

Shivaji University, Kolhapur

S.Y. B.Arch Semester III & IV Syllabi

Introduced From July 2011 Onwards

New Structure for B.Arch. (Semester Wise) Sem.- III & Sem. IV July 2011 Onwards

| Code No. | Name of the Subject | Teaching Scheme | | Examination Scheme | | | | Total |
|-----------------------|----------------------------------------------------------|-------------------|------------------|-------------------------------------------|-----------------------------|-----------------|----------------|-------------|
| | | Lectures/ week | Studios/ week | Duration of theory paper in Hrs. | Sessional Work (Int.) | Theory Paper | Oral (Ext.) | |
| S.Y.B.ARCH | | | | | | | | |
| SEMESTER - III | | | | | | | | |
| AR03-01 | Graphics - III | 1 | 3 | | 50 | | | 50 |
| AR03-02 | Art Appreciation - I | 1 | 2 | | 100 | | | 100 |
| AR03-03 | Architectural Design - III | 1 | 7 | | 100 | | | 100 |
| AR03-04* | Building Construction & Material - III | 2 | 4 | 4 | 70 | 80 | | 150 |
| AR03-05** | Theory of Structure - III | 4 | | 3 | 20 | 80 | | 100 |
| AR03-06** | History of Architecture - I | 3 | | 3 | 20 | 80 | | 100 |
| AR03-07 | Climatology & Architecture | 4 | | | 50 | 100 | | 150 |
| AR03-08 | Building Services - I (Sanitation) | 1 | 2 | 2 | 50 | 50 | | 100 |
| AR03-09 | Computer Technology & Architectural Presentation - I | 1 | 2 | | 50 | | | 50 |
| | Total | 18 | 20 | 12 | 510 | 390 | 0 | 900 |
| AR03-10 | Environmental Studies | 2 | | | | | | 0 |
| Code No. | Name of the Subject | Teaching Scheme | | Examination Scheme | | | | Total |
| | | Lectures/ week | Studios/ week | Duration of theory paper in Hrs. | Sessional Work (Int.) | Theory Paper | Oral (Ext.) | |
| SEMESTER - IV | | | | | | | | |
| AR04-01 | Graphics - IV | 1 | 3 | | 50 | | | 50 |
| AR04-02 | Art Appreciation - II | 1 | 2 | | 100 | | | 100 |
| AR04-03* | Architectural Design - IV | 1 | 7 | 9 | 100 | 100 | 200 | 400 |
| AR04-04* | Building Construction & Material - IV | 2 | 4 | 4 | 70 | 80 | 100 | 250 |
| AR04-05** | Theory of Structure - IV | 4 | | 3 | 20 | 80 | | 100 |
| AR04-06 | Surveying & Levelling | 2 | 2 | | 50 | | 50 | 100 |
| AR04-07** | History of Architecture - II | 3 | | 3 | 20 | 80 | | 100 |
| AR04-08 | Building Services - II (Water Supply & Elect.) | 1 | 2 | 2 | 50 | 50 | | 100 |
| AR04-09 | Computer Technology & Architectural Presentation - II | 1 | 2 | | 50 | | | 50 |
| | Total | 16 | 22 | 21 | 510 | 390 | 350 | 1250 |
| AR04-10 | Environmental Studies | 2 | | 3 | 30 | 70 | | 100 |

S.Y.B. ARCHITECTURE DEGREE COURSE

Implemented From July 2011

AR03 - 01

SUBJECT : GRAPHICS - III

SYLLABUS FOR THIRD SEM.

| | | |
|---------------|--------------|---------------|
| Lectures - 01 | Paper - - | Internal - 50 |
| Studio - 03 | Duration - - | External --- |
| Total - 04 | | Theory -50 |
| | | Total - 100 |

The study of this subject is continuation of drafting skills, various techniques of presentation with knowledge of perspective. This is continuation and further development of Basic course studied during first year.



Introduction of perspective drawings- relatively realistic way for presentation.



Principles of one point and Two point perspective of simple objects and building elements.



