MAHARISHI DAYANAND UNIVERSITY, ROHTAK

MASTER OF ARCHITECTURE

Syllabus
&
SCHEME OF EXAMINATION

W. E. F. SESSION 2014 – 2015

MAHARISHI DAYANAND UNIVERSITY, ROHTAK
MASTER OF ARCHITECTURE
SCHEME OF EXAMINATION
W. E. F. SESSION 2014 – 2015

SEMESTER I

Course Code	Course Title	(L-T-P)	Sessional Marks	Portfolio/ External Marks	Theory Exam Marks	Total Marks
MAR 101	Architecture Design Studio-I	0-0-12	100	100	….	100
MAR 102	Contemporary Architecture: Theories & Trends	4-0-0	25	….	100	100
MAR 103	Urban design	4-0-0	25	….	100	100
MAR 104	Research Techniques in Architecture & Planning	4-0-0	25	….	100	100
MAR 105	Computer Applications in Architecture & Planning	0-0-4	50	100	….	100
	Minor Elective	4-0-0	25	….	100	100
	Total	16-0-16	250	225	400	875

Minor Elective

- Ecology & Landscape design for Architecture & Planning (MAR 106)
- Energy Conserving Architecture (MAR 107)

Note for Examiner/Faculty:
The Examiner will set Eight (8) questions selecting two questions from each unit covering the whole syllabus. Students will have to attempt Five (5) questions, selecting at least one question from each unit. All questions will carry equal marks

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SEMESTER II

Course Code	Course Title	(L-T-P)	Sessional Marks	Portfolio Marks	Theory Exam Marks	Total Marks
MAR 201	Architectural Design studio – II	0-0-12	100	200	….	300
MAR 202	Resource Conserving Architecture	4-0-0	25	….	100	125
MAR 203	Housing	4-0-0	25	….	100	125
MAR 204	Building Byelaws & professional Practice	4-0-0	25	….	100	125
	Professional Elective -II	4-0-0	25	….	100	125
	Professional Elective -III	4-0-0	25	….	100	125
	Total	20-0-12	225	200	500	925

Professional Electives

- Low Cost Building Design & Techniques (MAR -205)
- High Rise Buildings (MAR-206)
- Advanced Landscape Design (MAR-207)
- Advanced Building Technologies (MAR-208)

Note for Examiner/Faculty:
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SEMESTER III

Course Code	Course Title	(L-T-P)	Sessional Marks	Portfolio Marks	Theory Exam Marks	Total Marks
MAR 301	Architecture Design studio – III	0-0-12	100	200	….	300
MAR 302	Futuristic Architecture	4-0-0	25	….	100	125
MAR 303	Project Management	4-0-0	25	….	100	125
MAR 304	Seminar	0-0-2	50	….		50
MAR 305	Dissertation Phase-I	0-0-4	150	150		300
MAR 306	Institutional/Professional Training*	0-0-4	50	25		75
	Total	8-0-22	400	375	200	975

***During summer vacation of 6 weeks between 1st & 2nd year**

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SEMESTER IV

Course Code	Course Title	Hrs. per Weak	Sessional Marks	Portfolio Marks	Theory Exam Marks	Total Marks
MAR 401	Dissertation-(Continued from III Semester)	8	200	400		600

SUBJECT CODE: MAR 101
SUBJECT: **ARCHITECTURE DESIGN STUDIO – 1**

INTERNAL ASSESSMENT: 100
L-T-P: 0 – 0 - 12 EXTERNAL EXAMINATION: 200

Contents

1. **Understanding of functional activities to be performed in building, aspects of ergonomics.**
2. **Architectural and engineering aspects of building design.**
3. **Site planning and environmental considerations.**
4. **Physical and economic constraints in designing.**
5. **Elements and principles of design of solar passive buildings. Study of design standards.**

Design Exercises: Major design exercises in residential, educational, commercial and recreational buildings. Minor design exercises on specific aspects related to spatial planning, site planning, structural innovations, passive designing and building services.

