3.1 HISTORY OF ARCHITECTURE – II

L	T	P
3	-	-

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 affect 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 Budhish 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, teacher 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.

DETAILED CONTENTS

1. Temple Architecture in India. (20 hrs)

- Evolution of temple and its various parts
- Dravidian style (Southern) General characteristics, planning, motifs and treatment of different parts, construction methods and materials (e.g. shore temple at Mahabalipuram, Madurai Temple.)

Indo Aryan Temple

- Lingaraja Temple at Bhubhaneshwar, Kandariya Mahadeo at Khajuraho, Sun Temple at Modhera; These examples must be studied with reference to: Architectural form, planning components, construction methods, materials, motifs (ornamentation)

Jain Temple

- Dilwara Temple at Mount Abu, Ranakpur Temple.General architectural characteristics, construction methods, materials and ornamentation.

2. Early Christian Architecture (04 hrs)

- Development of church plan (Basilican), construction methods and general architectural characteristics of St. Peters, Rome

3. Byzantine Architecture (04 hrs)

- Centralized plans and construction methods for dome of St. Sophia Church)

4. Romanesque Architecture (04 hrs)

- General architectural characteristics, materials and construction methods for the Pisa group of buildings.

5. Gothic Architecture (06 hrs)

- Main visual and construction vocabulary of Gothic Arch at Notre Dame Paris, and Reims Cathedral)

6. Renaissance Architecture (10 hrs)

- Early Renaissance Architecture. General architectural characteristics (Florence cathedral)
- Late Renaissance architecture. General characteristics and Role of Michael Anglo & Palladio (eg. St. Peter's Rome. The Building of the Capitoline Hill Rome & Villa Capra)

INSTRUCTIONAL STRATEGY

The subject may be taught through audiovisual aids, slides, PowerPoint presentations so as to explain salient architecture features and techniques. Emphasis must be laid on freehand drawing and each student should maintain a sketchbook.

RECOMMENDED BOOKS

1. Urban Pattern: - Arthur B, Gallion and B Fischer, Publisher McGraw Hill Book, New Delhi
2. History Builds the Town:- Arthur Kohn; Khanna Publisher, New Delhi
3. A history of Architecture: Settings and Rituals-Spiro Kostof; Oxford University Press *UK* -
4. Town Building in History:-Hirons; Vikas Publishing House Pvt., New Delhi
5. World Architecture:- Michael Raeburn, LBS Ltd. Faraday Close Durrington Worthing West Sussex
6. Internet Sources/Various search engineers may also be used for additional information on some topics.
7. History of Architecture:- Sir Banister Fletcher, Vikas Publishing House, New Delhi
8. History of Architecture:- Satish Grover(Hindu), Publisher Roli Books(P) Ltd. Delhi
9. History of Architecture:-Percy Brown; Publisher, Taraporevala Sons, New Delhi
10. Indian Architecture (Hindu and Buddhist):- Percy Brown

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	20	30
2	4	10
3	4	10
4	4	10
5	6	15
6	10	25
Total	**48**	**100**

3.2 ARCHITECTURAL DRAWING-III

L	T	P
-	-	6

RATIONALE

The students of diploma holder in Architectural Assistantship should have sufficient skills to draw perspective drawings. Besides this they should also be introduced to sciography in plans, elevations. They should be given sufficient exercises in rendering of perspective drawings, so that they are able to perform well in the field/industry.

DETAILED CONTENTS

1. Perspective (01 sheet)

   - Introduction to basic terminology (picture plane. Vanishing point. Station point, cone of vision)
   - Introduction to types- 1 point. 2 point (vanishing point method)

2. Simple Perceptive

   - Geometrical shapes incorporating all views: cone, cubes, cylinders etc.
   - Birds eye view
   - Normal eye view
   - Worms eye view to clarify concepts (02 sheets)
   - 2 point perspective of a given plan (vanishing point method) (02 sheets)
   - 1 point perspective of a given plan (drawing room and kitchen) (02 sheets)

3. Introduction to Sciography (in plans and Elevations)

   - Basic Geometrical shapes (cube, cylinder, cone, etc). (01 sheet)
   - Difference between shade and shadow on basic geometrical shapes (01 sheet)
   - Shade and shadow of a basic building
     (a) Drawing (Plan and elevation) supplied by teacher (01 sheet)
     (b) Drawing of student's choice(s) (01 sheet)
     (Residential building)