Perspective of interiors and Exteriors using different eye levels .

Assessment :-

- * Drawings assignment on above topics
- * Continuous assessment and marking system should be followed

SUBJECT : ART APPRECIATION - I

SYLLABUS FOR THIRD SEM.

| | | |
|---------------------|--------------|----------------|
| Lectures - 01 | Paper - - | Internal - 100 |
| Studio - 02 | Duration - - | External - - |
| Total per week - 03 | | Theory - - |
| | | Total - 100 |

The course explores the relationships between architectural discourse and the visual arts from the historical avant-garde to the present. Architectural discourse will be considered as the intersection of diverse systems of representation: buildings, projects, drawings, but also architectural theory and criticism, exhibitions, photographs, professional magazines, and the popular press. The course treats as visual arts not only painting and sculpture, but also photography, cinema, fashion, advertisements, and television.

The content must stress on three areas.

■ Intellectual - theoretic, discursive, analytic, critical aesthetics.

■ Visual - two and three dimensional, black and white & colour, DVDs and CDs on art films, films on artists, even feature films known for excellence in the visual.

■ Skills - techniques, technology, skills of doing things by hand, traditional crafts etc.

Visits to museums and art galleries, exhibitions.

Create awareness of various types of arts, appreciation and understanding of their relationship with Architecture.

Relationship between Visual Arts and Performing Arts.

Assessment:

- The sessional works shall consists of study of models, photographs,
- Continuous assessment and marking system should be followed
- Documentation of these exercises will be done in A2 size portfolio.

SUBJECT : ARCHITECTURAL DESIGN - III

SYLLABUS FOR THIRD SEM.

| | | |
|---------------------|--------------|----------------|
| Lectures - 01 | Paper - - | Internal - 100 |
| Studio - 07 | Duration - - | External - -- |
| Total per week - 08 | | Theory - - |
| | | Total - 100 |

The student will be confronted with progressively complex exercises involving spatial relations in two dimensions, three dimensions and time. Fundamental design skills are taught in the context of the architect's wider responsibilities to society, culture and the environment. The course will stress experimentation while providing an analytical and creative framework to develop an understanding of principles of Design, structure and materials as well as necessary skills in drawing and model-making.



Scope of Design, considering methods of construction, structure, site conditions, socio-economic factors, form and shapes.



Study of planes, mass, forms and shapes



Case study of typical small scale settlement in town or village, for understanding evolution of design, use of material.



Data collection and analysis including circulation.



Design problems of medium complex function, low rise buildings.



Site visits: Site visits to complete buildings pertaining to design problems, group discussions among students, special discussions shall also be arranged with senior students, students should also play roles of clients, contractors and consultants.



Study of groups of objects forms, masses with basic geometric forms, their compositions, for two and three dimensional study in relation with Basic Design.

Assessment:



Continuous assessment and marking system should be followed



Block models, preliminary models with site development, human figures with using various model making materials and techniques.



Internal and External exams will be based on above understanding of topics.

SUBJECT : BUILDING CONSTRUCTION AND MATERIAL - III

SYLLABUS FOR THIRD SEM.

| | | | | |
|---------------------|----------|-----------|----------|--------|
| Lectures - 02 | Paper | - 80 | Internal | - 70 |
| Studio - 04 | Duration | - 4 hours | External | - -- |
| Total per week - 06 | | | Theory | - 80 |
| | | | Total | - 150* |

NOTE:- (*) Means combined passing for External oral & Theory paper .

This course introduces students to the art and science of building. Emphasis will be placed gaining an understanding of construction materials, methods and the process of translating design ideas into built form. Specific topics are introduced each week. These topics are then further, various design strategies, materials, fabrication techniques, and didactic built works are explored. As both a qualitative and a basic quantitative understanding of elementary systems are mastered, the curriculum shifts its focus onto increasingly complex systems serving entire buildings. The sequence's last two courses develop an understanding of how technical-utilitarian systems are resolved, integrated with other systems. The material in class requires students to

have some experience and understanding of architectural design, drawings and details.

