

## Scheme of Teaching and Examination for IV Semester DIPLOMA in ARCHITECTURAL ASSISTANTSHIP THEORY

SL. No	SUBJECTS	SUBJECT CODE	TEACHING SCHEME		EXAMINATION SCHEME					
			Periods per Week	Periods in one Session	Hours of Exam.	Terminal Exam. (A) Marks	Final Exam. (B) Marks	Total Marks (A+B)	Pass Marks Final Exam.	Pass Marks in the Subject
1	Building Construction	37401	04	60	3	20	80	100	26	36
2	History of Architecture	37402	06	60	3	20	80	100	26	36
3	Ecology & Environment	37403	04	50	3	20	80	100	26	36
4	Building Services & Air Conditioning	37404	04	50	3	20	80	100	26	36
5	Interior Design & Rendering	37405	06	60	3	20	80	100	26	36
<b>Total :-</b>			<b>24</b>					<b>500</b>		

### PRACTICAL

SL. No.	SUBJECTS	SUBJECT CODE	TEACHING SCHEME		EXAMINATION SCHEME					
			Periods per Week	Periods in one Session	Hours of Exam.	Marks Internal Exam. (A)	Marks External Exam. (B)	Total Marks (A+B)	Pass Marks Final Exam.	Pass Marks in the Subject
6	Construction Practice-I	37406	06	60	04	10	40	50	16	21
7	Model Making Lab.	37407	12	120	06	20	80	100	32	42
<b>Total :-</b>			<b>18</b>					<b>150</b>		

### SESSIONAL

SL. No.	SUBJECTS	SUBJECT CODE	TEACHING SCHEME		EXAMINATION SCHEME			
			Periods per Week	Periods in One Session	Marks of Internal Examiner (X)	Marks of External Examiner (Y)	Total Marks (X+Y)	Pass Marks in the Subject
8	Model Making Lab.	37408	–	–	20	30	50	25
9	Interior Design	37409	–	–	20	30	50	25
<b>Total :-</b>							<b>100</b>	

<b>Total Periods per Week</b>	<b>42</b>	<b>Total Marks</b>	<b>750</b>
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# BUILDING CONSTRUCTION

<b>Subject Code 37401</b>	<b>Theory</b>			<b>No of Period in one session : 60</b>		
	<b>No. of Periods Per Week</b>			<b>Full Marks</b>	<b>:</b>	<b>100</b>
	<b>L</b>	<b>T</b>	<b>P/S</b>	<b>Annual Exam.</b>	<b>:</b>	<b>80</b>
	<b>04</b>	<b>-</b>	<b>-</b>	<b>Internal Exam.</b>	<b>:</b>	<b>20</b>

**Rationale:**

The aim is to develop an understanding of the behavior and function of various components of buildings. For this it is essential that the student are taught the various components of the buildings such as foundations, floors, super structure, joints, openings, roofs etc.

Teachers must supplement their lectures with models, audio-visuals and on-site study of various building components

**Contents:**

<b><u>S.No</u></b>	<b><u>Topics</u></b>	<b><u>Periods</u></b>
<b>1.</b>	<b><u>Brick Masonry</u></b>	
1.1	Brick Bond (Different types of brick bond)	
	a) English	
	b) Flemish	<b>(05)</b>
1.2	Wall Junction	
	a) T-Junction	
	b) Cross Junction	<b>(05)</b>
1.3	Arches & Lintels in brick /Stone	
<b>2.</b>	<b><u>Stone Masonry / Marble, Kota, parquettle tiles</u></b>	
2.1	Rubble Masonry	
2.2	Random Rubble	
2.3	Course Masonry	<b>(06)</b>
<b>3.</b>	<b><u>Openings</u></b>	
3.1	Different types of Doors – Parelled door, Metal doors, Rolling door, Revolving. Collapsible / Sliding.	
3.2	Different types of Windows – glazed, Z- Section, North light.	<b>(10)</b>
3.3	Ventilators	
<b>4</b>	<b><u>Interior</u></b>	
4.1	Partition Wall ( Different types of partition wall)	<b>(05)</b>
	a) Brick	
	b) Wooden	
	c) Aluminium Glazed	
4.2	False Ceiling	
	a) Gypboard	
<b>5.</b>	<b><u>Flooring</u></b>	<b>(10)</b>
5.1	Stone ( Marble, Mogaic, Terrazo)	
5.2	Tiles – Cement concrete, Ceramic	
5.3	IPS	
5.4	Terrazzo	<b>(10)</b>
5.5	Wooden	
<b>6.</b>	<b><u>DPC/ Expansion Joint /Water Proofing</u></b>	<b>(09)</b>

**Books Recommended:**

- 1** Sushil Kumar, Building Construction, Standard Publishers, Distributors, Delhi
- 2** Mitchell, Mitchell's Elementary Building Construction, Bombay Allied Publishers
- 3** S.C.Rangwala, Building Construction, Charotar Publishing House Anand

