

AUTOCAD-II**Course: Diploma in Architecture.****Course code:-ARCH.****Semester:-III.****Subject:- Auto CAD-II.****Subject code:-AR306.****Teaching & Examination scheme.**

Total Period	Period:/week	Examination Duration in hours	Sessional	End Exam	Total
105	7	3hrs	50	50	100

Rationale: The knowledge of Auto CAD is very essential to produce architectural drawing in a faster and more accurate way.

Objectives: students will be able to draw building plans, elevations, details etc in AutoCAD medium.

Topic wise distribution of periods:-

<u>Sl. No.</u>	<u>Topics</u>	<u>Periods.</u>
1.	Project on 2D.	30
2.	Introduction to 3D-Modelling.	5
3.	Isometric VIEW/perspective VIEW	5
4.	Uses co-ordinate system	5
5.	3D entities and commands	15
6.	3D viewing and editing	15
7.	Rendering	5
8.	Project	<u>25</u>
Total:-		105

Course Content:

1.0 Student have to prepare a complete working drawing set of a small duplex bungalow.

2.0 Introduction to 3D Modeling.

- 0.1 State and explain wire frame model.
- 0.2 State an explain solid modeling.

3.0 Isometric drawings.

- 3.1 Isometric drawings.
 - 1.1 State and explain NE – Isometric view.
 - 1.2 State and explain NW – -do-
 - 1.3 State and explain SE – -do-
 - 1.4 State and explain SW- -do-

- 1.5 State and explain Top view.
- 1.6 State and explain Bottom view.
- 3.2 Perspective drawing.
 - State and explain parallel projection.

4.0 Coordinate system.

- 4.1 State and explain WCS.
- 4.2 State and explain UCS.
- 4.3 State and explain UCS ICON.

5.0 3D entities and commands.

5.1 3D PLAN.

- a. State and explain 3D ELEVATION.
- b. State and explain 3D LINE.
- c. State and explain 3D FACE.

5.2 3D SOLIDS.

- 5.3 State and explain BOOLEAN operation.
- 5.4 State and explain Union subtraction and intersection.
- 5.5 State and explain ROTATE.
 - a. State and explain REVOLVE.
 - b. State and explain REGION.
 - c. State and explain EXTRUDE.

6.0 State and explain 3D VIEWING & EDITING.

- 6.1 State and explain HIDE, SHADE, V POINT PLAN VIEW.
- 6.2 State and explain D VIEW CAMERA.
- 6.3 State and explain SOLID EDITING.

7.0 RENDERING.

- 7.1 Illustrate with light and shade, sky, background and trees.

8.0 PROJECT.

- 8.1 The student will have to create a render perspective of any small residential building and submit the same.

Recommended books:- 1.0 AutoCAD 2010 by Syam tico.

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 Building Materials of this semester.
2. The topics shall be selected by the students from subject related to architecture.

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

ARCHITECTURAL DESIGN-I**Course: Diploma in Architecture.****Course code:-ARCH.****Semester:-III.****Subject:- Architectural Design-I.****Subject code:-AR307.****Teaching & Examination scheme.**

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

Rationale: The course is designed to develop designing and drafting ability beginning with the basic need of human being that is shelter. Different aspect of shelter designing from function to form is practiced by presenting scaled drawings in different medium.

Objectives: Students will be able to design a small single family residence (single storied) and a duplex bungalow.