MATERIALS : (Internal Marks 20)

Cement: Ingredients and properties of cement, Types of cement, Grades of cement, Initial and final setting time, Test of cements, ISI Standards, Pozzolana material and its properties.

Mortar: Introduction to Mud, Lime and Surkhi Mortar, Cement Mortar- Ingredients, Properties, preparation, mixing and application.

Concrete: Cement concrete of different sizes of aggregate, proportion, strength. Concrete preparation, mixing, hoisting and depositing, shuttering and centering, types of reinforcement and its laying.

CONSTRUCTION :. (Internal Marks – 50)

Building structure: - Framed structure, composite structure, comparison with load bearing structure. Choice between the two.

Foundation: Excavation in various types of soil.

Footing, for R.C.C, and masonry columns, isolated footing , combined footing, eccentric footing, strap beam, continuous strip footing, steel grillage foundation (shallow foundations in hard strata)

STAIRCASES: - Types of stairs . Tread, riser , flight, hand rails , straight flight , dog legged, open well , quarter turn, triple flight, ramps, , R.C.C. staircase.

FLOORING : R.C.C. slabs, One way, Two way cantilever, columns, beam types, details of reinforcement , Thumb rules and I.S.I standers , form work, etc.

Brick jack arch flooring, filler slab. Ribbed slabs etc

Assessment:

- Drawing sheets and Notes based on the above topic.
 - Continuous assessment and marking system should be followed
- Internal and External exams will be based on above understanding of topics.

SUBJECT : THEORY OF STRUCTURE - III

SYLLABUS FOR THIRD SEM

| | | |
|---------------------|--------------------|---------------|
| Lectures - 04 | Paper - 80 | Internal - 20 |
| Studio | Duration - 3 hours | External - - |
| Total per week - 04 | | Theory - 80 |
| | | Total - 100** |

NOTE:- (**) Means combine passing for internal Termwork & Theory paper & External oral as applicable.

1. Theory of simple bending :- concept of bending stress, assumptions in theory of simple bending, bending stress formula $M/I = E/R = F/Y$ (derivation), neutral axis, moment of resistance, examples to cover rectangular, angle, channel, tee and I sections.
2. Shear stress in beams:- concept of shear stress, theory of shear stress, distribution of shear stress on rectangular section (derivation), only formulas for other shapes (circular, I, T)
and examples to cover above concepts.
3. Deflection of beams :- Concept of deflection, limits of deflections, deflection by double integration method for simply supported beam with udl on full span, central point load, cantilever with full udl and point load at free end cases.
4. Design of simple tension and compression member, use of IS800 and steel table.
5. Composite beam (flitched beam) concept, moment of resistance of flitched beams.

Assessment:



Five assignments to cover above syllabus.



Common Question Bank should be prepared for the paper of this subject which will revise after every three exams of this semester with incorporating new materials and technology.

■ Testing of Building material - Bricks, stones, concrete, timber & steel. Testing for tension compression and sheer bond whichever is applicable.

REFERENCE BOOKS:

- 1 . Strength of materials – S.P.Timoshenko / D.H.Young, R.S.Khurmi
2. Strength of materials - Andrew Pytel, F.L.Singer
3. Strength of materials - S.Ramamurtam
4. Strength of materials - R. Naravan

SUBJECT : HISTORY OF ARCHITECTURE - I

SYLLABUS FOR THIRD SEM.

| | | | | |
|---------------------|----------|-----------|----------|----------|
| Lectures - 03 | Paper | - 80 | Internal | - 20 |
| Studio - | Duration | - 3 hours | External | - - |
| Total per week - 03 | | | Theory | - 80 |
| | | | Total | - 100 ** |

NOTE:- (**) Means combine passing for internal Termwork & Theory paper & External oral as applicable.

Subject includes the study of various styles in Architecture mainly in Asian countries i.e. India and Indian subcontinent, East Asia and West Asia, through various ages from prehistoric period to colonial period. The study can actively help in its preservation and evolution in design process.