4. Introduction to Rendering

   - Demo by teacher in different mediums-colour pencils, crayon. Colour wash, markers etc.
   - Rendering techniques in pen and inks/ Different colour mediums (02 sheets)
   - Rendering of a given perspective (01 sheet)

   Total no. of sheets = 14

INSTRUCTIONAL STRATEGY

This subject is one of the most important, fundamental and practical subject for diploma in Architectural Assistantship. Teachers should lay emphasis on practical work by the students and give repetitive exercises in free hand sketching, colouring and rendering like sketching, shades and shadows, lettering, printing forms and other important component of architecture. Teachers should lay stress upon perfect line work, properties, dimensioning, lettering and printing by the students in the classroom. Students should maintain portfolio of the work done by them throughout the session. Viva voce examination shall be conducted by the teacher on completion of each assignment

RECOMMENDED BOOKS

1. Engineering Drawing by P.S Gill; Publisher S K Kataria and Sons, Ludhiana
2. Building Construction – by Sikka; Publisher Tata McGraw Hill Publisher, New Delhi
3. Rendering with Pen and ink by Arthur L. Guptill, Susan E. Meyer

3.3 SURVEYING

L	T	P
2	-	3

RATIONALE

The important functions of a diploma holder in Architecture Assistantship includes the jobs of detailed surveying, plotting of survey data, preparation of survey maps and setting out works

While framing the curriculum for the subject of surveying, stress has been given to the development of the skill in each type of survey like chain surveying, compass surveying and levelling that the diploma holder in Architectural Assistantship will normally be called upon to perform. Plane table surveying, contouring, theodolite surveying, curves and use of minor instruments have also been included in this subject.

Field work should be a selected one so that student can check his work and have an idea of the extent of error in the work done by him. As far as possible, the surveys done should be got plotted, as this will also reveal errors in the work and develop skill in plotting.

DETAILED CONTENTS
THEORY

Part – A:

1. Introduction: (03 hrs)

- Basic principles and types of surveying and types of surveying
- Concept of surveying, purpose of surveying, measurements-linear and angular, units of measurements
- Instruments used for taking these measurement, classification of survey based on instruments
- System of conversion of land measurements from traditional revenue maps/records to MKS.

2. Chain surveying: (04 hrs)

- Purpose of chain surveying, principles of chain surveying
- Errors in chain surveying
- Corrections to chain length, simple related problems.

3. Compass surveying: (06 hrs.)

- Purpose of compass surveying. Construction and working of prismatic compass, use of prismatic compass: Setting and taking observations
- Concept of:

  a) Meridian - Magnetic and true

b) Bearing - Magnetic, True and Arbitrary
c) Whole circle bearing and reduced bearing
d) Fore and back bearing

- Local Attraction-causes, Detection & precautions against local attraction

4. Levelling: (06 hrs)

- Purpose and concept of levelling, reduced level and bench marks
- Construction of Dumpy level
- Concepts of line of collimation, axis of the bubble tube, axis of the telescope and vertical axis
- Temporary adjustment: setting up and leveling
- Concept of back sight, foresight, intermediate sight, station change point, to determine reduced levels
- Level book and reduction of levels by
- Height of instrument method and
- Rise and fall method,
- Arithmetic checks, problems on reduction of levels,
- Computations of Areas of regular figure and irregular figure. Simpson rule

Part – B

5. Plane Table Surveying: (06 hrs)

5.1 Purpose of plane table surveying, equipment used in plane table survey:
(a) Plane table and its accessories
5.2 Setting of a plane table:
(a) Centering
(b) Leveling
(c) Orientation
5.3 Methods of plane table surveying
(a) Radiation,
(b) Intersection
(c) Traversing
5.4. Two Point Problem

6. Contouring: (02 hrs)

Concept of contours, contour interval and horizontal equivalent.