Topic wise distribution of periods:

Sl. No.	Topics	Periods
1.0	Design a small single family residence (single storied)	35
2.0	A duplex bungalow	40
	Total:-	75

Course content: (Based on specific objectives)

- 1.0 Design a small single family residence (single storied)
 - 1.1 Do background study- anthropometrics, activity analysis, bubble diagram, functional requirement of buildings, area analysis.
 - 1.2 Draw the single line conceptual drawing.
 - 1.3 Draw the double line plan and elevations (preliminary drawings).
 - 1.4 Do the presentation drawings.
 - 1.4.1 Sheet-1: Site plan
 - 1.4.2 Sheet-2: Ground floor plan
 - 1.4.3 Sheet-3: Two side elevations
 - 1.4.4 Sheet-4: Two sections
 - 1.4.5 Sheet-5: Anthropometric view
- 2.0 A duplex bungalow

Design to include all the above steps of chapter -1

 - 2.1 Do the site analysis
 - 2.2 Do the presentation drawings
 - 2.2.1 Sheet-1: Site plan
 - 2.2.2 Sheet-2: Ground floor plan
 - 2.2.3 Sheet-3: Two side elevations
 - 2.2.4 Sheet-4: Two sections
 - 2.2.5 Sheet-5: Anthropometric view and model

Recommended books:

- 1.0 Graphic Saver Standard/ Time savers Standard for Building Types.
- 2.0 Ernst Neufert's Architects' Data.

ANALYSIS OF STRUCTURE

Course: Diploma in Architecture.

Course code:-ARCH.

Semester:-III.

Subject:- Analysis of Structure.

Subject code:-AR302.

Teaching & Examination scheme.

Total Period	Period:/week	Examination Duration in hours	IA.	End Exam	Total
60	4	3 hours.	20	80	100

Topic wise distribution of periods:-

Sl. No.	Topics	<u>Periods.</u>
1.	Introduction	5
2.	Solution of determinate beams.	15
3.	Shear force and bending moment Bending of beams, bending stress formula Simple problems	15
4.	Slope and deflection by double integration method.	<u>25</u>
Total:		60

Course Content: (Based on specific objectives).

1.0 Introduction:

Aim, object and scope of study the subject.

2.0 Solution of determinate beams.

2.1 Define a beam

2.2 Explain various types of supports.

2.3 Explain various types of beams.

2.4 State and illustrate the concept of shear force, bending moment, shear force and bending moment diagram in case of cantilever and simply supported beam subjected to concentrated load and U.D.L acting separately.

3.0 Bending stress in beams.

3.1 Show the use of pure bending equation (No derivation) for followings.

a. Rectangular solid.

b. Circular, solid.

4.0 Slope and deflection of beams by double integration method.

4.1 State and explain the differential equation of elastic curve (expression only).

4.2 State and explain the sign conventions for slopes and deflection.

4.3 State and explain the slope and deflection calculation for simply supported beam subject to single concentrated load at mid span and U.D.L over entire span.

BUILDING CONSTRUCTION-II**Course: Diploma in Architecture.****Course code:-ARCH.****Semester:-III.****Subject: - Building Construction-II****Subject code:-AR303.****Teaching & Examination scheme.**

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

Rationale:-

Students are required to have the knowledge of complex constructional methodology and supervisory techniques which are included in this subject.

Objectives:

After the completion of the subject the students will be able to

- 1.0 Analyze different types of roofs & roof covering
- 2.0 Explain different stairs & their construction procedure
- 3.0 Draw and supervise the floorings.
- 4.0 Supervise the form work of a construction.
- 5.0 Supervise the pointing & plastering work of a building
- 6.0 Supervise the painting, varnishing & distempering work of a building.

Topic wise distribution of periods:-

Sl. No.	Topic	Periods.
1.	Roofs	5
2.	Stairs.	4
3.	Floors.	5
4.	Form work	5
5.	Pointing & plastering	4
6.	Aluminium doors, windows & partions.	4
7.	Structural glazing.	<u>3</u>
	Total:	30

Course Content: (Based on specific objectives).

1.0 Roofs

- 1.1 Define & classify the types of roofs
- 1.2 Describe the pitched in details.

2.0 Stairs

- 2.1 Define the staircase.
- 2.2 Describe the RCC staircase.
- 2.3 State & describe different types of staircases with sketches.

