a system, which applies theory, principles, data and methods to design in order to optimize human well-being and overall system to fulfill the two goals of health and productivity through ergonomics

UNIT II

Architectural and engineering aspects of building design-

Understanding the technological aspects of buildings, including the properties and behavior of building materials and components, foundation design, structural analysis and design, environmental system analysis and design, construction management, building operation, Environmental systems including all the building services

UNIT III

Site planning and environmental considerations-

Understanding the Environmental Planning the process of facilitating decision making to carry out development with due consideration given to the natural environmental, social, political, economic and governance factors and provides a holistic frame work to achieve sustainable outcomes. It involves the organization of land use zoning, access, circulation, privacy, security, shelter, land drainage etc; by assessing a potential site for development through site analysis. Information about slope, soils, hydrology, vegetation, parcel ownership, orientation

Term Work:

Major design exercises in residential, educational, commercial and Recreational buildings

Office buildings, multi use centre, convention centre, multiplex, corporate complex, health care and hospitality building

Books for Reference:

1. Edward D. Mills: Planning for Architects
2. Time Saver Standards from Building Types

Subject code no. 602	Contemporary Architecture: Theories & Trends
Theory Hours: 2 Hours	Term Work: 50 Marks
Studio Hours: 4 Hours	Practical Exam: Nil
Total: 6 Hours Per Week	Class Test : 20 Marks
	Theory Exam: 80Marks
	Duration : 3 Hour

Aim:

To study new concepts of contemporary architecture which are the result of changing parameters of technology, ecology, urbanization, social pattern etc.

Objectives:

- To get acquainted with all the terms and terminologies of contemporary architecture
- To study the effect of technology on architecture

UNIT I

- **Blobitecture-** a movement in architecture in which buildings have an organic, amoeba-shaped, bulging form .
- **Critical Regionalism-** is an approach to architecture that strives to counter placelessness and lack of identity in Modern Architecture by using the building's geographical context. .
- **Deconstructivism -** is characterized by ideas of fragmentation, an interest in manipulating ideas of a structure's surface or skin, non-rectilinear shapes which serve to distort and dislocate some of the elements of architecture, such as structure and envelope.
- **Futurist architecture -** characterized by anti-historicism, strong chromaticism, long dynamic lines, suggesting speed, motion, urgency and lyricism:
- **High-tech architecture-** also known as Late Modernism or Structural Expressionism, is an architectural style that emerged in the 1970s, incorporating elements of high-tech industry and technology into building design.
- **Modern architecture -** is generally characterized by simplification of form and creation of ornament from the structure and theme of the building.
- **Neo modern architecture-** especially in corporate offices. It tends to be used for a certain segments of buildings.
- **Novelty architecture -** is a type of architecture in which buildings and other structures are given unusual shapes as a novelty, such as advertising, notoriety as a landmark, or simple eccentricity of the owner or architect.
- **Postmodernism -** The functional and formalized shapes and spaces of the modernist style are replaced by diverse aesthetics: styles collide, form is adopted for its own sake, and new ways of viewing familiar styles and space abound.
- **Conceptual architecture -** is characterized by an introduction of ideas or concepts from outside of architecture often as a means of expanding the discipline of architecture.

- **Neoclassicism** - Neoclassical architecture emphasizes the wall rather than chiaroscuro and maintains separate identities to each of its parts.

UNIT II: Overview of world architecture since 1970 with the study of Late Modernism, Post Modernism and Deconstructivism

UNIT III: Theories governing contemporary architecture through case studies, evolving architectural trends and their impact on urban built environment

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

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

UNIT VI: 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

UNIT VII: Applications of advanced software by architects, viz, virtual reality, parametric design, program generated architecture and building information modelling (BIM) in contemporary architecture

Term Work:

- Notes on above topics in the file
- Power Point Presentations on above topics in groups

Books for Reference:

S. No.	Name of Authors/ Books/ Publishers	Year of Publication/ Reprint
1.	Ballard B. and Rank, V. P., "Materials for Architectural Design", Laurance King.	2006
2.	Frampton, K., "Modern Architecture-A Critical History", 3rd ed. Thames and Hudson..	2002
3.	Gossel, P. and Leuthauser, G., "Architecture in the 20th Century", Vol. 1, Taschen.	2005
4.	Gossel, P. and Leuthauser, G., "Architecture in the 20th Century", Vol. 2, Taschen.	2005
5.	Troman, R. (ed.), "History of Architecture, From Classic to Contemporary", Parragon.	2009

Subject code no. 603	**Urban Design**
Theory Hours: 2 Hours	Term Work: 50 Marks
Studio Hours: 4 Hours	Practical Exam: Nil
Total: 6 Hours Per Week	Class Test : 20 Marks
	Theory Exam: 80Marks
	Duration : 3 Hour

Aim:

To impart knowledge on various aspects, elements, concepts and principles of Urban Design.

