

NIMS UNIVERSITY, JAIPUR



SYLLABUS

M. TECH.

(ARCHITECTURAL ENGINEERING)

SEMESTER - I

Teaching and Examination Scheme

Sr. NO.	Course No.	Title	L	T	P	CW*	Exam.	Total
1	1MTAE1	Introduction to Architectural Design	3			25	100	125
2.	1MTAE2	Building Construction	3			25	100	125
3.	1MTAE3	Building Mechanical Systems	3			25	100	125
4.	1MTAE4	Introduction to CAD Systems	3			25	100	125
5.	1MTAE4	Design Work			3	25	100	125
6.	1MTAE5	Design Presentation/Seminar	3			125		125
		TOTAL	15		3	150	600	750

CW*->Course Work

1MTAE1: Introduction to Architectural Design

Course No.: 1MTBT1 Course Title: Introduction to Architectural Design

L-T-P Structure: 3-0-0

Maximum Marks Theory: 125

UNIT I

Principles of Design: Elements and Principles of Design. Concepts of truth, beauty, rhythm, harmony, contrast, scale, proportion. Primary elements: point, line, plane, volume.

UNIT II

Form: Properties of form. Basic shapes and surfaces. Types of form and surfaces. Transformation of forms and surfaces.

UNIT III

Form and Space: Form and space, form defining space, base planes, vertical elements, L-shaped planes, U-shaped planes, four planes. Openings within planes. Qualities of architectural space.

Recommended Books:

1. Francis DK Ching. Architecture: Form, Space and Order

Reference Books:

1. Francis DK Ching. Architecture: Form, Space and Order

1MTAE2: Building Construction

Course No.: 1MTBT2 Course Title: Building Construction

L-T-P Structure: 3-0-0

Maximum Marks Theory: 125

UNIT I

Brick Walls, Foundations: Materials, Bonding, Junctions and Quoins, Piers, Jambs, Cavity Walls, Foundations, Damp-proof Courses, Lintels, Arches, Window sills, copings, plinths.

UNIT II

Masonry Walls: Classification of stones, quarrying, preparation, defects, walling, rubble work, ashlar, arches, window sills, plinths, cornices, string courses, copings, masonry joints.

UNIT III

Timber, Floors, Roofs: Structure, Growth, Felling, Seasoning, Preservation of Timber. Conversion, defects and classification. Floors, plastered ceilings, single double trussed rafter and framed roofs.

UNIT IV

Doors, Windows and Stairs: Ledged, braced and battened, framed, paneled and flush doors. Casement, cased frame, pivoted windows. Metal windows. Hardware. Nails, screws and fasteners.

UNIT V

Mild Steel Sections, Bolts and Rivets.

Recommended Books:

1. Francis DK Ching. Building Construction Illustrated.
2. Francis Mckay. Building Construction.

1MTAE3: Building Mechanical Systems

Course No.: 1MTBT3 Course Title: Building Mechanical Systems

L-T-P Structure: 3-0-0

Maximum Marks Theory: 125

UNIT I

Design Context: Design Intent, design criteria, methods and tools, validation and evaluation, influences on design, philosophy of design.

UNIT II

Environment and Buildings: Energy, Water, Materials, Design Challenges, Case Study.

UNIT III

Site and Context: Climates, microclimates, macroclimates, buildings and sites, site analysis, design and strategies, direct sun and sunlight, sound and air, rainwater and groundwater, vegetation.

UNIT IV

Comfort and Design: The body, thermal comfort, body comfort zones, design for cooling, design for heating, strategy combination, visual and acoustic design for comfort.

UNIT V

Indoor Air Quality: Indoor air quality, building design, pollutant sources and impacts, predicting indoor air quality, zoning for indoor air quality, passive and low energy approaches, equipment for control of air quality.

Recommended Books:

1. Benjamin Stein, John S. Reynolds. Mechanical and Electrical Equipment for Buildings.
2. Marc Schiler. Mechanical and Electrical Systems .

1MTAE4: Introduction to CAD Systems

Course No.: 1MTBT4 Course Title: Introduction to CAD Systems

L-T-P Structure: 3-0-0

Maximum Marks Theory: 125

UNIT I

Starting AutoCAD: Understanding the Window, Starting Commands, Starting a Drawing, Panning and Zooming, Understanding layout views, understanding command options, getting help.

UNIT II

Drafting Tools: The Coordinate System, Setting up Drawings, Using Grids and Object Snaps, Snapping to the Grid or other objects, Changing grid and snap settings, selecting locations on objects, aligning objects with OSNAP and tracking.

UNIT III

2D Objects: The Draw Panel, drawing straight lines, circles and arcs, curves, parallel lines, revision clouds, hatch patterns and solid fills. Drawing polygons and using objects to lay out drawing.

UNIT IV

Basic Editing: Selecting objects, changing objects with grips and dynamic input, controlling objects with properties, using parametric tools, controlling sizes with dimensional constraint.

UNIT V

Advanced Editing: Selecting objects, erasing, joining, moving and copying, scaling and stretching, rotating, breaking an object, editing Xrefs and blocks, editing polylines.

Recommended Books:

1. George Omura. Mastering AutoCAD 2010 and AutoCAD LT 2010.
2. David Byrnes. AutoCAD 2010 for Dummies.

1MTAE5: Design Work**Course No.: 1MTBT5****Course Title: Design Work****L-T-P Structure: 0-0-3****Maximum Marks Theory: 125****1MTAE4: Design Presentation/Seminar****Course No.: 1MTBT4 Course Title: Design Presentation/Seminar****L-T-P Structure: 3-0-0****Maximum Marks Theory: 125****SEMESTER - II**

Sr. NO.	Course No.	Title
1	2MTAE1	Building Mechanical System(Illumination)
2.	2MTAE2	Intermediate CAD System
3.	2MTAE3	Town and Urban Planning
4.	2MTAE4	Building Bye Laws
5.	2MTAE5	Housing and Development
6.	2MTEC6	Design Presentation/ Seminar

SEMESTER – III

Sr. NO.	Course No.	Title
1	3MTAE1	Traffic and Transportation
2.	3MTAE2	Green Design and Engineering
3	3MTAE3	Geographic Information System
4	3MTAE4	Project (Phase-I)
5.	3MTAE5	Design Presentation/ Seminar

SEMESTER – IV

Sr. NO.	Course No.	Title
1	4MTAE1	Foundation of 3D MAX
2.	4MTAE2	Site Design
3.	4MTAE3	Project Training
4.	4MTEC4	Final Project