It is not only the study of building but also the effect of climate, religious, social and political conditions, technological development, material selection and aesthetical influence on the building design through various periods. It is not only the study of only monumental building but other building types, market places, and city planning etc.

Students will study in detail the History of Architecture of India, and a brief introduction of the History of Architecture in other countries as specified.

Topics

- 1) Pre historic Architecture (ancient period) in India and Mesopotemia, India-Vedic culture and Indus Valley civilization, Mesopotemia - Babylonian, Non Babylonian and Assyrian.
- 2) Detail study of Indian Architecture e.g. Buddhist, and Hindu period.

a. Buddhist and Hindu period

- Architecture during the rule of the Mouryan & Gupta dynasty.
■ Ashoka and beginning of Buddhist period
- Buddhist Architecture in the Hinayan phase, Rock cut architecture
■ Mahayan phase Buddhist monasteries of Gandhara
- Buddhist Rock cut Architecture of South India
■ Chalukyan Architecture-Aihole, Badami & Pattadakal
■ Droidian early phase - Madura
- North Indian or Indo Aryan style - Orrisa group
- North Indian Khajuraho group and central Indian group
■ Northern or Indo Aryan style of Gujrat
- The later Chalukyan style or Hoysala group
■ The temple cities of Jain and Jain temples.

Assessment:

Continuous assessment and marking system should be followed

Common Question Bank should be prepared for the paper of this subject which will revise after every three exams of this semester.

For internal assessment, each topic should be assessed on basis of sketches and tutorials

Ref. Books:

Indian Architecture - Buddhist & Hindu period - by Percy Brown
History of Architecture - by Sir Banister Flectcher

The Architecture of India Buddhist & Hindu period - by Satish Grover
The history of Architecture in Indian - by Christopher Tadgell

Buddhist staps in Asia - Forwarded by Robert AF Thurman (Lonely Planet Publication)
History of Architecture Ancient building Material - by Satish Chandra

The Architecture of Indian Desert, Kulbhushan & Minakshi Jain
Architecture of word series (Hindu & Islamic Period) ED Heriri Stietin

SUBJECT : CLIMATOLOGY AND ARCHITECTURE

SYLLABUS FOR THIRD SEM.

| | | |
|---------------------|--------------------|---------------|
| Lectures - 02 | Paper - 100 | Internal - 50 |
| Studio - 02 | Duration - 3 hours | External - - |
| Total per week - 04 | | Theory - 100 |
| | | Total - 150 |

The climate factor is one of the basic criteria in architecture design process. The application of knowledge of climate is useful in views of comfort and environment. The study includes climatology pertaining to architectural to planning and energy efficient architecture.

Introduction to climate as a factor of human shelter, comfort and environment. Elements of climate in different regions at different altitudes and latitudes, macro and micro climate, study of effects of landscape elements and topography on micro climate.

Study of solar radiation, temperature and their effects on architecture. sun movements, times, shading devices, effects of latitude on sun angles, design of shading devices and study of sciography on horizontal and vertical surfaces with shadow angle. Thermal comfort condition and their relation to over heated and under-heated periods. Relation of relative humidity, why and temperature to thermal comfort.

HUMIDITY: Effect of humidity in building, effect of large water bodies on humidity reading and preparation of various tables, charts prepared by department of Meteorology, etc. visit to nearest metrological station.

Assessment:



Continuous assessment and marking system should be followed



Common Question Bank should be prepared for the paper of this subject which will revise after every three exams of this semester.



Internal exams will be based on above understanding of topics.

BOOKS TO BE REFERED:

1. Manual of Tropical Housing and Building Climatic Design. Author: Koenigsberger, Ingersill, Mayhew, Szokolay.
2. Climate Responsive Architecture
A Handbook for Energy Efficient Buildings.

Editors:

Arvind Krishan

Simos Yannas

Nick Baker

S.Y.Szokolay.