## HISTORY OF ARCHITECTURE

<b>Subject Code</b> <b>37402</b>	<b>Theory</b>			<b>No of Period in one session : 60</b>		
	<b>No. of Periods Per Week</b>			<b>Full Marks</b>	<b>:</b>	<b>100</b>
	<b>L</b>	<b>T</b>	<b>P/S</b>	<b>Annual Exam.</b>	<b>:</b>	<b>80</b>
	<b>06</b>	<b>-</b>	<b>-</b>	<b>Internal Exam.</b>	<b>:</b>	<b>20</b>

### Rationale:

The course on History of Architecture develops appreciation regarding past and current trends in the field of architecture. The knowledge of this course will help the students to understand how political, physical, social, economical and technological change affects the architecture, materials and construction techniques. The course covers broad topics like: pre-historic architecture, important civilizations (Indian, Egyptian, Greek and Roman), medieval architecture in Europe and temple architecture and Buddhist architecture in India.

The teacher should try to create interest among the students for this course by organizing site visits to the local old monuments. Audio-visual aids should also be used to explain various architectural developments. While imparting instructions, teachers should stress upon the context of form and space, construction methods structural systems and materials. The teacher should motivate the students to take general reference for form, drawings, structural solutions and materials from the history while designing their project.

### Contents:

<u>S.No.</u>	<u>Topics</u>	<u>Periods</u>
<b>1.</b>	<b><u>Hindu Architecture</u></b>	
1.1	Orissan Style ( Sun Temple Konark / Lingraj Temple / Bhubaneswar)	(04)
1.2	South Indian Style ( Madurai)	(04)
1.3	Khajuraho Group (Kandarya Mahadeva)	(04)
<b>2.</b>	<b><u>Buddhism / Jainism</u></b>	
2.1	Stupas (Sanchi Stupa/ Mahavir Stupa, Vaishali)	(04)
2.2	Viharas	(02)
2.3	Ancient Universities (Nalanda/ Taxila/ Vikramshila)	(05)
<b>3.</b>	<b><u>Roman &amp; Greek Architecture</u></b>	(10)
3.1	Greek & Roman Order	
3.2	Greek Temple – Material, construction Technology	
3.3	Agora, Forum, Colloseum & Other Public Building	(14)
<b>4.</b>	<b><u>Islamic Architecture In India From 11<sup>th</sup> century to 16<sup>th</sup> century</u></b> <b><u>(Delhi, Agra, Fatehpur Sikri)</u></b>	(13)
	Tughlaq, Lodi, Mughal Dynasty. Qutub minar, Taj Mahal, Fatehpur Sikri, Jama Masjid.	

### Books Recommended:

- Urban Pattern : - Cyallion B Fischer
- History Builds the Town: - Arthur Koher
- A History Architecture: Settings and Rituals-Spiro Kostof.
- Town Building in History:-Hirons
- World Architecture: - Michael Raeburn
- Internet Sources/Various search engines may also be bio used for additional information on some topics.

## ECOLOGY & ENVIRONMENT

<b>Subject Code</b> <b>37403</b>	<b>Theory</b>			<b>No of Period in one session : 50</b>		
	<b>No. of Periods Per Week</b>			<b>Full Marks</b>	<b>:</b>	<b>100</b>
	<b>L</b>	<b>T</b>	<b>P/S</b>	<b>Annual Exam.</b>	<b>:</b>	<b>80</b>
	<b>04</b>	<b>-</b>	<b>-</b>	<b>Internal Exam.</b>	<b>:</b>	<b>20</b>

### Rationale:

A diploma holder must have knowledge of different types of pollution caused due to industries and constructional activities so that he may help in balancing the eco system and controlling pollution by pollution control measures. He should also be aware of environmental laws related to the control of pollution.

Lectures will be delivered on following broad topics.

### Contents:

<u>S.No.</u>	<u>Topics</u>	<u>Periods</u>
1.	Basics of Ecology, Ecosystem & Sustainable Development	(10)
2.	Green Building/Energy Efficient Buildings	(10)
3.	Air/Water/Noise pollution and its Effect	(10)
4.	Solid Waste Management	(10)
5.	Conservation of Land, Preservation of Species	(05)
6.	Non Conventional Source of Energy	(05)

# BUILDING SERVICES & AIR CONDITIONING

<b>Subject Code</b> <b>37404</b>	<b>Theory</b>			<b>No of Period in one session :50</b>		
	<b>No. of Periods Per Week</b>			<b>Full Marks</b>	<b>:</b>	<b>100</b>
	<b>L</b>	<b>T</b>	<b>P/S</b>	<b>Annual Exam.</b>	<b>:</b>	<b>80</b>
	<b>04</b>	<b>-</b>	<b>-</b>	<b>Internal Exam.</b>	<b>:</b>	<b>20</b>

**Rationale:**

Students of Architectural Assistantship at diploma level are expected to prepare working drawings of various fittings and fixtures and water supply and sanitary installations. Also students should be well conversant with electrical and mechanical installations in the buildings. For this purpose, it is essential that the students are taught various aspects of building services like: sanitation, domestic water supply, electrical layout and air conditioning. Therefore, the subject of building services is very important for students undergoing diploma courses in Architectural Assistantship.