Objectives:

To Study various aspects of Urban Design

UNIT I

- 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

UNIT II

- 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

UNIT III

- 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

Term Work:

Field studies- observational and analytical studies of important urban/ public spaces, roads; Imageability and townscape of selected areas/ settlements.

Design evaluation/ analytical study of modern examples.

Urban design proposal for improvement/ renewal/ redevelopment/ new development of an area.

Books for Reference:

S. No.	Name of Authors/ Books/ Publishers	Year of Publication/ Reprint
1.	Broadbent, G., "Emerging Concepts of Urban Space Design", Van Nostrand Reinhold.	1990
2.	Cowan, R., "Urban Design Guidance by UD Group", Thomas Telford Publishing.	2002
3.	Punter, J. and Carnoma, M., "The Design Dimension of Planning-Theory, Content and Best Practices for Design Policies", E&FN Spon.	1997
4.	Spreiregen, P. D., "Urban Design; Architecture of Towns & Cities", McGraw Hill.	1965
5.	Watson D. et. al (ed), "Time Saver Standard for Urban Design", McGraw Hill.	2003

Subject code no. 604	Computer Aided Design & Planning
Theory Hours: Nil	Term Work: 50 Marks
Studio Hours: 4 Hours	Practical Exam: Nil
Total: 4 Hours Per Week	Theory Exam: Nil

Aim:

To illustrate and present various aspects of a chosen design scheme by means of 2-D drafting and 3-D modeling and rendering techniques, and to impart knowledge of GIS applications in architecture and planning projects

Objectives:

To educate the students to use different softwares to help in planning & Designing.

UNIT I

- Application of software such as Revit Architecture Suite including building information modeling (BIM) and 3D Max.
- Application of software such as Sketchup, Podium and E-view

UNIT II

- Application of software such as Design Builders or Eco-Tech, and other software related to energy simulation modeling
- Application of software such as M.S. Pro, Power Sim, MATLAB, Arc GIS for planning

Term Work:

Revit Architectural Suite: Auto cad 2009 and 3D max for design studio problems.

Building Information modeling for a given project. Sketchup Pouching and E-view for a given design

Application of Eco-Tech, Energy Plus, Design Builders for any design exercise earlier or current

M.S. Pro, Power Sim, MATLAB, Arc GIS application in planning/ architectural design studio problem/s.

Books for Reference:

Sl. No.	Name of Authors/ Books/ Publishers
1.	Omura G., "Mastering Revit 2009", Sybex Publication.
2.	Omura G., "Bible 3D. Max 2009", Sybex Publication.
3.	Manuals of Sketchup, Podium, E-view,
4.	Manuals of Design Builders and Energy Simulation Modeling.
5.	Manuals of M.S. Pro and Power Sim.
6.	Manuals of MATLAB and Arc GIS.

Subject code no. 605 (i)	**Elective I : Tall Buildings**
~~**Subject code no. 605 (i)**~~	~~**Elective I : Tall Buildings**~~
Theory Hours: 4 Hours	Term Work: Nil
Theory Hours: 4 Hours	Term Work: Nil
Studio Hours: Nil	Practical Exam: Nil
Studio Hours: Nil	Practical Exam: Nil
Total: 4 Hours Per Week	Class Test: 20 Marks
Total: 4 Hours Per Week	Class Test: 20 Marks
	Theory Exam: 80Marks
	Theory Exam: 80Marks
	Duration : 3 Hours
	~~Duration : 3 Hours~~

Aim: To achieve breadth of knowledge across disciplines and depth of knowledge in a particular chosen subject area.
Aim: To achieve breadth of knowledge across disciplines and depth of knowledge in a particular chosen subject area.

Objectives
Objectives

- **To understand the design and construction process of Tall buildings**
- **To understand the design and construction process of Tall buildings**
- **To explore and address the qualitative issues of design in Tall buildings.**
- **To explore and address the qualitative issues of design in Tall buildings.**

UNIT I
UNIT I

- Definition, international and Indian concepts, History of Tall Buildings
- Definition, international and Indian concepts, History of Tall Buildings
- Need and criteria for development of Tall Buildings, economics, social conditions, psychological factors, geographical, political and other forces in development, socio – psychological factors affecting such developments. Analysis, studies and methodology to solutions – user's need and demand.
- Need and criteria for development of Tall Buildings, economics, social conditions, psychological factors, geographical, political and other forces in development, socio – psychological factors affecting such developments. Analysis, studies and methodology to solutions – user's need and demand.