NOTE- EXTERNAL EXAMINATION awards shall be finalized on the basis of portfolio & viva voce

- **Portfolio will be evaluated by one internal examiner and one external examiner (external examiner may be related to academic or professional background)**
- **In viva candidate has to present digital presentation & drawing presentation.**

Reference-Book

1. Form Defining Strategies: Experimenting Architectural Design, By Agkathidis, A., Hudert, M. and Schillig, G., Wasmuth International. 2007
2. Architecture: Form, Space and Order, By Ching, F.D.K., 3rd ed., John Wiley & Sons. 2007
3. Architects' Data, By Neufert, P., 3rd ed., Blackwell Science. 2000
4. Methods in Architecture By. Town Health

SUBJECT CODE: **MAR 102**
SUBJECT: **CONTEMPORARY ARCHITECTURE: THEORIES & TRENDS**

DURATION OF EXAMINATION: 3 Hrs INTERNAL ASSESSMENT: 25
L-T-P: 4 – 0 – 0 EXTERNAL EXAMINATION: 100

1. Overview of world architecture since 19100 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.

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

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

4. 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.

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

Reference books:

1. Materials for Architectural Design, By Ballard B. and Rank, V. P., Laurance King. 2006
2. Modern Architecture-A Critical History, Frampton, K., 3rd ed. Thames and Hudson. 2002
3. Architecture in the 20th Century, Gossel, P. and Leuthauser, G., Vol. 1, Taschen. 2005
4. History of Architecture, From Classic to Contemporary, Troman, R. (ed.), Paragon. 2009
5. Intentions in architecture by norberg schulz, MIT Press
6. Contemporary Indian architecture after the masters by Bhatt V and Scriver P, MAPIN

Note for Examiner/Faculty:
The Examiner will set Eight (8) questions selecting two questions from each unit covering the whole syllabus. Students will have to attempt Five (5) questions, selecting at least one question from each unit. All questions will carry equal marks

SUBJECT CODE: MAR 103
SUBJECT: URBAN DESIGN

DURATION OF EXAMINATION: 3 Hrs INTERNAL ASSESSMENT: 25
L-T-P: 4 – 0 – 0 EXTERNAL EXAMINATION: 100

Contents

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

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

3. **Elements of urban environment-urban form, townscape, urban spaces, streetscapes, building forms and facades, public art. Concepts of urban design, public perception, imageability and townscape**

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

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

Design Exercises: 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.

Reference-Book:

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

Note for Examiner/Faculty:
The Examiner will set Eight (8) questions selecting two questions from each unit covering the whole syllabus. Students will have to attempt Five (5) questions, selecting at least one question from each unit. All questions will carry equal marks

SUBJECT CODE: MAR 104
SUBJECT: RESEARCH TECHNIQUES IN ARCHITECURE & PLANNING

DURATION OF EXAMINATION: 3 Hrs
L-T-P: 4 – 0 – 0

INTERNAL ASSESSMENT: 25
EXTERNAL EXAMINATION: 100

Contents

1. Research in architecture and planning-its importance, purpose and scope in the professional and academic fields; common and exclusive areas of research in architecture and planning. Overview of architectural and design research techniques in areas such as architectural technology, environment and behavior, design methods, architectural theory, design programming; Post-occupancy evaluation; Users' participation.

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

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

4. Techniques and methods of analyzing architectural /planning data, establishing correlations and interrelationships; Environmental network analysis and conclusions; Forecasting and modeling and validation.

5. Evaluation and appraisal of architectural and planning projects; Techniques of writing thesis, project and master plan reports, research papers for publication; Presentation techniques

Reference-Book:

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

Note for Examiner/Faculty:

The Examiner will set Eight (8) questions selecting two questions from each unit covering the whole syllabus. Students will have to attempt Five (5) questions, selecting at least one question from each unit. All questions will carry equal marks

SUBJECT CODE: MAR 105
SUBJECT: COMPUTER APPLICATIONS IN ARCHITCTURE & PLANNING

INTERNAL ASSESSMENT: 50
L-T-P: 0 – 0 – 4 **EXTERNAL EXAMINATION: 25**

1 Application of software such as Revit Architecture Suite including building information Modeling (BIM) and 3D Max.

2 Application of software such as Sketchup.

3 Application of software for Design Builders and Energy Simulation Modeling.

4 Application of software such as M.S. Pro, for planning.

Suggested List of Practical:

1. Revit Architectural Suite: Auto cad 2009 and 3D max for design studio problems.
2. Building Information modeling for a given project.
3. Sketchup Pouching for a given design
4. Construction planning management applied to ongoing design studio project
6. Application of Design Builder for energy simulation modeling of one ongoing and one new project.
7. Planning/ architectural design studio problem/s.