7. Instruments: (02 hrs)

Demo and uses of : Theodolite

8. Use of Modern Surveying equipment (Auto Level, Micro-optic Theodolite, Total station, (03 hrs)

NOTE:

a) For various surveying equipment relevant practices should be followed
b) No sketch of the instruments may be asked in the examination

PRACTICAL EXERCISES

I. Chain surveying:

i) a) Ranging a line
b) Chaining a line and recording in the field work
c) Testing and adjustment of chain
d) Taking offsets - perpendicular and oblique (with a tape only)
e) Setting out right angle with a tape

ii) a) Chaining of a line involving reciprocal ranging
b) Taking off sets and setting out right angles, with cross staff and Indian optical square

iii) a) Demarcation of land at site and cross checking the dimension/ diagrams/levels/set-backs etc of a building lay out.

II. Compass Surveying:

i) a) Study of prismatic compass
b) Setting the compass and taking observations
c) Measuring angles between the lines meeting at a point
d) Plotting of readings and applying corrections.

III. Leveling:

i) a) Study of dumpy level and levelling staff (single piece and folding)
b) Temporary adjustments of a Dumpy level
c) Taking staff readings on different stations from the single setting and finding differences of level between them

ii) a) Study of Tilting Level (IOP) level
b) Its temporary adjustments
c) Taking staff readings on different stations from the single setting and finding differences of level between them

iii) Exercise of finding R.L's of different components of an existing building e.g. Plinth, chhajja, ceiling, approach road, boundary wall etc w.r.t a given bench mark.

IV. Plane Table Surveying:

i) a) Setting the plane table

b) Plotting a few points by radiation method

c) Orientation by

- Trough compass
- Back sighting

d) Plotting a few points by intersection method

(ii) Two point problem

(iii) Computing of areas by planimeter

V. Demonstration of digital instruments like Autolevel, digital Planimeter, micro-optic theodolite, total station, EDM instruments.

INSTRUCTIONAL STRATEGY

This is highly practice-oriented course. While imparting theoretical instructions, teachers are expected to demonstrate the use of various instruments in surveying, stress should be laid on correct use of various instruments so as to avoid/minimize errors during surveying. It is further recommended that more emphasis should be laid in conducting practical work by individual students

RECOMMENDED BOOKS

1. "Surveying"; Narinder Singh; New Delhi, Tata McGraw Hill Publishing Co Ltd.
2. "Text Book of Surveying"; Hussain, SK and Nagraj, MS; New Delhi, S Chand and Co Ltd.
3. "A Text Book Surveying and Levelling"; Deshpande, RS; Poona, United Book Corporation
4. "A Text Book of Surveying" Kocher, CL; Ludhiana, Katson Publishing House
5. "Surveying and Leveling, Kanetkar,TP and Kulkarni, SV., ", Poona, AVG Parkashan
6. "Surveying and Leveling-Vol.2" Kanetkar, TP; and Kulkarni, SV; Poona, AVG Prakashan
7. "Surveying and Leveling - Vol. 2", Punima, BC; Delhi Standard Publishers Distributors, Delhi

8. "A Text Book of Surveying Vol. 2", Shahai, PB; Oxford and IBH Publishing Co.
9. Fundamentals of Surveying by Roy SK; Prentice Hall of India (P) Ltd., New Delhi

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	03	10
2	04	16
3	06	20
4	06	20
5	06	20
6	02	10
7	02	02
8	03	02
Total	**32**	**100**

3.4 CLIMATOLOGY

L	T	P
3	-	-

RATIONALE

Understanding of the basic principles of climatology and environment are very important for diploma holders in Architectural Assistantship. The knowledge of this subject will be very useful in the design of buildings.

DETAILED CONTENTS

1. General Introduction (08 hrs)

- Introduction to Climatology
- Movement of earth around sun.
- Different elements of climate like: Wind, temperature, humidity, precipitation and pressure.
- Different climatic zones
- Orientation of building with respect to above mentioned elements of climate
- Effect of climate on man and shelter.

2. Relation of Climate and comfort (06 hrs)

- Macro-micro climatic effects
- Concept of comfort zone and bio-climatic chart
- Climatic evaluation by season

3. Sun Control and shading devices (without calculations) (10 hrs)

- Solar Chart (sun path diagram)
- Orientation for sun
- Internal and external sun protection devices
- Natural lighting
- Introduction and objectives of Solar Passive Design
- Passive solar heating and cooling

4. Wind control (04 hrs)

- Orientation with respect to wind
- Wind protection devices

5. Use of building materials with respect to climate (06 hrs)

- Concrete
- Brick
- Glass
- Plastics
- Stone
- Insulating material

6. Criteria for site selection (04 hrs)

7. Environment and Ecology (10 hrs)

- Basic elements of ecology
- Concepts of natural cycles in Eco-system
- Source of noise and air pollution, their effects and controls
- Use of landscape elements for micro and macro climate control
- Introduction to climate change, principle causes and effects- methods of mitigating climate change.