UNIT II
UNIT II

- Design and construction process. Impact of Tall buildings on urban development in terms of
- Design and construction process. Impact of Tall buildings on urban development in terms of increased density, accessibility, transportation and parking; ownership, management and maintainance. Fire safety, municipal codes, standardization. Landscaping in Tall Buildings.
- increased density, accessibility, transportation and parking; ownership, management and maintainance. Fire safety, municipal codes, standardization. Landscaping in Tall Buildings.

Subject code no. 605 (ii)	Elective I : Pre – Engineered Structures
Theory Hours: 4 Hours	Term Work: Nil
Studio Hours: Nil	Practical Exam: Nil
Total: 4 Hours Per Week	Class Test; 20 Marks
	Theory Exam: 80Marks
	Duration : 3 Hours

Aim: To achieve breadth of knowledge across disciplines and depth of knowledge in a particular chosen subject area.

Objectives

- **To understand the design parameters for pre fabricated buildings**
- **To explore the systems for industrialized building components.**

UNIT I

- Introduction to modern principles and practices. Corbusier approach, modular number pattern, notations of modular design, terminologies in modular coordination, dimensioning modular components, modular grids, ISI recommendations with exercises.
- Basic module, planning and component module

UNIT II

- System of proportions. Introduction to building systems, objectives, criteria etc, different types of building systems; traditional, improvised, mechanized, industrialized etc with special reference to Indian conditions.
- Introduction to pre fabrication of building components, standardization, dimensioning of components, design of pre fabricates.

UNIT III

- Pre cast concrete; design considerations and constraints, advantages over cast in situ construction, construction techniques and jointing details, applications.
- RCC pre fabricated roofing systems to cover large spans, with or without north light.
- Study of pre stressed concrete, principles and methods of pre stressing, system of pre stressing, advantages, disadvantages and applications.

Subject code no. 605 (iii)	Elective I : Product Design
Theory Hours: 4 Hours	Term Work: Nil
Studio Hours: Nil	Practical Exam: Nil
Total: 4 Hours Per Week	Class Test; 20 Marks
	Theory Exam: 80Marks
	Duration : 3 Hours

Aim:

To achieve breadth of knowledge across disciplines and depth of knowledge in a particular chosen subject area.

Objectives:

To understand the design, development and challenges of product development. To develop skills to conceptualize, create and market an appropriate product.

Syllabus:

Customer Needs, Terminologies of Ergonomics – Biomechanics, Commfort zone - Elements of comfort Analysis and designing product based on ergonomics, materials, working parameters and visual perception for product. General awareness of the role of ergonomics in work effectiveness and efficiency. Creativity and uniqueness in design. Visual composition, theory of Colours, function and character. Product impact through design – aesthetics and functionality, Concept Generation - Selection – Testing, Product Specifications, Study of materials and finishing, Market survey, Product Data Management, Software's for designing, Virtual Design and Manufacturing Proto Typing Product Planning and Marketing Product Analysis and Cost Optimization

Subject code no. 606	Advanced Study and Research Methodologies
Theory Hours: 2 Hours	Term Work: 50 Marks
Studio Hours: 4 Hours	Practical Exam : Nil
Total: 6 Hours Per Week	Class Test : 20 Marks
	Theory Exam : 80 Marks
	Duration : 3 Hours

Aim:

To develop a research strategy, programme and a project appropriate in early stages of dissertation/ thesis

Objectives:

To develop the skills and understanding necessary for

- The accessing and searching, both locally and remotely, of library and information sources and use of bibliographical database
- The undertaking of critical literature review, the use of sampling, statistical analysis and evaluation
- The development of a detailed investigative programme
- The writing of scholarly paper, The presentation of conference/ seminar papers

UNIT I

- The relationship between activities of design and research
- Developing own research proposal, presenting and evaluating it

UNIT II

- Research methods and data capturing from various streams/ fields
- Experimental design, populations, sampling

UNIT III

- Probability significance and inference
- Descriptive statistics

Term Work:

To prepare a critical literature review for thesis/ dissertation

To prepare a detailed outline of the research methods to be used in te investigation

Books for Reference:

Sl. No.	Name of Authors/ Books/ Publishers	Year of Publication/ Reprint
1.	Nortledge, A. "The Good Study Guide" Milton Keynes,	1990
2.	Philips, E. M. and D. S. Pugh " How to get PHD: A Handbook for Students and their Supervisors	1994
3.	Siegel, S. and N. J. Castellan "Nonparametric Statistics for the Behavioural Science" McGraw- Hill,	1988

SEMESTER II

Subject code no. 611	**Applied Design Studio**
Theory Hours: Nil	Term Work: 50Marks
Studio Hours: 4	Practical Exam: 50 Marks
	Class Test : Nil
Total: 4 Per Week	Theory Exam: Nil

Aim:

To provide skills, knowledge and experience related to the use of variety of analytical approaches for the design

Objectives:

Expose to design issues arising from a range of sectors and sources and apply appropriate analysis so as to derive deep understanding. To utilize the techniques and knowledge in the design proposal to achieve effective solution

Syllabus:

- To understand the design issues associated with the built environment across a range of building types
- To acquire the information in an appropriate and critical manner, related to design
- To propose the optimal design solution based on analysis of existing schemes

Term Work:

Number of assignments can be taken to present the findings through presentations, using learnt techniques or any other way for the analysis

Sustainable housing scheme design as a design project for its optimal solution

Books for Reference:

Sl. No.	**Name of Authors/ Books/ Publishers**	**Year of Publication/ Reprint**
1.	Smith P F & Pitts A C, "Concepts in Practice: Energy" Batsford,	1997
2.	Cofaigh E O, Olley J A & Lewis J O "The Climatic Dwelling" James & James Publishers,	1996
3.	Pitts, A C "Planning & Design Strategies for sustainability and Profit" Architectural Press,	2003

Subject code no. 612	Resource Conserving Architecture
Theory Hours: 2 Hours	Term Work: 50 Marks
Studio Hours: 4 Hours	Practical Exam : 50
Total: 6 Hours Per Week	Class Test : Nil Marks
	Theory Exam : Nil Marks
	Duration : 0Hours

Aim:

To understand how to develop a strategy, program such as would be appropriate to manage the available resources at optimum

Objectives:

Expose to design issues arising from a range of sectors and sources and apply appropriate analysis so as to derive deep understanding. To utilize the techniques and knowledge in the design proposal to achieve effective solution

Syllabus:

UNIT I

Basic concepts, parameters and principles of energy conservation; patterns and efficiency of energy use in architecture; technologies, methods of energy conservation.

UNIT II

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

UNIT III

Storage of recyclables, building reuse, construction management, development of environmental management system with focus on ISO 14000, Implementation of environmental management systems, regional materials, rapidly renewable materials, certified wood etc

Term Work:

Discussion of Indian and foreign case studies

Notes on above topics in the file

Books for Reference:

S. No.	Name of Authors/ Books / Publishers	Year of Publication/ Reprint
1.	Greg P., "Natural Home Heating",Sterling Hill Production.	2003
2.	Hyde R., Wodson S., Chehire W. and Thowson M., "The Environmental Brief Pathways for Green Design", Taylor & Francis.	2006
3.	Yudelson J., "Greening Existing Buildings", Mc Graw Hills.	2009
4.	Baker, N. and Steemers, K., "Energy and Environment in Architecture: A Technical Design Guide", Routledge.	2000
5.	Gonzalo R. and Habermann K.J., "Energy-efficient Architecture: Basics for Planning and Construction", Birkhauser.	2006
6.	Clark W.H., "Retrofitting for Energy Conservation", Mc Graw Hills.	1997

Subject code no. 613 **Low cost building materials and construction**

Theory Hours: 2 Hours	Term Work: 50 Marks
Studio Hours: 4 Hours	Practical Exam : Nil
Total: 6 Hours Per Week	Class Test : 20 Marks
	Theory Exam : 80 Marks
	Duration : 03Hours

Aim:

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

Objectives:

To make students understand the methods of low cost housing construction with emphasis on local building materials and there use.

Syllabus:

UNIT I

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.

UNIT II

Construction technologies:
Technologies that require fewer resources, are easy to maintain and have less of an impact on the environment compared to techniques from main stream technology. Traditional, ancient techniques used all over the world. CBRI techniques, ferro concrete, modular, prefabrication, curtain wall etc.

UNIT III

Materials:
Recycled materials, regional materials, low VOC materials, etc
Environmental impact of building materials, Eco friendly building materials, their composition and recycling, physical properties, heat resistance, sound resistance, Embodied energy of materials and recycled materials etc. Life cycle assessment of materials

Term Work:

Minimum five sheets of construction technologies covering all topics.
Journals on materials, surveys for their practical use
Notes on above topics in the file

Books for Reference:

S. No.	Name of Authors/ Books/ Publishers	Year of Publication/ Reprint
1.	Davis, S., "Architecture of Affordable Housing", University of California Press.	1995
2.	Ruiz, F.P., "Building an Affordable House", Taunton Press.	2005
3.	Nunan, J., "The Complete Guide to Alternative Home Building Materials and Methods", Atlantic Publishing.	1980
4.	Lal, A.K., "A Handbook of Low Cost Housing ", New Age International.	1995
5.	Mathur, G.C., "Low Cost Housing in Developing Countries", South Asia Book.	1999
6.	Sowman, M. and Urquhart, P., "A Place called Home: Environmental Issues and Low-Cost Housing", Juta Academic.	1998

Subject code no. 614 **Sustainable Architecture & Design**

Theory Hours: 2 Hours	Term Work: 50 Marks
Studio Hours: 4 Hours	Practical Exam : Nil
Total: 6 Hours Per Week	Class Test : 20 Marks
	Theory Exam : 80 Marks
	Duration : 03Hours

Aim:

To design buildings & their surroundings optimized with respect to sustainability, environmental & energy issues. Analysis of climate information & data in a way that conclude the design decisions

Objectives:

To make students understand the impact of climate on the built environment in Hot-dry, Hot,Hot-Humid,Humid and cold climate

Syllabus:

UNIT I

Environmental design with respect to local conditions and human need
Climate and climatic assessment including collection and analysis of climatic data and hence the determination of appropriate design techniques
Building environmental assessment techniques including energy, materials, natural resources.