**Contents:**

**Objectives:**

The student will be able to: -

- 1) Understand the commonly used methods of water supply
- 2) Know terms and principles in air conditioning.
- 3) Drainage System

**1 Domestic Water Supply**

- 1.1 Consumption and demand of water for domestic and public purposes
- 1.2 Leakage and wastage of water and its preventive measures, different methods of distribution, boosting water, gravity and pressure distribution by storage tanks
- 1.3 Laying & joining cast iron water mains, different types of joints.
- 1.4 Services connections from mains, house service design, fittings, pipes of different materials, choice of piping cast iron, steel, wrought iron, galvanized lead, copper cement, concrete and asbestos pipes, P.V.C. pipes

**2 Air conditioning**

- 2.1 Drawing of Layout of plants for air conditioning
- 2.2 Basic principles of air changes, ventilations and air conditioning
- 2.3 General Principle of ducting and distribution, package unit, window units, air cooling and their normal distribution

**3 Drainage System**

**3.1 Sanitation**

- 3.1.1 Glossary of drainage terms
- 3.1.2 Surface drainage: Systems of drainage, combined and separate systems. Open drains in small towns, shape of street drains.
- 3.1.3 Storm overflow, self cleaning velocities, domestic drains, flushing of drains
- 3.1.4 Sewers:  
Sewers for different systems, standard type of drains, R.C. drain sewers, making sewers, cement concrete, asbestos cement concrete, earthen ware pipes, cast iron pipes
- 3.1.5 Test of pipes, Masonry sewers, setting out sewer line and excavation, laying and joining pipes, sewers crossings, branch connections of sewers

### **3.2 Manholes**

- 3.2.1 Spacing, Size, Covers
- 3.2.2 Lamp Holes
- 3.2.3 Ventilation of sewers

### **3.3 House Drainage**

- 3.3.1 Trap Types : Intercepting traps, gully traps, grease traps
- 3.3.2 Trap material and functions
- 3.3.3 Inspection chambers
- 3.3.4 Ventilation of House drains : Antisiphonage, vent pipes, one and two pipe system
- 3.3.5 Sanitary fittings : Sinks, bath, water closet, closet ranges, Flushing cisterns, urinals, laboratory basins, bidets
- 3.3.6 Size of pipes and traps for house drainage testing drainage pipes for leakage : smoke test, water test, cast iron pipes, soil & rain water pipes, wrought iron and steel and brass pipes, P.V.C. pipes

### **3.4 Plumbing and Internal Fixtures**

- 3.4.1 Joints for various type of pipes
- 3.4.2 Septic tanks, cess pools and seepage pits

#### **Books:**

- 1 Rangwala S.C., Water Supply and Sanitary Engineering Charotar Publishing House, Anand
- 2 I.S.I National Building Code B.I.S. Publication
- 3 J.S.Birdie G.S.Birdie Water Supply and Sanitary Engineering Dhanpatrai Publication Co., New Delhi
- 4 S.L. Uppal Electrical Wiring Estimating & costing Khanna Publication, New Delhi
- 5 V.N. Gharpure Water Supply engineering Engineering Book Publication, C.O.Pune
- 6 I.S.I. Code of basic requirement for Water Supply I.S. –1172 B.I.S.

#### **Books Recommended:**

1. Handbook of Designing and Installation of Services in Building Complex – High-rise Buildings by VK Jain, Publication. Khanna Publishers, New Delhi Khanna Publishers, New Delhi

# INTERIOR DESIGN & RENDERING

<b>Subject Code</b> <b>37405</b>	<b>Theory</b>			<b>No of Period in one session : 60</b>		
	<b>No. of Periods Per Week</b>			<b>Full Marks</b>	<b>:</b>	<b>100</b>
	<b>L</b>	<b>T</b>	<b>P/S</b>	<b>Annual Exam.</b>	<b>:</b>	<b>80</b>
	<b>06</b>	<b>-</b>	<b>-</b>	<b>Internal Exam.</b>	<b>:</b>	<b>20</b>

**Rationale:**

Students of Architectural Assistantship at the diploma level are expected to know, design and execute building interiors. Therefore, the basic knowledge of building construction and detailed knowledge of building materials is required. With the knowledge of this subject the students can help in handling interior projects from the concept stage to the project implementation stage. Also this exercise is necessary since the interiors are becoming more integral part of architecture and considerable stress is being laid in interior design.