STUDY REPORT AS AN ASSIGNMENT

A study report on the effect of climate and environment on contemporary buildings such as residential, commercial and public buildings should be prepared by the students. The study should emphasize on orientation of court-yards, windows, jallies, chajjas, landscape and various other sun and wind control devices.

INSTRUCTIONAL STRATEGY

Audio-video should be used for explaining various component of climatology and environment. Teachers are expected to impart instructions of the above course keeping in

view the effect of above course in the design of buildings. The course contents should be taught with reference to tropical climates.

RECOMMENDED BOOKS

1. Environmental Engineering and Management by Santosh Sarkar
2. Tropical Architecture by Wolfgang Lauber; Publisher: Prestel Publishing, ISBN: 3791331353, ISBN-13:
3. Tropical Architecture by C.P. Kukreja; Publisher*:* McGraw-Hill, New Delhi
4. Ecology: The Link Between The Natural And The Social Sciences by EP Odem; Oxford and IBH Publishing Co. New. Delhi.
5. Design With Climate by Arvind Krishan, Publisher, Tata McGraw-Hill, New Delhi

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	08	18
2	06	14
3	10	20
4	04	08
5	06	12
6	04	08
7	10	20
Total	**48**	**100**

3.5 BUILDING SERVICES

L	T	P
4	-	-

RATIONALE

Students of Architectural Assistantship at diploma level are expected to prepare working drawings for fixing of various fittings and fixtures, 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, water supply, electrical layout and air conditioning. Therefore, the subject of building services is very important for students undergoing diploma courses in Architectural Assistantship.

Teachers while imparting instructions are expected to show various fixtures and fittings, water supply and sanitary installations at work sites and by making use of literature, models, chart and other audio-visual aids so that students are able to comprehend the hardware used. Teacher should specifically point out problem areas and other environmental considerations while teaching this subject.

DETAILED CONTENTS

1. Water Supply (12 hrs)

   1.1 Water as a natural resource, public health significance of water quality, demand of water for domestic, commercial, industrial and public utility purposes as per BIS standards. Per capita demand, leakage and wastage of water and its preventive measures

   1.2 System of water supply – continuous, intermittent, their advantages and disadvantages

   1.3 Storage and Distribution of Water: Different methods of water distribution boosting water, gravity and pressure distribution by storage tanks of individual buildings

   1.4 Hot water supply for buildings including solar water heating.

   1.5 Service connections, types and sizes of pipes, water supply fixture and installations

   1.6 Concept of Rain water harvesting

2. Drainage (16 hrs)

   2.1 Principles of drainage, surface drainage; combined and separate system of drainage, shape and sizes of drains and sewers, storm water over flow chambers, methods of laying and construction of sewers

2.2 House drainage: traps – shapes, sizes, types, materials and function

2.3 Inspection chambers – sizes, and construction

2.4 Ventilation of house drainage – anti siphonage and vent pipes, single stack and double stack system

2.5 Functions and working of sinks, wash basins,, water closets, flushing cisterns, urinals, – sizes and types

2.6 Septic tanks, seepage and soak pits

2.7 Simple exercises on layout plans for toilet and kitchens for public and residential buildings including the placement, distances and fixing details.

3. Sound Insulation (08 hrs)

3.1 Behaviour of sound propagation,

3.2 Acoustics in building, acoustical defects such as echo, reverberation, sound foci, methods of correction, special requirements in Bldgs like auditorium, conference halls, studios etc

3.3 Acoustical materials and their uses in various buildings

3.4 Simple exercises on sound insulation

4. Lighting and Electrical Fittings (10 hrs)

4.1 Electrical distribution-conduits for wiring, types of wiring, types of switches, various terms used in lighting-illumination, Lux, lumen etc. distribution panels, MCB'S, ELCBS

