

3D Studio Max-I

Course: Diploma in Architecture.

Course code:-ARCH.

Semester:-IV

Subject: - 3D Studio Max-I

Subject code:-AR409

Teaching & Examination scheme.

Total Period	Period:/week	Examination Duration in hours.	Sessional.	End Exam	Total
120	8		50	50	100

Rationale: The students will learn commands of 3d Studio MAX that that required for creating 3d models.

Objective: The students will get complete exposure for high end 3d modeling commands.

Topic wise distribution of periods:-

Sl. No.	Topics	Periods
1.	3D Studio MAX interface	40
2.	Working with primitive objects	35
3.	Project.	45
		Total:- 120

1. 3D Studio MAX interface

- a. The main toolbar
- b. The command panel
- c. The create panel
- d. The lower interface bar
- e. The Viewports
- f. The home grid
- g. The quadmenus
- h. Working with viewports
- i. Changing a view pot view
- j. Zooming a view
- k. Panning a viewport
- l. Setting system units
- m. Saving the 3ds Max scene file
- n. Opening your saved file

2. Working with primitive objects

- a. Box
- b. Sphere

- c. Cylinders
- d. Torus
- e. Teapot
- f. Cone
- g. Geosphere
- h. Tube
- i. Pyramid
- j. Plane
- k. Hedra
- l. Chamfer box
- m. Oil tank
- n. Spindle
- o. Gengone
- p. Ring wave
- q. Prism
- r. Torus Knot
- s. Chamfer cyl
- t. Capsule
- u. L-Ext
- v. C-Ext
- w. Hose

ARCHITECTURAL DESIGN-II

Course: Diploma in Architecture.

Course code:-ARCH.

Semester:-IV

Subject:- Architectural Design-II.

Subject code:-AR407.

Teaching & Examination scheme.

Total Period	Period:/week	Examination Duration in hours.	Sessional.	End Exam	Total
75	5	6hrs with 1/2hr break.	50	50	100

Rationale: The course is designed to develop designing and drafting skill of different types of small buildings having different functions. Site planning is an important aspect of architectural design. So organizing blocks of building and laying streets and open space among them are included in the course.

Objectives: Students will be able to organize different residential units inside a residential complex along with landscape elements, essential amenities and open spaces.

Topic wise distribution of periods:

Sl. No.	Topics	Periods
1.0	Design a small building complex	35
2.0	Design of a small scale housing for low income group	<u>40</u>
	Total	75

Course content: (Based on specific objectives)

1.0 Design a small building complex: Urban or rural community centre, primary school, any other desired by teacher concerned (any one of the above).

1.1 Do background study- anthropometrics, activity analysis, bubble diagram, functional requirement of buildings, area analysis.

1.2 Case study of any related building.

1.3 Do site analysis. Draw the single line conceptual drawing.

1.4 Draw the double line plan and elevations (preliminary drawings).

1.5 Do the presentation drawings.

1.5.1 Sheet-1: Site plan

1.5.2 Sheet-2: Ground floor plan

1.5.3 Sheet-3: Two side elevations

1.5.4 Sheet-4: Two sections

1.5.5 Sheet-5: Perspective view

2.0 Design of small scale housing for low income group: Design to include all the above steps of chapter -1

2.1 State and explain the standard housing principle and guide lines, calculation of percentage of built up space and open space. Do the site analysis

2.2 Discuss about the analysis and case study.

2.3 Do the presentation drawings

1.5.6 Sheet-1: Site plan

1.5.7 Sheet-2: Ground floor plan

1.5.8 Sheet-3: Two side elevations

1.5.9 Sheet-4: Two sections

1.5.10 Sheet-5: Anthropometric view and model

N.B.- 1.0 Students are to do the entire job inside the studio under the guidance of the teacher and to be evaluated in the same day.

2.0 Students are required to conduct case study by visiting different buildings of their design interest Urban or rural community centre, primary school, any other desired by teacher concerned & LIG housing.

Recommended books:

1.0 Graphic Saver Standard/ Time savers Standard for Building Types.

2.0 Ernst Neufert's Architects' Data.

BUILDING SERVICES

Course: Diploma in Architecture.

Course code:-ARCH.