Suggested Books:

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

MINOR ELECTIVE (Sem 01)

SUBJECT CODE: MAR 106

SUBJECT: ECOLOGY & LANDSCAPE DESIGN FOR ARCHITECTURE & PLANNING

DURATION OF EXAMINATION: 3 Hrs INTERNAL ASSESSMENT: 25
L-T-P: 4 – 0 – 0 EXTERNAL EXAMINATION: 100

1. Introduction to Ecology and its importance. Its relationship with environment.

2. Structure and function of ecological system. Man's relationship with nature in past and present.

3. Urbanization and its impact on nature. Relevance and growing importance of ecology in an urbanized and technological world.

4. Ecological application to architecture and planning in relation to designing settlements and other man made eco-systems.

5. Application of elements of landscape, Historical concepts in design. Working drawings of Landscape design.

Suggested Books:

1. **Fundamentals of Ecology by E. P. Odum**
2. **The Ecology of Man : An Eco– system Approach by Robert Leo Smith**
3. **Introduction to Ecology by Kurmundi**
4. **Review Our Dying Planet by Sarala Devi**
5. **Ecological Crisis : Reading for Survival by G. A. Love & R. M. Love**
6. **Environmental Science : The Way the World Works by B. J. Mebol**
7. **Modern Concepts of Ecology by H. D. Kumar**

Note for Examiner/Faculty:
The Examiner will set Eight (8) questions selecting two questions from each unit covering the whole syllabus. Students will have to attempt Five (5) questions, selecting at least one question from each unit. All questions will carry equal marks

SUBJECT CODE: **MAR 107**
SUBJECT: **ENERGY CONSERVATION ARCHITECTURE**

DURATION OF EXAMINATION: 3 Hrs INTERNAL ASSESSMENT: 25
L-T-P: 4 – 0 – 0 EXTERNAL EXAMINATION: 100

1. Thermal Comfort scale, climatic elements.

2. Climatic factors for design of buildings. Design of sunshade devices.

3. Energy conservation in buildings and settlements. Energy Trends, renewable and nonrenewable sources. Building Design and Energy Budget. Solar Architecture.

4. Retrofitting of Building for energy conservation.

5. Low energy materials and construction techniques and environmental control.

Reference-Book

1. The architects guide to energy conservation by Seymour Jarmal
2. Architecture and Energy by Stein R. G.
3. Handbook of Sustainable Building by David Anink, Chiel Boonstra, John Mak.
4. Eco- refurbishment by Peter F. Smith
5. An introduction to conservation by Feildon B. M.
6. Conservation of Building by I. H. Harvey.

Note for Examiner/Faculty:
The Examiner will set Eight (8) questions selecting two questions from each unit covering the whole syllabus. Students will have to attempt Five (5) questions, selecting at least one question from each unit. All questions will carry equal marks

SEMESTER 02

SUBJECT CODE: MAR 201
SUBJECT: **ARCHITECTURAL DESIGN STUDIO 2** INTERNAL ASSESSMENT: 100
L-T-P: 0 – 0 – 12 EXTERNAL EXAMINATION: 200

Contents

1. Building functional efficiency in relation to space, form and aesthetics. Building standards and building bye laws for different types of buildings in various locations.

2. Design of low rise and mid rise buildings with high density.

3. Specialized buildings design such as hospital, airport and hotel.

4. Disaster resistant building design.

5. 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:

1. Agkathidis, A., Hudert, M. and Schillig, G., "Form Defining Strategies: Experimental Architectural Design", Wasmuth International. 2007
2. Ching. F.D.K., "Architecture Theoretician', John Wiley & Sons. 2007
3. Kieran, S. and Timberlake, J., "Elements of a New Architecture", Princeton Architectural Press. 2008
4. Smith, P.F., "Architecture and the Human Dimensions", George Baldwin Ltd. 1979
5. Watson, D. (ed.), "Time-saver Standards for Architectural Design: Technical Data for Professional Practice", 8th ed., McGraw-Hill. 2005

NOTE- External examination awards shall be finalized on the basis of portfolio & viva voce

- **Portfolio will be evaluated by one internal examiner and one external examiner (external examiner may be related to academic or professional background)**
- **In viva candidate has to present digital presentation & drawing presentation.**

SUBJECT CODE: MAR 202
SUBJECT: **RESOURCE CONSERVING ARCHITECTURE**

DURATION OF EXAMINATION: 3 Hrs INTERNAL ASSESSMENT: 25
L-T-P: 4 – 0 – 0 EXTERNAL EXAMINATION: 100

Contents

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

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

3. Conserving building materials, water, land etc. in architecture, technologies/ methods of conservation and their implications.