4.2 Methods of lighting, quality of light of mercury lamps, incandescent types of lamps, fluorescent tubes, CFL and other lamps, thumb rules for calculation of illuminating level, various systems of wiring and their sustainability

4.3 Symbolic representation of electrical fittings for different work areas in residential building (e.g. bed room, living room, kitchen, study and toilet)

4.4 Preparation of electrical layout of a simple residential building

4.5 Precautions to avoid electrical accidents

5. Heat, Ventilation and Air Conditioning (HVAC) (08 hrs)

5.1 Behaviour of heat propagation, thermal insulating materials and their co-efficient of thermal conductivity

5.2 General methods of thermal insulation. Thermal insulation of roofs, exposed walls
5.3 Ventilation: Definition and necessity
5.4 System of ventilation (Mechanical)
5.5 Principles of air conditioning
5.6 Air cooling
5.7 Different types of Air conditioning systems and their use in buildings
5.8 Essentials of air-conditioning system

6. Vertical Transportation Systems (04 hrs)

Classification and types of lifts, lift sizes, provision and installation, escalators, sizes, safety norms to be adopted

7. Fire Fighting Services (04 hrs)

Causes of fire in Buildings, classification of building materials according to fire rating; fire alarm systems introduction to fire fighting system, precaution and controlling devices (fire panels, door and windows automation, fire hydrants and sprinklers) fire escape elements (staircases, ramps,), provisions in building from fire safety angle as per BIS; heat detectors, and fire detection system.

8. Integration of lighting, air-conditioning, acoustics and other services/systems in buildings (02 hrs)

Note: Students shall prepare a scrapbook for all the above 8 numbers of topics

INSTRUCTIONAL STRATEGY

Building services are as important as any other part of the building. The teachers, besides classroom teaching should supplement the instruction by arranging field visits. Students may be encouraged to collect information, pamphlets and catalogues from different market/ manufacturing sources and prepare a scrapbook of the latest machines/fittings available for building services. Teachers may also encourage the students to go through relevant BIS codes for each topic. The subject knowledge should be used in preparing services drawings in the subject of Architectural design.

RECOMMENDED BOOKS

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.
2. Water and Waste Water Technology by Mark J. Hammer and Mark J. Hammer(Jr.); Prentice Hall of India (P) Ltd., New Delhi – 110 001
3. A Text Book of Environmental Science by Subramanian; Narora Publicity (Pvt.) Ltd., New Delhi – 110 002
4. National Building Code

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	12	18
2	16	22
3	08	12
4	10	18
5	08	12
6	04	6
7	04	6
8	02	6
Total	**64**	**100**

3.6 BUILDING CONSTRUCTION – II

L	T	P
-	-	6

RATIONALE

Students of Architectural Assistantship at diploma level are supposed to prepare structural drawings, working drawings and detailed drawings to various components of buildings. Also students are expected to design small residential buildings, for this purpose, it is essential that students are taught various components of building construction comprising foundations, super structure, openings, roofs, staircases, floorings and finishing and other allied building components.

Therefore, the subject of building construction is very important for students undergoing diploma course in Architectural Assistantship.

Teachers while imparting instructions are expected to show various components to buildings under construction. Make use of models or other audio-visual media to clarity the concepts. While preparing drawings, teachers should lay considerable stress on proper toning. Dimensioning, specification writing and printing and composition of drawing work. Students should be asked to maintain a sketch book for recording the observations form site visit. While conducting viva, teachers should ask specific questions on various topics.

DETAILED CONTENTS

1. Flooring

   - Types of flooring and constituents (ground and upper flooring)
   - Different types of floor finishes (3 sheets)

2. Roof and roof coverings
   - Pitched roof and terms related to roof
   - Types of timber roofs
   - Lean to roof
   - Double collar roof
   - King post and queen post trusses

   1. Drawing details of fixing and layout of AC, GI sheets, slates, tiles and locally available materials. (1 sheet)
   2. Drawing of king post and queen post trusses along with their constructional details (2 sheets)

3. Staircases and ramps
   - Definition and types of staircases as per nomenclature
   - Staircases of different materials
   - Relation between different components
   - Definitions, purpose, slopes, types of ramps and moving walks

   3. Drawing a dog leg wooden staircase
   4. Steel spiral staircase
   5. RCC staircase cast-in-situ and also precast (3 sheets)