UNIT II

Site selection, air movement, day lighting & orientation,
Building envelope, fenestration pattern, thermal & acoustical environment planning, internal materials, own user systems for services design modeling, site planning etc. building operation & maintenance for energy efficiency.

Subject code no. 615 i **Elective- II [Re - Architecture]**

Term Work:

Journal on above mentioned theories and concepts

Casestudies in groups analyzing above concepts

Theory Hours: 4 Hours

Studio Hours: Nil Hours

Total: 4 Hours Per Week

Term Work: Nil

Practical Exam : Nil

Class Test : 20 Marks

Theory Exam : 80 Marks

Duration : 03Hours

Books for Reference:

1] Climate Responsive Architecture by Arvind Krishan, Nick Baker, Simos Yannas,S.V.Zokole.

2] Manual of Tropical Housing and Building by O.H.Koenigsberger, T.G.Ingersoll & other.

Objectives:

- **To Understand the current need for finding new systems of interventions on existing situations**
- **To explore the Methods for establishing logic for Interventions.**

Syllabus:

UNIT I

The various type of intermentions in existing situations; Re-Design, Re-Develop, Re-structure, Re-vitalize, Removal, Restoration, Regeneration, Rehabilitate, Reorganize, Renewal, Relocate.

UNIT II

Need for Intermentions. The factors affecting the decisions for specific intermentions – social, cultural, economic, structural, spatial. The Stake holders and there participation in the process.

UNIT III

Methodologies and system for intermention. Challenges in implementation of interventions. Future trends and speculations. Impact of Re-Architecture on the Precinct.

Subject code no. 615ii **Elective- II [Architectural criticism]**

Theory Hours: 4 Hours	Term Work: Nil
Studio Hours: Nil Hours	Practical Exam : Nil
Total: 4 Hours Per Week	Class Test : 20 Marks
	Theory Exam : 80 Marks
	Duration : 03Hours

Objectives:

- **To Acquaint the students with the art, Skill and Techniques of critical appreciation and communication of asthetics**
- **To develop the techniques of critical writings in the Field of Architecture in a Journalistic manner.**

Syllabus:

UNIT I

Critical appreciation Modes, self assessment, expert criticisms, jury reports, Research papers, Authoritative Reports.

UNIT II

Nature of Appreciation, Subjective, Specific,Evaluating valuative, interpretative and descriptive, biographical, Historical, Standered and norm based Iconographical and design principle based and appreciation.

UNIT III

Methodolgy, data collection, processing, analysis derivations and conclusions. Verbal presentation, written resentation and graphical presentation etc.

Subject code no. 616 iii
Subject code no. 615 iii

Building bylaws, codes & legislations
Elective- II [Land Economics]

Theory Hours: 4 Hours
Term Work: Nil

Studio Hours: Nil Hours
Theory Hours: 4 Hours
Practical Exam : Nil
Term Work: Nil

Total: 4 Hours Per Week
Studio Hours: Nil Hours
Class Test : 20 Marks
Practical Exam : Nil

Total: 4 Hours Per Week
Theory Exam : 80 Marks
Class Test : 20 Marks

Duration : 03Hours
Theory Exam : 80 Marks

Duration : 03Hours

Aim:

To impart knowledge of building byelaws and various aspects of professional practice

Objectives:

Objectives:

- **To Understand the basic economic ideas related to land use**
- **To understand the impact of peculation on future trends of Construction industry.**
- **To make students understand the effect of by- laws and various codes on the Built environment.**
- **To make students understand the By-Laws of various local bodies like Mun-corp MIDC Cidco etc.**

Syllabus:

UNIT I

Syllabus:

Basic economic Ideas related to land use, behavior of individuals, firms and markets, Need for governmental intermention, land use policy and its economic significance. Economic behavior of construction industry, economic implications of design decisions.

UNIT I

Introduction to building byelaws, its needs, objectives, nature, purpose and scope of byelaws.Critical evaluation of building byelaws, need of reform in building byelaws to achieve good built environment.

UNIT II

Real Estate market, demand analysis, Profitability, social constraints, housing policy, assessment of cost and tax burdens. The assessment of life Expectancies of buildings.