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

5. Discussion of Indian and foreign case studies.

Suggested Books:

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

Note for Examiner/Faculty:

The Examiner will set Eight (8) questions selecting two questions from each unit covering the whole syllabus. Students will have to attempt Five (5) questions, selecting at least one question from each unit. All questions will carry equal marks

SUBJECT CODE: MAR 203

SUBJECT: HOUSING

DURATION OF EXAMINATION: 3 Hrs — INTERNAL ASSESSMENT: 25
L-T-P: 4 – 0 – 0 — EXTERNAL EXAMINATION: 100

Contents

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

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

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

4. 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.

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

Reference-Book

1. Balaji V. & Rajmanohar, "Housing Sector in India; Issues, Opportunities and Challenges", ICFAI University Press. 2008
2. Christian Schittich(ed), "High Density Housing; Concepts, Planning, Construction", Birkhauser. 2004
3. French H., "Key Urban Housing of the Twentieth Century", Lawrence King. 2008
4. Reeves P., "Introduction to Social Housing", Elsevier. 2005
5. Davis S., "The Architecture of Affordable Housing", University of California Press. 1995
6. Maurya S.D., Population and Housing problems in India,

Note for Examiner/Faculty:

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SUBJECT CODE: **MAR 204**
SUBJECT: **Building Byelaws & Professional practice**

DURATION OF EXAMINATION: 3 Hrs INTERNAL ASSESSMENT: 25
L-T-P: 4 – 0 – 0 EXTERNAL EXAMINATION: 100

Contents

1. Introduction to building byelaws, its needs, objectives, nature, purpose and scope of byelaws.

2. Critical evaluation of building byelaws, need of reform in building byelaws to achieve good built environment. Building byelaws of selected towns, cities and development authorities.

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

4. Building contract systems, administration of building contract, invitation of tenders and procedure of award.

5. Architects office management, methods of communication, documentation and computerization.

Suggested Books:

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

Note for Examiner/Faculty:

The Examiner will set Eight (8) questions selecting two questions from each unit covering the whole syllabus. Students will have to attempt Five (5) questions, selecting at least one question from each unit. All questions will carry equal marks

SUBJECT CODE: MAR 205
SUBJECT: Low Cost Building Design & Techniques

DURATION OF EXAMINATION: 3 Hrs INTERNAL ASSESSMENT: 25
L-T-P: 4 – 0 – 0 EXTERNAL EXAMINATION: 100

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

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

3. Use of CPM and PERT methods in building construction

4. Building construction detailing for cost reduction. Application of low cost building materials and various construction techniques.

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

Suggested Books:

1. Davis, S., "Architecture of Affordable Housing", University of California Press. 1995
2. Ruiz, F.P., "Building an Affordable House", Taunton Press. 2005
3. Lal, A.K., "A Handbook of Low Cost Housing", New Age International. 1995
4. Mathur, G.C., "Low Cost Housing in Developing Countries", South Asia Book. 1999
5. Sowman, M. and Urquhart, P., "A Place called Home: Environmental Issues and Low-Cost Housing", Juta Academic. 1998

Note for Examiner/Faculty:
The Examiner will set Eight (8) questions selecting two questions from each unit covering the whole syllabus. Students will have to attempt Five (5) questions, selecting at least one question from each unit. All questions will carry equal marks

SUBJECT CODE: MAR 206
SUBJECT: High Rise Buildings

DURATION OF EXAMINATION: 3 Hrs INTERNAL ASSESSMENT: 25
L-T-P: 4 – 0 – 0 EXTERNAL EXAMINATION: 100

1. Introduction, high rise buildings in urban environment, physical planning considerations.

2. Architectural design considerations for high rise buildings, space planning and design standards, building byelaws and codes.

3. Structural systems in RCC and steel for high rise buildings, composite structural system considerations for wind loads and earthquake loads.