SUBJECT : BUILDING SERVICES – I (SANITATION)

SYLLABUS FOR THIRD SEM.

| | | | | | |
|----------------|----|----------|------|----------|-----|
| Lectures | 01 | Paper | 50 | Internal | 50 |
| Studio | 02 | Duration | 2 hr | External | - |
| Total per week | 03 | | | Theory | 50 |
| | | | | Total | 100 |

Design of Drainage system at plot level , Inspection of Site , Locations of fittings. Sanitary fittings, classification and types of waste and soil fittings

Working, variations, fitting and connections of different soil and waste fittings, Space requirement and accessories for different fittings, construction of these fittings. Traps of various types, materials etc

Pipes of various types, fittings and accessories, workmanship, piping systems thru sunk and core cutting

Chambers and manholes of various types, construction, manhole covers.

Connection to central drainage, drops, alternate systems of digestion, Design of septic tanks, various materials, vertical SUBO septic tank, two pit toilets, biogas plants on night soil, calculations, construction details, Soak pit construction,

Construction and maintenance of drains, testing of drains, equipments.
One pipe and two pipe systems, ventilation of drains.

Layouts of toilets (attached toilet, public toilets for gents and ladies, ventilation of toilets,

Assessment:

- Drawing sheets and Notes based on the above topic.
- Continuous assessment and marking system should be followed Internal assessment will be based on above understanding of topics.

SUBJECT : COMPUTER TECHNOLOGY IN ARCHITECTURE - III

SYLLABUS FOR THIRD SEM.

| | | |
|---------------|--------------|---------------|
| Lectures - 01 | Paper - - | Internal - 50 |
| Studio - 02 | Duration - - | External - - |
| Total - 03 | | Theory - - |
| | | Total - 50 |

To train the students in the techniques of computer skill using different types of softwares.



Different types of styles e.g. dimension style, text, style, symbol library, drawing at different scales, composition of drawing at different scales e.g. municipal drawing (concept of paper space & model space).



Introduction to other drafting & presentation softwares.



Developing skills in non-graphic applications on computer as required for architectural profession and office management such as Word processing, Spreadsheets, Power Point presentation, Databases etc.

AR03 - 10

SUBJECT : ENVIRONMENTAL STUDIES

SYLLABUS FOR THIRD SEM.

| | | |
|---------------------|------------|--------------|
| Lectures - 02 | Paper - | Internal - - |
| Studio - | Duration - | External -- |
| Total per week - 02 | | Theory - - |
| | | Total - - - |

As per the common syllabus provided by the Shivaji University, Kolhapur

SUBJECT : GRAPHICS - IV

SYLLABUS FOR FOURTH SEM.

| | | | |
|---------------|----------|-----|---------------|
| | | | |
| Lectures - 01 | Paper | - - | Internal - 50 |
| Studio - 03 | Duration | - - | External - |
| Total - 04 | | | Theory - - |
| | | | Total - 50 |

The study of this subject is continuation of drafting skills, various techniques of presentation with knowledge of perspective. This is continuation and further development of III Sem.

- Sciography of individual and different geometrical objects representing 2D projections.
- Application of sciography in 3D projections of geometrical objects.
- 3 D sketching - Design oriented.
- Architectural rendering techniques using manual skills.
- Detailed rendering with vehicles, landscaping and people in action.

Studio work based on design problem. Freehand sketches of design problem in perspective

Assinment :-

Drawings assignment on above topics

SUBJECT : ART APPRECIATION - II

SYLLABUS FOR FOURTH SEM.

| | | |
|---------------------|--------------|----------------|
| Lectures - 01 | Paper - - | Internal - 100 |
| Studio - 02 | Duration - - | External - - |
| Total per week - 03 | | Theory - - |
| | | Total - 100 |

The course explores the relationships between architectural discourse and the visual arts from the historical avant-garde to the present. Architectural discourse will be considered as the intersection of diverse systems of representation: buildings, projects, drawings, but also

architectural theory and criticism, exhibitions, photographs, professional magazines, and the popular press. The course treats as visual arts not only painting and sculpture, but also

photography, cinema, fashion, advertisements, and television.

The content must stress on three areas.

■ Intellectual - theoretic, discursive, analytic, critical aesthetics.

