SEMESTER – IV

AR -221 Design-IV

Study of natural environmental factors, their impact and consideration by human settlements of a town on a part of a city. Especially on housing forms, open spaces, their activities and construction methods including energy efficient structures. Emphasis on the following attitudes is important :- Detailed study of one or more of the following aspects - climatic considerations and relationship with life style. Emphsis on Consideration of constructional details, basic details of services like kitchen, toilets etc. and site planning of the scheme. Design problems with natural and man made parameters dealing with independent bunglows, farm houses, combined units, duplex type their cluster or grouping etc. along with relevent Building codes.

There should be minimum one time problem of 12 hrs. duration apart from regular design problems in the studio.

Note: The sessionals will be in the form of drawings and models along with technical report for the design dealt with. The evaluation should be done in intermediate review consisting of internal and external experts. There should be regular site visits to the building types dealt in the studio problems of which audio-visual should be prepared.

AR-222 Building Construction-III

1. Shoring.

2. Industrial steel floor (fire proof), jack Arch roofing, stone slab roofing, stone stairs, stone floor on girder.

3. Steel roofs-types.

4. Precast components (C.B.R.I.)

5. Design & construction details of domestic furniture in timber & hollow tube sections, slab flooring, stone stairs.

Note: i) There should be regular site visits to buildings under construction or constructed to explain the above topics. Use of audio-visuals should be stressed.

ii) Minimum 8 sheets shall be prepared out of which two may be in sketch form (scaled).

AR -223 Climatology

1. Introduction to the elements of climate and its types with reference to tropical climate and site climate.

2. Vernacular techniques of shelter design as per climatic regions (Rural and Urban).

3. Principles of thermal design and control, ventilation and air movement illumination and day lighting, response to climate by man and building.

4. Elements of architecture design with climate by using different prediction tools and design aids.

5. Study of building materials and construction techniques of energy efficient building design for tropical climate.

Note: There should be regular site visits to various scientific labs, buildings sites. There should be use of audio visuals explaining the above course and sessionals.

AR -224 History of Arch-III

This course is studied in order to see how builders in the past solved their structural, functional and aesthetic problems. This survey of history gives the student a chance to study the structural basis of great styles, methods of admitting daylight, for decoration, for planning and so on, as related to structure. Importance is also attached to the sociological background i.e. political, economic, religious, technical and philosophic ideas and ideals which lie behind all buildings.

This will be studied with the help of selected samples of buildings under the various historical civilizations of Indian and the oriental in general, in chronological order.

Pre-Gupta Architecture i.e. upto 3rd cen.A.D.

1. **Gupta, Chalukayan, Indo Aryan.**
2. **Dravidian & Rajput Architecture i.e. upto 11th cen.A.D.**
3. **Medieval Hindu & Jain architecture.**
4. **Indo-Islamic architecture.**

   Rajput palaces.
5. **Colonial Architecture in India.**

Note: Sessional will be submitted in the form of sketches (min. say 20) notes, audio-visuals and reports of site visit to some historical buildings etc. as per program scheduled by the Dept. / Institution.

AR -225 Structure-IV

(1) Introduction to R.C.C., Working Stress method, Limit State method

(2) Design of Beams :- analysis of beams, design of singly, doubly reinforced beam, T-beam, L-beam, (cantilever and simply supported) lintel, chhajjas

(3) Design of Slabs :- analysis of slabs, design of One way, Two way, Continuous, Cantilever Slabs (simply supported and continuous)

(4) Design of Columns:- axially loaded, columns with Uni-axial and Bi-axial bending

(5) Design of Staircases :- dog-legged, and open well only

Note: Sessional work should include the analysis of simple elements along with the drawings.

AR- 226 Survey and Leveling

1. **Aspects of surveying for the Architect. Surveying instruments classification by function. Useful data and formulae, basics of Mensuration.**

2. **Scales-Plain scale, diagonal scale, comparative scale, shrunk scale, vernier scale.**

3. **Study, test, degree of accuracy, use and care of surveying instruments and accessories.**

4. **Site survey techniques: Chain surveying, compass surveying, plain table, theodolite.**

5. **Leveling and contouring, Topographic Survey.**

Note: Class work and field work of the above subject should be oriented towards the layout of buildings and preparation of measured drawings. Students should also be taken to site visits for explaining the practical aspects of surveying.