3.0 **Floors.**

- 3.1 state and describe different types of floors
- 3.2 Describe the methods of laying floors
- 3.3 State & explain the finishing of floors with different floor finishes like cement, coloured cement, mosaic, terrazzo, tiles etc with sketches.
- 3.4 State & explain the special consideration for rubber linoleum & PVC flooring.

4.0 **Form work.**

- 4.1 Describe briefly the requirement & materials for form work.
- 4.2 describe the formwork for columns, floors, walls & stairs.

5.0 **Pointing & plastering.**

- 5.1 State & describe the methods & types of pointing.
- 5.2 State & describe the methods of plastering.
- 5.3 State & describe the different types of external finishes.

6.0 **Aluminium doors, windows & partitions.**

- 6.1 Explain methods of construction of aluminium doors.
- 6.2 Explain methods of construction of aluminium windows.
- 6.3 Explain methods of construction of aluminium partitions.

7.0 . **Structural glazing.**

- 7.1 Explain methods of construction of structural glazing & its different uses.

NB:- Students should visit different constructional sites to acquire practical knowledge about different constructions.

Reference Books:-

- 1.0 Building construction by W.B.Mackey.(vol-3,vol-4)
- 2.0 Building construction by Rangawala.

BUILDING CONSTRUCTION-II.(Sessional.)**Course: Diploma in Architecture.****Course code:-ARCH.****Semester:-III.****Subject: - Building Construction-II (sessional.)****Subject code:-AR305.****Teaching & Examination scheme.**

Total Period	Period:/week	Examination Duration in hours	Sessional	End Exam	Total
45	3	-	50	-	50

Sheet-1.0 &2.0 Draw different types of pitched roof & its details.**Sheet-3.0** Draw different types of staircase and its details.**Sheet-4.0** Draw different types of RCC staircase and its details.**Sheet-5.0** Draw the details of A.S. & terrazzo flooring.**Sheet-5.0** Draw the details of mosaic & different tiles flooring.**Sheet-6.0** Draw the details of PVC & Linoleum flooring.**Sheet-7.0** Draw the different types plastering & pointing.

NB:- NB:- All the sheets are to be developed by the students in the studio & to be evaluated instantly by the teacher.

Reference Books:-

3.0 Building construction by W.B.Mackey.(vol-3,vol-4)

4.0 Building construction by Rangawala.

HISTORY OF ARCHITECTURE

Course: Diploma in Architecture.

Course code:-ARCH.

Semester:-III.

Subject:- History of Architecture.

Subject code:-AR301.

Teaching & Examination scheme.

Total Period	Period:/week	Examination Duration in hours	IA.	End Exam	Total
60	4	2 hours.	10	40	50

Rationale:

This subject is to be studied to develop knowledge about the chronological development of architecture from the pre-stone age to modern days and to know individual style of great architectural development in different stages of the world in post modern era.

Objectives:

After completion of this course students will be able to know about different architectural style of European, Indian and contemporary architecture and apply these in the design work.

Topic wise distribution of periods:

<u>Sl. No.</u>	<u>Topics</u>	<u>Periods</u>
1.0	European architecture	20
2.0	Indian architecture	20
3.0	Buddhist architecture	10
4.0	Contemporary architecture	<u>10</u>
Total:		60

1.0 EGYPTIAN ARCH.

- 1.1 State the architectural Characteristics features
- 1.2 Draw the sketch of Mastaba grate pyramid of Giza,
Temple of Khons at Karnok .the great sphinx of Chepheren
- 1.3 Draw the Greek classical orders Doric, Ionic, Corinthian.
- 1.4 Draw the temple of Parthenon at Athens.

2.0 ROMAN ARCH

- 2.1 State architectural characteristics feature
- 2.2 Draw the roman orders, Doric, Ionic, Corinthian, Composite, Tuscan order.
- 2.3 Draw the temple of Saturn at Rome

3.0 BUDDHIST ARCHITECTURE

- 3.1 State the architectural characteristics of features of Stupa
- 3.2 State the architectural characteristics great Stupa at Sanchi.