■ Visual - two and three dimensional, black and white & colour, DVDs and CDs on art films, films on artists, even feature films known for excellence in the visual.

■ Skills - techniques, technology, skills of doing things by hand, traditional crafts etc.

History of Fine Arts, study of Isms.

Students work may be seen to build an “Art Thesis” of sort, after a series of works in studio, workshops, time problems, as well as collective efforts in installations etc. coupled with short theoretical assignments which improve the overall perception of arts. Programs should be both inside studios as well as out in the streets, chowks, bazaars, talavs, and other public spaces, not only for sketching but carrying out installations after studios.

Assessment:

The sessional works shall consist of 3D model and Project report writing and seminars on selected project based on the subject.

S.Y.B. ARCHITECTURE DEGREE COURSE

AR04 - 03

SUBJECT : ARCHITECTURAL DESIGN - IV

SYLLABUS FOR FOURTH SEM.

| | | | | |
|---------------------|----------|-----------|----------|---------|
| Lectures - 01 | Paper | - 100 | Internal | - 100 |
| Studio - 07 | Duration | - 9 Hours | External | - 200 |
| Total per week - 08 | | | Theory | - 100 |
| | | | Total | - 400 * |

NOTE:- (*) Means combine passing for External oral & Theory paper .

In continuation with Sem. III the student will be confronted with progressively complex exercises involving spatial relations in two dimensions, three dimensions and time. Fundamental

design skills are taught in the context of the architect's wider responsibilities to society, culture and the environment. The course will stress experimentation while providing an analytical and creative framework to develop an understanding of principles of Design, structure and materials as well as necessary skills in drawing and model-making.

■ Scope of Design, considering methods of construction, structure, site conditions, socio-economic factors, form and shapes.

■ Study of planes, mass, forms and shapes

■ Case study of typical small scale settlement in town or village, for understanding evolution of design, use of material.

■

Data collection and analysis including circulation.

■ Design problems of medium complex function, low rise buildings.

■ Site visits: Site visits to complete buildings pertaining to design problems, group discussions among students, special discussions shall also be arranged with senior students, students should also play roles of clients, contractors and consultants.

■ Study of groups of objects forms, masses with basic geometric forms, their compositions, for two and three dimensional study in relation with Basic Design.

Assessment:

■ Continuous assessment and marking system should be followed

■ Block models, preliminary models with site development, human figures with using various model making materials and techniques.

■ Internal and External exams will be based on above topics.

SUBJECT : BUILDING CONSTRUCTION AND MATERIAL - IV**SYLLABUS FOR FOURTH SEM.**

| | | | |
|---------------------|----------|-----------|----------------|
| | | | |
| Lectures - 02 | Paper | - 80 | Internal - 70 |
| Studio - 04 | Duration | - 4 hours | External - 100 |
| Total per week - 06 | | | Theory - 80 |
| | | | Total - 250* |

NOTE:- (*) Means combined passing for External oral and Theory paper .

This course introduces students to the art and science of building. Emphasis will be placed gaining an understanding of construction materials, methods and the process of translating design ideas into built form. Specific topics are introduced each week. These topics are then further, various design strategies, materials, fabrication techniques, and didactic built works are explored. As both a qualitative and a basic quantitative understanding of elementary systems are mastered, the curriculum shifts its focus onto increasingly complex systems serving entire buildings. The sequence's last two courses develop an understanding of how technical-utilitarian systems are resolved, integrated with other systems. The material in class requires students to have some experience and understanding of architectural design, drawings and details.

The subject should be dealt with, keeping in mind the fact that construction is a process and understanding the process should be given importance.

MATERIALS : (Internal Marks - 20)

Timber: Building timber types and its properties, Defects in timber, Use and application of timber in construction.

Processed woods: Plywood and Synthetic boards - properties and application. Use of alternative materials as substitute to wood.

Flooring : Natural stones, processed flooring materials- cement based tiles, Ceramic and Vitrified tiles, Wood and rubber based floorings, their properties, application and laying methods.