Teachers while imparting instructions are expected to explain concepts and principles introducing various building finishing materials. The course would be supplemented with literature and samples of materials.

**Contents:**

<b><u>S.No.</u></b>	<b><u>Topics</u></b>	<b><u>Periods</u></b>
1.	Introduction to Interior Designing	(05)
2.	Principles of Interior Designing	(05)
3.	Elements of Interior Designing	
4.	Anthropometrics	
	a) Drawing Room, Family Room	(10)
	b) Kitchen	(05)
	c) Bed Room	(05)
	d) Toilet	(02)
	e) Restaurant	(05)
	f) Office	(05)
	g) Shop Interior/Show Rooms	(05)
	Rendering with Hand/Computer Software	(03)

# CONSTRUCTION PRACTICE LAB-I

<b>Subject Code</b> <b>37406</b>	<b>Practical</b>			<b>No of Period in one session :60</b>		
	<b>No. of Periods Per Week</b>			<b>Full Marks</b>	<b>:</b>	<b>50</b>
	<b>L</b>	<b>T</b>	<b>P/S</b>	<b>Annual Exam.</b>	<b>:</b>	<b>40</b>
	<b>-</b>	<b>-</b>	<b>06</b>	<b>Internal Exam.</b>	<b>:</b>	<b>10</b>

## Contents:

1. Brick bond - 2 Sheet (English & Flemish)
2. Wall Junction - 2 Sheet (T& Cross Junction)
3. Stone Masonry - 1 Sheet.
4. Door/ Window - 1 Sheet.
5. Floor - 1 Sheet.
6. DPC - 1 Sheet (Exp joint/ Water proofing)

## MODEL MAKING LAB

<b>Subject Code</b> <b>37407</b>	<b>Practical</b>			<b>No of Period in one session :120</b>		
	<b>No. of Periods Per Week</b>			<b>Full Marks</b>	<b>:</b>	<b>100</b>
	<b>L</b>	<b>T</b>	<b>P/S</b>	<b>Annual Exam.</b>	<b>:</b>	<b>80</b>
	<b>-</b>	<b>-</b>	<b>12</b>	<b>Internal Exam.</b>	<b>:</b>	<b>20</b>

### **Rationale:**

Students of Architectural Assistantship at diploma level are expected to assist in the preparation of architectural models of various kinds in their professional career. This skill can also form a basis of self-employment. Architecture models as three- dimensional representations are made in different mediums. The students should be acquainted with all of these mediums/materials

### **Contents:**

<b><u>S.No.</u></b>	<b><u>Topics</u></b>	<b><u>Periods</u></b>
1.	Model of Building Using Mount Board	(24)
2.	Block Model Using Thermocol /Wood	(24)
3.	Clay Modeling	(24)
4.	Plaster of Paris	(24)
5.	Model of Grill/Railings/Gates	(24)

Materials Supplied : Thermocol, Mount Board, Adhessives, Hard board

In Examination : Materials & Drawing Sheet of ½ imperial size

## MODEL MAKING LAB

<b>Subject Code</b> <b>37408</b>	<b>Sessional</b>			<b>No of Period in one session :</b>		
	<b>No. of Periods Per Week</b>			<b>Full Marks</b>	<b>:</b>	<b>50</b>
	<b>L</b>	<b>T</b>	<b>P/S</b>	<b>Annual Exam.</b>	<b>:</b>	<b>30</b>
	-	-	-	<b>Internal Exam.</b>	<b>:</b>	<b>20</b>

### **Rationale:**

Students of Architectural Assistantship at diploma level are expected to assist in the preparation of architectural models of various kinds in their professional career. This skill can also form a basis of self-employment. Architecture models as three- dimensional representations are made in different mediums. The students should be acquainted with all of these mediums/materials

### **Contents:**

**( 2 Model Block )**

1. Model of residential Block - (Block model using thermocol and Mount Board with hard board base)
2. Model of Commercial Block - (Mount Board with hard board base)

# INTERIOR DESIGN

Subject Code <b>37409</b>	Sessional			No of Period in one session :		
	No. of Periods Per Week			Full Marks	:	50
	L	T	P/S	Annual Exam.	:	30
	-	-	-	Internal Exam.	:	20

## Contents:

( 4 Sheets )

- |               |   |  |           |
|---------------|---|--|-----------|
| 1. Bed Room   | - | Interior (Pencil)  | -1 Sheet. |
| 2. Kitchen    | - | 1 Sheet Using Ink  | -1 Sheet. |
| 3. Toilet     | - | 1 Sheet (Pencil)   | -1 Sheet. |
| 4. Restaurant | - | 1 Sheet View of Interior, Using Perspective ( two point)<br>Using water colour |           |