UNIT II

Building byelaws of selected towns, cities and development authorities.

UNIT III

UNIT III

Means of Financing, Financial projection. Financial cost and benefits, Cash flow, internal rate of return, Risk analysis, social cost benefit analysis, Concordance and discordance analysis.

Architects Act of 1972, code of conduct, professional responsibilities and scale of charges, architectural competitions.

Estimation of total construction cost Budgeting and financing – Financial projections, Types of finance.

UNIT IV

Building contract systems, administration of building contract, invitation of tenders and procedure of award.Architects office management, methods of communication, documentation and computerization.

Books for Reference:

S. No.	Name of Authors/ Books/ Publishers	Year of Publication/ Reprint
1.	Development Controls/ Building Byelaws of various Development Authorities of Indian cities.	
2.	Namavati, R. H., "Professional Practice with Elements of Estimating, Valuation, Contract and Arbitration" Lakhani Book Depot.	2009
3.	Orr F., "Professional Practice in Architecture", Van Nostrand Reinhold.	1982
4.	Demkin J. A., "Architect's Handbook of Professional Practice; Ethics and the Practice of Architecture", 14th ed. John Wiley & Sons.	2001
5.	Bureau of Indian Standards, "National Building Code (NBC)"	2005
6.	Puri V.K, "Compendium of Delhi Building Bye-laws and Development regulations as per Master Plan of Delhi 2021", Nabhi Publication.	2007

SEMESTER III

Subject code no.701	**Integrated Design Studio**
Theory Hours: Nil Hours	Term Work: 50
Studio Hours: 04 Hours	Practical Exam : 50
Total: 4 Hours Per Week	Class Test : Nil
	Theory Exam : Nil
	Duration : 03Hours

Aim:

To provide skills, knowledge and experience related to the use of variety of analytical approaches of other systems than design for optimal building environment and so as to develop a feasible base approach for dissertation/ Thesis

Objectives:

To develop an understanding of the need for an integrated approach to design of a building

To apply the skills, knowledge and techniques of other streams in an integrated way to the design of a building and its environment

The applied units may be climate & bioclimatic analysis, insulation materials and thermal material, mass, lighting, ventilation techniques, HVAC, passive and active climatic, solar design technologies, etc

Syllabus:

Students are expected actually to integrate with other technical streams like civil engineering, electrical engineering, mechanical engineering, environmental science, botany etc. as a part of design solution and estimating the feasibility of the required components.

Term Work:

Number of assignments can be taken to present the findings through presentations, using learnt techniques or any other way for the analysis

Students may be grouped with other streams for preparation of

- Site analysis
- Working out services
- Working out renewable energy outputs etc.

- Any other required analysis

Students may be grouped of max three for working out the project architecturally at the completion.

Subject code no. 702 **Futuristic Architecture**

Theory Hours:04l Hours	Term Work: Nil
Studio Hours: Nil Hours	Practical Exam : Nil
Total: 4 Hours Per Week	Class Test : 20
	Theory Exam : 80
	Duration : 03Hours

Aim:

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

Objectives:

- **To impart the students about the concepts of futuristic architect by some of the architects in the profession.**

Syllabus:

UNIT I

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.

UNIT II

Evolution of contemporary architectural concepts such as biomimcry, adaptive reuse, low cost development and urban regeneration

UNIT III

Futuristic building materials, building tectonics and systems of the future

"Zero energy" and "Energy +" buildings with emphasis on an integrated approach.
Socio-cultural and economic impacts of future urban habitats

Books for Reference:

S. No.	Name of Authors/ Books/ Publishers	Year of Publication/ Reprint
1.	Bell, J., "21st Century House", Laurence King Publishing.	2006
2.	Jodidio, P., "Building a New Milleneum", Vol.1 Taschen	2003
3.	Jodidio, P., "Architecture Now", Vol. 2, Taschen.	2004

Subject code no.703	Advanced Landscape Design & Materials
Theory Hours: 02 Hours	Term Work: 50
Studio Hours: 04 Hours	Practical Exam : Nil
Total: 06 Hours Per Week	Class Test : 20
	Theory Exam : 80
	Duration : 03Hours

Aim:

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

Syllabus:

UNIT I

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.

UNIT II

Urban and regional landscapes- ecological and environmental aspects of landscape design and planning. 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.