4. Expansion joints
   - Viva-voce based upon theory syllabus
   - Preparation of drawing file

5. Form work and steel work
   - Definitions of form work, shuttering and centring
   - Form work for different structural members
   - Bending of bars, formation of hooks and cranks

6. Expansion joint in walls and roof, framed structure (2 sheets)

Total Number of Drawings: 11

INSTRUCTIONAL STRATEGY

This subject is of practical in nature. While imparting instruction for preparation of various drawings of different types of buildings and their components, the teacher should organize demonstration and field/site visits to show various stages, sizes and scales of operations involved in building construction. The teacher should involve the theoretical aspects of the instructions to the students before drawings are attempted by the students. Students may prepare the port-folio of the work done by them throughout the session. Teacher may also organize viva-voce after each drawing assignment so as to test the level of understanding of the students about unlying concepts, princples, and procedures.

RECOMMENDED BOOKS

1. Building Construction by WB Mackay; Khanna Publisher, New Delhi
2. Building Construction by SP Bindra and SP Arora; ; publisher Dhanpat Rai & Co. New Delhi
3. Building Construction by BC Punmia; Publisher Laxmi Publication, New Delhi
4. Building Construction by Sushil Kumar; Standard Publisher, New Delhi
5. Construction of Buildings (Vol I and II) by Barry
6. Building Construction by VB Sikka; Publisher Tata McGraw Hill Publisher, New Delhi
7. Building Construction by Rangwala; Publisher Charotar Publishing House Pvt. Ltd., New Delhi

3.7 ARCHITECTURAL DESIGN - II

L	T	P
-	-	8

RATIONALE

Diploma holders in Architectural Assistantship find employment with private architects and also majority of them go for self-employment. Therefore, they are required to develop aptitude/skills to design residential, commercial and other public buildings. Teachers while imparting instructions/giving assignments to students are expecting to teach various elements of design like form function, balance, light of shadow, shape, plane, volume, line, rhythm, proportions, textures and other such related elements. Teachers are also expected to show various types of designs of small building to develop and appreciation for this subject. Teachers should also motivate students to maintain sketch book/portfolio of all the assignments given to the students.

DETAILED CONTENTS

1. Study of spaces and layout of furniture for various activities in small structures comprising public utilities like Fuel Station, Milk Bar, Florist Kiosk and Guard House. The study is to be presented through plans, elevations, sketches etc.

2 Introduction of Structure Systems (Briefly): Design of a single storey structure such as weekend cottage, milk bar etc.
Drawings to be produced:
- Site plan
- Plans
- Elevations
- Sections
- Views
- Block Model

(Minimum two projects to be done).

3 Time Problem: Plan showing furniture layout and section through a given mono-functional space such as a Café, classroom in a nursery school, parking lot etc.

INSTRUCTIONAL STRATEGY

This is one of the most important practical oriented subject for diploma in architectural assistantship. While imparting instruction, special visits may be arranged to demonstrate and explain important architectural features of different types of residential, commercial and public buildings. Practicing architects may be invited from time to time to present case studies and to deliver expert lectures on important elements like form, function, balance, light of shadow, shape, plane, volume, line, rhythm, proportions, textures and other such element appropriate to various designs. Teacher may present some of the already completed design works of practicing architects to the students and explain the important features and elements. Audio-visual material available in this field may be procured and presented to the students from time to time. Students should be encouraged

to visit relevant web-sites and teachers should develop the design problems/assignments which can be taken up by the students using relevant and appropriate software. Students should be given group and independent design/drawing assignments and they should also maintain sketch book/portfolio of all the assignments given to them throughout the session. Teachers may conduct viva-voce on completion of each assignment. Students may present seminars towards the end of the session.

RECOMMENDED BOOKS

1. Time Saver Standards for Building Types by Joseph De Chiara and John Callendera; Publisher Tata McGraw Hill Publisher, New Delhi
2. Architects Data by Neufert; Publisher Blackwell Publishing Ltd. 9600 Garsington Road, *Oxford*, OX4 2DQ, UK **..**
3. Space, Time and Order by DK Ching; Publisher John Wiley & Sons, Wiley
4. Architectural Aesthetics by Sangeet Sharma, Abhishek Publication, 57-59, Sector 17, Chandigarh