Semester:-IV

Subject:- Building Services.

Subject code:-AR402.

Teaching & Examination scheme.

Total Period	Period:/week	Examination duration in hours	IA.	End Exam	Total
30	2	2 hours.	10	40	50

Topic wise distribution of periods:-

Sl.No.	Topics	Periods.
1.	Water supply	15
2.	Sanitation	<u>15</u>
Total: -		30

Course Content: (Based on specific objectives).

1.0 **Water supply:**

- 1.1 State and explain the principles of water supply system.
- 1.2 State and explain the basic idea of water treatment process.
- 1.3 Explain briefly the distribution of water service reservoirs.
- 1.4 Describe the methods of distribution.
- 1.5 Explain the methods of lay our of distribution pipes.
- 1.6 State and explain the elements of domestic water supply.
- 1.7 Describe the municipal connections and positions.
- 1.8 Illustrate the water supply pipe connections to wash basin, showers, kitchen sink, water closet, garden pipe etc.

2.0 **Sanitation:**

- 2.1 State the importance of sanitation in relation to public health.
- 2.2 State and explain necessity of public services.
- 2.3 State and explain the methods of carrying refuse, such as Conservancy water carriage system.
- 2.4 Describe separate, combined and partially separated methods.
- 2.5 Describe the elements of domestic sanitation.
 - 2.5.1 Septic tank
 - 2.5.1.1 State different types of septic tank.
 - 2.5.1.2 Describe the construction of septic tank with sketch.
 - 2.5.1.3 Illustrate the volume calculation.
 - 2.5.2 Draw and explain the Manhole.
 - 2.5.3 Draw and explain the Traps.
 - 2.5.3.1 Draw and explain the P-trap.
 - 2.5.3.2 Draw and explain the Q-trap.

- 2.5.3.3 Draw and explain the S-trap
- 2.5.4 Draw and explain the Inspection chamber.
- 2.5.5 Draw and explain the Anti siphon and ventilation pipes.
- 2.5.6 Draw and explain the Soil pipe and waste pipe.
- 2.5.7 Draw and explain the Water closet.
- 2.5.8 Draw and explain the Flushing cistern.
- 2.5.9 Draw and explain the Urinals.
- 2.5.10 Draw and explain the Bidets.
- 2.5.11 Draw and explain the Dispersion trench.
- 2.6 **House drainage.**
 - 2.6.1 Draw and explain methods of providing house drainage and underground pipes.

BUILDING SERVICES.(sessional)**Course: Diploma in Architecture.****Course code:-ARCH.****Semester:-IV****Subject:- Building Services. (Sessional)..****Subject code:-AR406.****Teaching & Examination scheme.**

Total Period	Period:/week	Examination duration in hours.	Sessional.	End Exam	Total
45	3		25	-	25

Topic wise distribution of periods:-

Sl.No.	Topic	Periods.
3.	Sessional (water supply)	25
4.	Sessional (sanitation)	<u>20</u>
	Total: -	<u>45</u>

Sessional:

Water supply:

1. Draw the different water supply fittings like meters, valves, bends, sockets, joints, and taps.
2. Draw the layout drawing of water supply to residential building, by conducting a case study of a small residential building.

Sanitation.

3. Draw the labeled drawings of different types of sanitary fittings like P,Q, & S traps flushing cisterns, wash basin, kitchen sink, urinals, bides, water closet (Indian and European type) etc.
4. Do the drawings of septic tank, inspection chamber and manholes.
5. Draw the layout drawings of sanitary system of a residential building by conducting a case study of a small residential building.

NB:-Students are required to visit water treatment plant & sewerage treatment plant.**Reference Books:-**

Building Services by B.D.Arora.

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DIGITAL ARTS.**Course: Diploma in Architecture.****Course code:-ARCH.****Semester:-IV****Subject :- DIGITAL ARTS.****Subject code:-AR410.****Teaching & Examination scheme.**

Total Period	Period:/week	Examination Duration in hours.	Sessional.	End Exam	Total
60	4		50	50	100

Rationale: The course is designed to develop digital designing and sketching skill, knowledge about colour and develop colouring skills which is important in enhancing aesthetic awareness.