Term Work:

Case studies- critical appraisal of few selected projects

Books for Reference:

S. No	Name of Authors/ Books/ Publishers	Year of Publication/ Reprint
1.	Barlow, R.E., " Landscape Design: A Cultural and Architectural History ", Harry N. Abrams.	2001
2.	Hunt, J.D., "Greater Perfections: The Practice of Garden Theory ", Thames & Hudson.	2000
3.	Kaplan, R., Kaplan, S. and Ryan, R., "With People in Mind: Design and Management of Everyday Nature ", *Island Press.*	1998
4.	Reid, G.W., "Landscape Graphics", Watson-Guptil.	2002
5.	Ruggles, D.F, " Islamic Gardens and Landscapes", Univ. of Pennsylvania Press.	2008
6.	Simonds, J.O, "Landscape Architecture, A Manual of Land Planning and Design ", *McGraw Hill.*	2006

Subject code no. 704i	Elective III [Advance landscape Design]
Theory Hours: 04 Hours	Term Work: Nil
Studio Hours: Nil Hours	Practical Exam : Nil
Total: 04 Hours Per Week	Class Test : 20
	Theory Exam : 80
	Duration : 03Hours

Objective :

- To understand landscape design as a means to enhance the local environment.
- To develop techniques for detailing of open spaces and public spaces

Syllabus:

UNIT I

Study of hard and soft landscape elements - design principles, plant materials,components of hard landscape, principles of landscape layout designing, site planning for larger developments such as campuses, housing developments, recreational facility design, influence of landscape design on our physical and visual environment, tool to utilize the site resources, the site analysis for larger developments.

UNIT II

Introduction to urban landscape design; elements of urban landscape,park system, play ground, recreational spaces, water landscapes.

UNIT III

Introduction to Ecology and landscape design, means to mitigate the human impacts, way to rejuvenate our natural resources like water, air and micro climate, methods to protect us from Natural forces and elements of nature.

UNIT IV

Inter relationship and use of various landscape elements/factors/aspects to form a comprehensive landscape proposal. Landscape design of community and individual housing level.landscape construction and detailing for various landscape elements/factors/aspects. Their importance and uses. especially places like interior,terrace garden, wall garden, window landscaping etc, their design and detailing

Subject code no. 704ii **Elective III [Post Occupancy Evaluation]**

Theory Hours: 04 Hours	Term Work: Nil
Studio Hours: Nil Hours	Practical Exam : Nil
Total: 04 Hours Per Week	Class Test : 20
	Theory Exam : 80
	Duration : 03Hours

Objective :

- To understand design parameters for evidence based design process
- To explore the system for user feedback to enhance design qualification.

Syllabus:

UNIT I

Building performance concept , measuring performance, elements of building performance; spatial, technological and technical criteria, total environmental quality, the POE process model ;planning , conducting and implementing POE in various environment.

UNIT II

Independent and impartial evaluations, regular monitoring and measure feedback and feed forward, the base line and benchmarks for measurements, data management systems

UNIT III

Quantitative and qualitative techniques/ measures, various survey methodology, environmental monitoring, sustainable measures, space measurement and cost analysis, impact on the design process, case studies.

Subject code no. 704iii	**Elective III [Energy efficient building design]**
Theory Hours: 04 Hours	Term Work: Nil
Studio Hours: Nil Hours	Practical Exam : Nil
Total: 04 Hours Per Week	Class Test : 20
	Theory Exam : 80
	Duration : 03Hours

Objective :

- To review energy effiecient building technologies, understand scope of there applications and design on energy on energy effiecient building
- To analyze building elements for energy efficiency – integration at building level

Syllabus:

UNIT I

Energy and environmental concerns, energy efficiency in buildings, nation-owner-designer- user concerns, climate and site, building envelope building systems,embodied energy, passing cooling and sun control, day lighting, HVAC system, active solar & photovoltaic, bio climatic design, building thermal and energy simulation.

UNIT II

Building energy audit, exogenous- indigenous systems,introduction to simulation software,case studies for building energy efficiency and design guidelines for sustainable and environment friendly architecture.

Subject code no.705 **Advanced building technologies**

Theory Hours: 02 Hours — Term Work: 50

Studio Hours:04 Hours — Practical Exam : Nil

Total: 06 Hours Per Week — Class Test : 20

Theory Exam : 80

Duration : 03Hours

Aim:

To impart knowledge on advancements in different disciplines related to building technology.

Syllabus:

UNIT I

Evolution of building technology and advancements; Industrial Revolution and its impact, mass housing, rapid construction methods and materials; Structural systems as elements of architectural expressions, modernism and post-modernism.
Shells, cable, frame, prismatic and geodesic structures, load carrying mechanism, large span structure, lessons from failures.

UNIT II

Passive building technologies, building skin, material and construction details for thermal, light and ventilation control; Traditional Architecture- vernacular vocabulary.
Indoor environment, HVAC and artificial lighting, Sick Building Syndrome, performance efficiency, energy efficiency, CFL and LED.

UNIT III

Building management system(BMS); Safety-entry control; CCTV; Fire and smoke detection, alarm; Thermal and working environment - temperature, humidity, air movement, light level; Occupancy sensors; Simulation techniques.