4. Building services- mechanical, electrical, firefighting and protection, vertical transportation, HVAC, BAS and parking; Codes for these services.

5. Construction planning and management, equipments and construction techniques, materials for cladding, prefabrication. An approach to sustainable and green high rise buildings including the concepts of Zero Energy Habitat.

Suggested Books:

1. Smith, B.S. and Coull, A., "Tall Building Structures- Analysis and Design" John Wiley & Son. 1991
2. Lin, C.F., "Construction Technology for Tall Buildings", Singapore University Press. 2001
3. Craighead G., "High Rise Security & Fire Life Safety", Butterworth-Heinemann. 2009
4. Viswanath H.R., Tolloczko J.J.A. and Clarke J.N. , "Multi-purpose High Rise Towers and Tall Buildings" , Taylor & Francis. 1997
5. International Building Code 2009, International Code Council. 2009
6. Lawarance, W.C. L. and Daniel, C.W.H, "Planning Buildings for a High Rise Environment", Hong Kong University Press. 2000

Note for Examiner/Faculty:
The Examiner will set Eight (8) questions selecting two questions from each unit covering the whole syllabus. Students will have to attempt Five (5) questions, selecting at least one question from each unit. All questions will carry equal marks

SUBJECT CODE: MAR 207
SUBJECT: **ADVANCED LANDSCAPE DESIGN**

DURATION OF EXAMINATION: 3 Hrs INTERNAL ASSESSMENT: 25
L-T-P: 4 – 0 – 0 EXTERNAL EXAMINATION: 100

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

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

3. Landscape conservation- its purpose, preparatory procedure, maintenance of existing landscape.

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

5. 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.

Suggested Books:

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.

Note for Examiner/Faculty:

The Examiner will set Eight (8) questions selecting two questions from each unit covering the whole syllabus. Students will have to attempt Five (5) questions, selecting at least one question from each unit. All questions will carry equal marks

SUBJECT CODE: **MAR 208**
SUBJECT: **ADVANCED BUILDING TECHNOLOGIES**

DURATION OF EXAMINATION: 3 Hrs
L-T-P: 4 – 0 – 0

INTERNAL ASSESSMENT: 25
EXTERNAL EXAMINATION: 100

Contents

1. 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.

2. Shells, cable, frame, prismatic and geodesic structures, load carrying mechanism, large span structure, lessons from failures.

3. Passive building technologies, building skin, material and construction details for thermal, light and ventilation control; Traditional Architecture- vernacular vocabulary.

4. Indoor environment, HVAC and artificial lighting, Sick Building Syndrome, performance efficiency, energy efficiency, CFL and LED. Construction technology and lean construction; Toyota experience- just-in-time, controlled inventory.

5. 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.

Suggested Books:

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

Note for Examiner/Faculty:
The Examiner will set Eight (8) questions selecting two questions from each unit covering the whole syllabus. Students will have to attempt Five (5) questions, selecting at least one question from each unit. All questions will carry equal marks

SEMESTER 03

SUBJECT CODE: **MAR 301**
SUBJECT: **ARCHITECTURE DESIGN STUDIO III**

L-T-P: 0 – 0 – 12

INTERNAL ASSESSMENT: 100
EXTERNAL EXAMINATION: 200

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.

Suggested Books:

1. Agkathidis, A., Hudert, M. and Schillig, G., "Form Defining Strategies: Experimenting Architectural Design", Wasmuth International. 2007
1. Ching, F.D.K., "Architecture: Form, Space and Order", 3rd ed., John Wiley & Sons. 2007
2. Morgan, C.L., "Jean Nouvel – The Elements of Architecture", Thames and Hudson.1998
3. Neufert, P., "Architects' Data", 3rd ed., Blackwell Science. 2000
4. Parmar, V.S., "Design Fundamentals in Architecture", Somoiya Publications. 1973
5. National Building Code, 2005 Bureau of Indian Standards 2005
6. National Electrical code
7. Energy conservation building code 2006

NOTE- External examination awards shall be finalized on the basis of portfolio & viva voce

- Portfolio will be evaluated by one internal examiner and one external examiner (external examiner may be related to academic or professional background)
- In viva candidate has to present digital presentation. & drawing presentation.