Objectives: 1.0 Students will be able to use different graphic software such as **CorelDraw, Illustrator, PhotoShop, AutoCAD** etc.

2.0 They can do better rendering of architectural drawings with appropriate fore ground and back ground.

Topic wise distribution of periods:

<u>Sl. No.</u>	<u>Topics</u>	<u>Periods</u>
1.0	Introduction to study of visual arts.	30
2.0	Composition of objects	30
	Total:	60

Course content:

1.0 Introduction to study of visual arts
composition of

1.6 Line

1.7 Shape

1.8 Form

1.9 Balance

1.10 Rhythm

1.11 Contrast

2.0 Composition of objects:

2.1 Trees, shrub and grass

2.2 Sky, water body, back ground and fore ground.

2.3 Human figures in different positions

2.4 Vehicles

N.B.- Students have to submit A4 size laser print out of the above exercises for valuation.

ENVIRONMENTAL SCIENCE & BUILDING SCIENCE

Course: Diploma in Architecture.

Course code:-ARCH.

Semester:-V

Subject:- Environmental Science and Building Science.

Subject code:-AR404.

Teaching & Examination scheme.

Total Period	Period:/week	Examination duration in hours	IA.	End Exam	Total
45	3	3 hours.	20	80	100

Rationale: In this age of environmental concern, Knowledge of climatology is required to develop climatically and ecologically sustainable architecture. The knowledge of building services like acoustics, electrical and air conditioning is pre requisites before starting the comprehensive design of any building.

Objectives:

- (1) Students will be able to know about the various climatic conditions of earth and its application in building in different climatic zone.
- (2) Students will be able to develop knowledge about ecology and how to maintain a balance.
- (3) Students will be able to know about different architectural services required in buildings. The knowledge in building science is prerequisite for the students to do a comprehensive building design exercise.

Topic wise distribution of periods

Sl. No.	Topic	Periods
1	Climatic condition	11
2	Climatic control in building	11
3	Properties of sound	12
4	Design criteria of sound	<u>11</u>
	Total:-	45

1.0 Climatic condition

- 1.1 State and explain elements of climate
- 1.2 State and explain temperature data and measurement
- 1.3 State and explain Vapor pressure
- 1.4 State and explain precipitation
- 1.5 State and explain driving rain
- 1.6 State and explain sky condition
- 1.7 State and explain solar radiation measurement data, earth thermal balance
- 1.8 State and explain wind measurement
- 1.9 Influence of topography
- 1.10 Vegetation
- 1.11 Brief classification of tropical climate
- 1.12 Element of site climate

2.0 Climatic control in building

- 2.1 Give brief idea about different means of mechanical control for heating, ventilation, cooling, air-conditioning.
- 2.2 Discuss briefly about structural control means of solar control, curtains, blinds, glasses.
- 2.3 Explain sun's position, solar angles, horizontal and vertical shadow angle, angle of incidence, solar chart, sun path diagram.
- 2.4 Discuss shading devices- vertical devices, horizontal devices.
- 2.5 Give brief idea about ventilation and air movement.

3.0 Properties of sound

- 3.1 Define source, path receiver.
- 3.2 Define reflection and absorption.
- 3.3 Define noise reduction coefficient.
- 3.4 Define dead room.
- 3.5 Define live room.
- 3.6 Define diffusion.
- 3.7 Define echo, flutter echo.
- 3.8 Define creep and focusing.

4.0 Behaviour of sound

- 4.1 Explain the sound propagation.
- 4.2 Explain external noise sources.
- 4.3 State the design recommendations.
- 4.4 State the shape of the room.
- 4.5 State the surface enclosing the room.
- 4.6 State the factors influencing hearing conditions and good acoustic environment.

Recommended books:

1. Climatology by Otto H. Koenigsberger.
2. Environmental Services in architecture by Kinzey and Sharp.
3. Time saver standard.

ESTIMATION AND SPECIFICATION

Course: Diploma in Architecture.

Course code:-ARCH.

Semester:-IV

Subject:- Estimation specification.

Subject code:-AR401.

Teaching & Examination scheme.

Total Period	Period:/week	Examination Duration in hours	IA.	End Exam	Total
30	2	2 hours.	10	40	50

Rationale: The subject is required to calculate the cost part of the building which is very essential to understand the financial aspect of the structure. This subject also gives knowledge about the material and specification of the building.