- 3.3 Draw the Chaityhall
- 3.4 Draw the Vihara
- 3.5 Draw the Stupa
- 3.6 Draw the Chaitya Hall
- 3.7 Draw the Vihara .

4.0 TEMPLE ARCHITECTURE (INDO ARYAN STYLE).

- 4.1 State the characteristics features of Orissan Temple with Sketch
- 4.2 Draw the Sun Temple at Konark
- 4.3 Draw the Lingaraj Temple, at Bhubaneswar
- 4.4 Draw the Characteristics features of Khajuraho style (Northern Indian Style)
- 4.5 Draw the Kendriya Mahadev Temple, Khajuraho

5.0 MUSLIM ARCHITECTURE:

- 5.1 Juma Masjid
- 5.2 Draw the Tajmahal
- 5.3 Draw the Kutab Minar

6.0 CONTEMPORARY ARCHITECTURE

- 6.1 State the works of contemporary architectures with one example
 - 6.1.1 Frank Lloyd Wright
 - 6.1.2 Le Corbusier.

N.B. 1.0 Students are to do the sketches in side the classroom under the guidance of the teacher and to be evaluated instantly.

2.0 Students are required to visit local orissan temple art & architecture at Bhubaneswar ,Puri& Konark.(Sun temple Konark, Lord Jagarnath temple at puri.)

Recommended books:

1. History of world architecture by Sir Banister Fleture.
2. Indian History of architecture by Percy Brown.
3. History of world architecture by G. S. Hiraskar.

SURVEYING (THEORY)**Course: Diploma in Architecture.****Course code:-ARCH.****Semester:-III.****Subject:- Surveying.****Subject code:-AR304.****Teaching & Examination scheme.**

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

Rationale:-Survey is preamble to civil engineering and architecture. A knowledge is required to prepare a site plan/contour plan of an existing site or campus.

Objectives: On completion of the subject the students will be able to:

- 1.0 Use of chain surveying and the instruments for it along with their correctness check.
- 2.0 Adjust a compass and use it
- 3.0 calculate the bearings of line and convert them from one system to other
- 4.0 Set , adjust dumpy level and use it for taking the levels of different points on grounds
- 5.0 Define contour line , contour interval and explain various characteristics of contouring and use of contour lines.

Topic wise distribution of periods:-

<u>Sl. No.</u>	<u>Topics</u>	<u>Periods.</u>
1.	Chain survey	06
2.	Compass Survey	04
3.	Bearings	04
4.	Leveling	04
5.	Contouring	04
6.	Concept of GPS& DGPS.	<u>08</u>
		Total:- 30

Course Content: (Based on specific objectives).

1.0 Chain Survey

- 1.1 State and explain the principles of chain surveying .Instruments used their description and checking their correctness.
- 1.2 State and explain the ranging and chaining of a line.
- 1.3 State and explain the errors in chaining and solve problem.
- 1.4 State and explain the offsets.
 - 1.4.1 State and explain the average ordinate method.
 - 1.4.2 State and explain the Trapezoidal rule.
 - 1.4.3 State and explain the Simpson's Rule.

2.0 **Compass Survey:**

3.1 Describe and explain the prismatic compass, and its use.

3.0 **Bearings:**

3.1 Explain W.C.B and R.B and conversion from one to another.

3.2 Explain fore and back bearings and their conversion.

3.3 Explain computation of angles from bearings and bearing from angles.

3.4 Explain Local attractions, its determination and necessary correction to the bearings.

4.0 **Leveling:**

4.1 Conduct the study of levels (Dumpy level).

4.2 Explain the principles of leveling.

4.3 Describe the temporary adjustment of dumpy level.

4.4 Describe the leveling by H.I method and rise and fall method.

5 **Contouring.**

5.2 Explain the contour line, contour interval, horizontal equivalent.

5.3 Explain the various characteristics of contouring.

5.4 Explain the interpolation of contours by graphical methods.

SURVEYNG (PRACTICAL)**Course: Diploma in Architecture.****Course code:-ARCH.****Semester:-III.****Subject:- Surveying.****Subject code:-AR309.****Teaching & Examination scheme.**