SUBJECT CODE: MAR 302
SUBJECT: **FUTURISTIC ARCHITECTUE**

DURATION OF EXAMINATION: 3 Hrs
L-T-P: 4 – 0 – 0

INTERNAL ASSESSMENT: 25
EXTERNAL EXAMINATION: 100

Contents

1. Future concepts envisioned by Antonio Saint Elia, Frank Lloyd Wright, Corbusier.

2. Future trends being evolved by Marcos Novak, Neil Denari, Greg Lynn, Toyo Ito and others.

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

4. Futuristic building materials, building tectonics and systems of the future.

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

Suggested Books:

1. Bell, J., "21stCentury 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

Note for Examiner/Faculty:

The Examiner will set Eight (8) questions selecting two questions from each unit covering the whole syllabus. Students will have to attempt Five (5) questions, selecting at least one question from each unit. All questions will carry equal marks

SUBJECT CODE: MAR 303
SUBJECT: PROJECT MANAGEMENT

DURATION OF EXAMINATION: 3 Hrs
L-T-P: 4 – 0 – 0

INTERNAL ASSESSMENT: 25
EXTERNAL EXAMINATION: 100

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

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

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

4. 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.

5. Case studies- critical appraisal of few selected projects.

Suggested Books:

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

Note for Examiner/Faculty:

The Examiner will set Eight (8) questions selecting two questions from each unit covering the whole syllabus. Students will have to attempt Five (5) questions, selecting at least one question from each unit. All questions will carry equal marks

SUBJECT CODE: **MAR 304**
SUBJECT: **SEMINAR**

L-T-P: 0 – 0 – 2 INTERNAL ASSESSMENT: 50

The student will select one area of interest and perform a detailed study on latest research and Development in that selected topic and prepare a report. The report will be presented in seminar

Every week Student has to present his progress in a seminar.

Internal marking would be done on the basis of weekly progress and final presentation.

The final jury consists of the following jury members:

1. Head of the Department/ Principal
2. Seminar Coordinator
3. Dissertation coordinator

SUBJECT CODE: **MAR 305**
SUBJECT: **DISSERTATION PHASE-I**

L-T-P: 0 – 0 – 4

INTERNAL ASSESSMENT: 150
EXTERNAL EXAMINATION: 150

- Dissertation topics shall be finalized by the student in consultation with Faculty Coordinator/ M. Arch Coordinator/ Principal
- Thesis Portfolio exam shall be conducted through a viva voce.

The Internal jury consists of the following jury members:

1. Dissertation coordinator
2. Dissertation Guide

Internal marking should be done stage wise

The final jury consists of the following jury members:

1. Head of the Department / Dissertation Coordinator
2. Dissertation guide
3. **One external member appointed by university**

SUBJECT CODE: MAR 306
SUBJECT: **INSTITUTIONAL/PROFESSIONAL TRAINING**

INTERNAL ASSESSMENT: 50
L-T-P: 0 – 0 – 4 EXTERNAL EXAMINATION: 25

- During summer vacation of 6 weeks between 1st and 2nd year.
- Student has to summit work done in this period.
- The internal assessment shall be done on the basis of fortnightly report sent by student singed by Employer.
- Final marking would be on the basis of work done in training period

The final jury consists of the following jury members:

- Training Coordinator
- One external member appointed by university

SEMESTER 04

SUBJECT CODE: **MAR 401**
SUBJECT: **DISSERTATION (CONTINUED FROM SEM III)**

L-T-P: 0 – 0 – 8 INTERNAL ASSESSMENT: 200
EXTERNAL EXAMINATION: 400

Details of Course:
The objective of dissertation is to provide an opportunity to each student to undertake original and independent research work on the subject area of his/ her interest and specialization, under the guidance of their selected/ appointed supervisors

The dissertation calls for a substantial impetus on the quality and quantity of output, besides having a thrust on newer and more relevant areas of research / design and plan intervention / application of planning, design and analytical tools and techniques.

Part-II: shall include
· Project area studies/ analysis
· Details of study on main issues/ objectives
· Analysis and findings/ result of study
· Discussion, inferences/ conclusions and recommendations design proposals etc.

The Internal jury consists of the following jury members:

1. Dissertation coordinator
2. Dissertation Guide
3. One external examiner

The final jury consists of the following jury members:

1. Head of the Department
2. Dissertation coordinator
3. Two external examiner appointed by university

NOTE- Student has to present his work in report/ digital presentation/ drawings.