Objectives: Students will be able to prepare detailed estimate of a building and find out the cost of different items of work.

Topic wise distribution of periods:-

<u>S.I No.</u>	<u>Topics</u>	<u>Periods.</u>
1.	Introduction	02
2.	Units of measurement of different items of work. (Building only).	03
3.	Methods of building estimates.	05
4.	Estimate of buildings.	10
5.	Analysis of rate.	05
6.	Specifications	<u>05</u>
Total: -		30

Course Content: (Based on specific objectives).

1.0 Introduction:

State and explain the aim, scope and study of the subject.

1.1 Discuss what an estimate.

1.2 Explain in detail different types of estimate: Rough estimate, detailed estimate, quantity estimate.

1.3 Explain the methods used in plinth area calculation with an example.

2.0 Units of measurement.

3.0 Method of building estimates.

3.1 State and explain the centerline method.

3.2 State and explain Long wall and short wall method.

3.3 Estimate of building.

3.4 Estimate the detailed quality of a single roomed building.

3.5 Estimate detailed quality of a single roomed building with provision for one kitchen, one toilet and front verandah.

4.0 Analysis of rate.

4.1 Analyse the rates of cement concrete work (1:4:8 and 1:2:4).

4.2 Analyse the rates of Brick work (1:6) cement mortar.

4.3 Specifications state the followings in details).

4.3.1 Plain cement concrete in foundation.

4.3.2 Brick work in foundation and super structure.

4.3.3 R.C.C work in foundation and super structure.

4.3.4 Plastering.

4.3.5 Flooring (A.S flooring and terrazzo flooring).

4.4 Painting.

Recommended book:

1. Estimate and valuation by B.D. Dutta.

ESTIMATION& SPECIFICATION (SESSIONAL)

Course: Diploma in Architecture.

Course code:-ARCH.

Semester:-IV

Subject:- Estimation& specification (Sessional)

Subject code:-AR405.

Teaching& Examination scheme.

Total Period	Period:/week	Examination Duration in hours	Sessional.	End Exam	Total
30	2		25		25

- 1.0 plinth area calculation for different types of residential buildings(up to 3 room quarter)(5p/w)
- 2.0 Quantity estimation for a two roomed residential building by center line method and long wall method (5 p/w)
- 3.0 Analysis of rates for cement mortar , cement painting, White washing etc. (5 p/w)
- 4.0 Detailed estimate of a two roomed residential building and finding out plinth cost of the same .(15 periods).
(At least three different residential building unit.)

N.B : The students will prepare the sessional in the class room itself under the guidance of the teacher.

Recommended books :

Estimation and valuation by B. D .Dutta.

LANDSCAPE

Course: Diploma in Architecture.

Course code:-ARCH.

Semester:-IV

Subject:- Landscape.

Subject code:-AR403.

Teaching & Examination scheme.

Total Period	Period:/week	Examination duration in hours	IA.	End Exam	Total
45	3	2 hours.	10	40	50

Topic wise distribution of periods:-

<u>Sl. No.</u>	<u>Topics</u>	<u>Periods.</u>
1.	Introduction to landscape design	05
2.	Landscape resource and technology	05
3.	Principles of landscape design.	05
4.	Public green open space.	05
5.	Different landscape style and historic landscape.	05
6.	Brief study on site planning.	05
7.	Sessional	15
Total:-		45

Course Content: (Based on specific objectives).

1.0 Introduction to landscape design:

- 1.1 Discuss broadly the definition and general criteria for landscape design.
- 1.2 Discuss about the forces that influence landscape design.

2.0 Landscape resource and technology:

- 2.1 Discuss about the land and land form contour (landform in plan).
Design consideration. Land form as line, as enclosure, drainage and Infrastructure, landform and comfort.
- 2.1 Discuss about as water.
Comfort ,land value and land use.
Design consideration:
Color, texture, water as line, as form,. Pools, ponds, caseades and water falls.
- 2.2 Discuss about the plants.
 - 2.2.1 Discuss about the plants and its basic life form
 - 2.2.2 Explain the plants a microclimate.
 - 2.2.3 Discuss about the design consideration.
Plant as line,form,colour,texture,shrubs,grounds and size
(Large trees, small trees,shrubs,grounds covers).
- 2.3 Discuss about the construction materials:
Organic, inorganic, materials used in their natural state, inorganic materials used in a highly modified state, syntheltic materials of composite materials.
 - 1.0 Principles of landscape design.
 - 1.1 State and explain the visual elements-point, line form colour, texture.