Total Period	Period:/week	Examination duration in hours	Sessional	End Exam	Total
75	5		50	50	100

Topic wise distribution of periods:-

S.I No.	Topics	Periods.
1.	Chain survey	25
2.	Compass Survey	10
3.	Use of GPS & DGPS	15
4.	Leveling	15
5.	Contouring	<u>10</u>
	Total:	75

Course Content: (Based on specific objectives).**1.0 Chain survey.**

- 1.1 Do the Ranging of a line more than 100 mt.Length and measuring its correct length applying chain corrections.
- 1.2 Take offsets of objects on both sides of line plotting the above details.
- 1.3 Explain how to overcome the obstructions in chaining in the following cases.
 - 1.31 Vision free, but chaining obstructed (pond, river etc.).
 - 1.3.2 Chaining free, vision obstructed (Raised ground, hills etc.).

2.0 Compass Survey

- 2.1 Set the instrument and how to take readings.
- 2.2 Find the bearings of line and applying check.
- 2.3 Find the angles.
- 2.4 Demonstrate the closed traversing of a small plot (Without interior details).

1.0 Use of GPS & DGPS.**2.0 Leveling:**

- 2.1 Demonstrate the temporary adjustments of a dumpy level and reading the staff.
- 2.2 Find the exact level different between two stations visible from the centre of instrument station.
- 2.3 Demonstrate the fly leveling between two stations with three setting.

3.0 Contouring:

- 3.1 Demonstrate the contouring of a small plot and plotting the contour by various methods (Direct & Indirect).
- 3.2 Sessional work:
 1. All practical work as done during the course.
 2. Draw the layout of a small residential building.
 3. Prepare s site plan of an existing campus.

WORKING DRAWING-1**Course: Diploma in Architecture.****Course code:-ARCH.****Semester:-III.****Subject:- Working Drawing-I.****Subject code:-AR308.****Teaching & Examination scheme.**

Total Period	Period:/week	Examination Duration in hours	Sessional	End Exam	Total
75	5	6 hours 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 small masonry load bearing (2/3 Storied) Residential Building.	40
2.	Presentation of Architectural working, Drawing Set for a 2/3storied framed structure building.	<u>35</u>
	Total:-	<u>75</u>

Course Content: (Based on specific objectives).**4.0 Architectural working drawing of a masonry building (2/3 storied) sketch plan to be supplied by the teacher.**

4.1	Preparation of working drawing(Architectural)for	
a.	Draw the Trench cutting plan.	5
b.	Draw the Foundation plans and sections.	5
c.	Draw the Group floor plan in detail.	5
d.	Draw the First floor plan.	5
e.	Draw the Second floor plan(if necessary).	
f.	Draw the Four sides roof plan working elevation	5
g.	Draw the Section (two of each must be through Staircase and toilet respectively).	
h.	Draw the preparation of plumbing/sanitary lay out With specification.	5
i.	Draw the Electrical layout of building.	5
j.	Prepare the of local authority approval drawing as per the building Bye-Laws.	<u>5</u>
	Total:	<u>35</u>

5.0 Preparing the Architectural working Drawing set, for :- a 2/3 storied structural building.

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. Draw and prepare the plumbing, sanitary ,Layout 5
With specification.
- g. Draw the Electrical layout and specification. 5

Total:- 35

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Technical Seminar-III

Course: Diploma in Architecture.

Course code:-ARCH.

Semester:-III.

Subject:- Technical Seminar-III

Subject code:-AR310.

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 two topics:

3. The topics shall be selected by the students from the subject **cost effective** material & technology like HUDCO, CBRI Rookie tech. or Louri Baker technology of cost effective construction.
4. The topics shall be selected by the students from **Orissan temple architecture.**

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