Term Work:

Submission of detail drawings showing above mentioned building technologies and systems, With a seminar presentation on latest advancement in construction technologies and its various aspects

Books for Reference:

S. No.	Name of Authors/ Books/ Publishers	Year of Publication/ Reprint
1.	Clements, C. D.J, "Intelligent Buildings – Design, Management & Operation", Thomas Telford.	2004
2.	Haulden, G., Saldanha, M. and Liedt P., "Climate Skin : Building Skin Concepts that can do more with less energy", Birkhauser.	2008
3.	Alarcen, L., "Lean Construction", Balkema	1997
4.	Salvadori, M. and Heller R., " Structure in Architecture", Engle Wood.	1986
5.	Bansal, N.K., "Practical Handbook on Energy Conservation in Buildings", Indian Building Congress, Nabhi Publication.	2008

Subject code no.706	**Dissertation - I**
Theory Hours: Nil Hours	Term Work: 100
Studio Hours: 06 Hours	Practical Exam : Nil
Total: 06 Hours Per Week	Class Test : Nil
	Theory Exam : Nil
	Duration : 0

Objective:

To develop independent critical thinking and design/research activities with reference to advancement scheme design

Syllabus

UNIT I

Introduction to architectural thesis project, selection of topics for Architectural design based on building typologies, preparation of synopsis, and methodology of design thesis.

UNIT II

Research in architecture tools and methods required to handle design projects. Scientific methods of research and special emphasis on Architectural research methods, Architectural enquiry, Methods for case studies, literature review, Data analysis, techniques and interpretation of data.

Term work:

Choice of topic, with synopsis, case studies, data collection.

SEMESTER IV

Subject code no.711 **Project Management**

Theory Hours: Nil Hours	Term Work: 500
Studio Hours: 02Hours	Practical Exam : 50
Total: 02 Hours Per Week	Class Test : Nil
	Theory Exam : Nil
	Duration : 0

Aim:

To impart knowledge on project management methods and techniques.

Objectives:

Syllabus:

Introduction to project management, probability theory and its application in construction planning and project management

Introduction to network techniques LOB, CPM, PERT application to mass housing; Scheduling and controlling of construction projects.

Personal management- concept, definition, growth, role and function of manpower estimation for company and for projects; Personal administration at the project site.

Building construction industry- components of building industry, building material industry.

Development of value analysis techniques and life cycle costing of buildings, components of cost, criteria for cost companies and cost industries.

Term Work:

Case studies- critical appraisal of few selected projects

Books for Reference:

S. No.	Name of Authors/ Books/ Publishers	Year of Publication/ Reprint
1.	Naik, B.M., "Project Management: Scheduling and Monitoring by PERT/CPM", South Asia Books.	1985
2.	Kerzner, H., " Project Management: A Systems Approach to Planning, Scheduling, and Controlling", 10th ed., John Wiley & Sons.	2009
3.	Lewis, J. P.," Fundamentals of Project Management", Amacom.	2007
4.	Wholey, J. S., Harry, P. H. and Newcomer, K.E., "Handbook of Practical Program Evaluation", John Wiley & Sons	2004
5.	Binnekamp, R., Gunsteren L. A. and Peter-Paul van Loon, " Open Design- A Stakeholder Oriented Approach in Architecture, Urban Planning and Project Management ", Tudelft.	2006
6.	Berger, S. and Godel, J.B., "Estimating and Project Management for Small Construction Firms", Van Nostrand Reinhold Co.	1977

Subject code no. 712	Dissertation - II
Theory Hours: Nil Hours	Term Work: 250
Studio Hours: 12 Hours	Practical Exam : 250
Total: 12 Hours Per Week	Class Test : Nil
	Theory Exam : Nil
	Duration : 0

Objective:

To demonstrate ability to comprehend the nature of Architectural challenge and develop pertinent solutions with the help of knowledge grasped through the course.

Syllabus:

The Dissertation/ thesis project is to be undertaken independently by each student on a topic of his/her choice selected and approved by faculty during previous semester as part of course requirement of subject dissertation.

Thrust area of work may include Architectural design, non conventional construction systems, large span structures, hi-tech Architecture, Public facilities, urban design, sustainable architecture, Building system design, landscape design, Detailing in design etc.

The projects can be of any scale and size as long as the required rigor and depth is demonstrated by the student to merit consideration as a final project.

The project development will involve the aspects of structural systems, construction technologies, building services, detailing and materials along with design considerations to develop a comprehensive project proposal.

Three stages of Thesis;

1) Pre project : Dissertation
2) Abstract and Introduction
3) Scope and focus of Project.
4) User activity study
5) Case study
6) Formulation of design brief
7) Site studies and guidelines
8) Conceptual development
9) Final design solution