- 1.2 Design principles-Unity, continuity, repetition, proximity, balance, scale and proportion, landscape as rhythm, movement, and time and space perception.
 - 1.0 Public green open space.
 - 1.1 Par-Importance of public green open scale.
 - 1.1.1 Classification of park according to size, type and characteristics.
 - 1.1.2 Design criteria for park.
- 3.0 Discuss with proper sketch different landscape style and historic landscape –**
Japanese, Chinese, Mughal and English.
Infrastructure, landform and comfort.
- 4.0 Brief study on site planning**
 - 6.1 Explain the fundamental aspects of site planning.
 - 6.2 Discuss about the parking space design.
- 5.0 Sessional:**
Documentation of residential building:
 - 1.1 Plan of the landscape elements.
 - 1.2 Section through the landscape elements.
 - 1.3 All the plant specifications.
 - 1.4 Water body details.

N.B:- The students should visit residential& public gardens each at least two.

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WORKING DRAWING-II**Course: Diploma in Architecture.****Course code:-ARCH.****Semester:-IV****Subject:- working drawing-II****Subject code:-AR408.****Teaching & Examination scheme.**

Total Period	Period:/week	Examination duration in hours.	Sessional.	End Exam	Total
75	5	6hrs with ½ hr break.	50	50	100

Topic wise distribution of periods:-

<u>Sl. No.</u>	<u>Topics</u>	<u>Periods.</u>
1.	Preparation of Architectural working, drawing set For a multistoried building project like Hostel, Apartment, etc.	38
2.	Presentation of Architectural working, drawing Set for a multistoried building like, hotel, office Complex, commercial complex etc.	<u>37</u>
Total:-		75

Course Content: (Based on specific objectives).

1.0 Architectural working drawing of a multistoried building project like, Hostel, Apartment. Sketch plan to be supplied by the teacher.	
1.1 Prepare the working drawing.(Architectural.	
a. Draw the Trench cutting plan Foundation plans and sections.	4
b. Draw the Ground floor plan in detail.	4
c. Draw the First floor plan.	4
d. Draw the Second floor plan(if necessary)	4
e. Draw the Four sides roof plan working Elevation.	4
f. Draw the sections(two of each must be through staircase and toilet respectively).	4
g. Draw the preparation of plumbing /sanitary Layout with specification.	4
h. Draw the Electrical lay out of building.	5
i. Draw the preparation of local authority Approval drawing as per the building bye law	<u>5</u>
Total:-	38

2.0 Preparation of Architectural working drawing set, for a of a multistoried building like Hostel, office complex, commercial complex, etc.

a. Draw the column PIT plan/Trench cutting plan.	5
b. Draw the Foundation plan and section.	5
c. Draw the Ground floor plan and all floor plans.	5
d. Draw the Four side working elevations.	5
e. Draw the sections through staircase and toilet.	5
f. Preparation of plumbing ,sanitary, layout with specification.	6
g. Prepare the electrical layout with specification.	6
Total:-	37

N.B:- All the sheets to be done inside the studio itself under the guidance of the teacher with evaluation in the same day.

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TECHNICAL SEMINAR

Course: Diploma in Architecture.

Course code:-ARCH.

Semester:-IV

Subject:- TECHNICAL SEMINAR

Subject code:-AR412.

Teaching & Examination scheme.

Total Period	Period:/week	Examination Duration in hours	Sessional	End Exam	Total
30	2		25	25	50

There will be two seminars with power point presentation on the following topics:

1. The topics shall be selected by the students from the subject like seminar on any **public park.** of the city with photograph & detail plan & landscape element study. (15p/w)
2. The topics shall be on **vastu sastra** and its impact on architectural planning.(only residential building.) architecture. (15p/w)

N.B:-The students should submit the hard copy as well as soft copies of the seminar..