Bitumen and waterproofing Materials: Asphalt and Bituminous materials - properties and application. Use of admixtures and Chemicals for waterproofing.

Note: Students should be exposed to on site and Laboratory tests of above materials. Students should conduct market survey of above materials.

CONSTRUCTION - (Internal Marks – 50)

TIMBER FLOORING : Ground and upper floors, types, training of floors joinery details thumb rules, etc. **TIMBER**

ROOFING : Trusses , king post and Queen post roof truss, joinery details, roof covering etc. **CAVITY WALLS** :

Types , constructions details, advantages and disadvantages

DOOR AND WINDOWS: - T.W. paneled doors and windows , types , ventilaters, details of joinery,

steel windows for residences and industrial purpose, method of fixing, ISI standard, section, sizes etc.

ironmongery and fixtures of doors, windows, materials types and function.

This subject should be dealt with keeping in mind the fact that construction is a process and understanding the process should be given importance.

Site visits should be conducted for better understanding of construction process. The different situations all for different construction method, techniques there method have certain limitations and advantages.

Assessment:

- Drawing sheets and Notes based on the above topic.

Continuous assessment and marking system should be followed.

Internal and External exams will be based on above understanding of topics.

SUBJECT : THEORY OF STRUCTURE - IV

SYLLABUS FOR FOURTH SEM.

| | | | | |
|---------------------|----------|-----------|----------|----------|
| Lectures - 04 | Paper | - 80 | Internal | - 20 |
| Studio --- | Duration | - 3 hours | External | - - |
| Total per week - 04 | | | Theory | - 80 |
| | | | Total | - 100 ** |

NOTE:- ()** Means combine passing for internal Termwork & Theory paper & External oral as applicable.

1.) Columns and Struts: Concept of structural behavior of short and long columns,

determination of buckling load on long column by Euler's formula for both ends hinged and its extension to fixed (both), fixed (one end), one end fixed and other hinged support conditions. Rankine's theory only concept, slenderness ratio, effective length, examples to cover above.

2.) Riveted and welded joints: - Types of riveted joints, advantages and disadvantages of welded joints, types of welded joints, design of welded connection for tension and compression. Failure of joints in riveted connections. Problems on above.

3.) Design of load bearing (brick and stone) masonry walls and piers (for buildings only)

4.) Soil mechanics :- Importance and applications of soil mechanics, SBC of soil (definition), ISI table for SBC of various types of soils, physical properties of soil - soil as three phase system (definitions and concepts and examples)

5.) Masonry retaining walls for water and earth pressure (without surcharge), conditions of stability of retaining walls. (examples on rectangular section and trapezoidal section with retaining face vertical).

Assessment:

Five Assignments to cover above syllabus.

SUBJECT : SURVELLING AND LEVELING

SYLLABUS FOR FOURTH SEM.

| | | |
|---------------------|--------------|---------------|
| Lectures - 01 | Paper - - | Internal - 50 |
| Studio - 02 | Duration - - | External - - |
| Total per week - 03 | | Theory - - |
| | | Total - 50 |

1. Introduction of survey: aims, objects & importance of subject.
2. Introduction to land record survey, index map, top sheets.
3. Chain survey, triangulation & instruments for ranging, offsetting.
4. Calculation of area by method of triangles, simpon rule, by planimete, digital plan meter.
5. Introduction to prismatic compass & its uses. (theoretical importance)
6. Introduction to paintable survey (instruments & methods)
7. Leveling instruments & methods to calculation levels, concept of contours & its uses its characteristics & introduction to theodolite.
8. Uses of photographic surveying & concept of GPS.
9. Introduction to advance instruments like digital plan meter, digital theodolite, automatic level, radiation survey method, environmental survey instruments, digital distance meter, etc
10. Line out of simple residential building plan

Identity of different types of foundation strata by inspection (site visit)

FIELD BOOK:-

- 1) Recording of chain survey
- 2) Application of prismatic compass
- 3) Sign conventions for various objects (symbols)
- 4) Area measurement by planimeter
- 5) Leveling instruments
- 6) Application of theodolite.

DRAWING SHEETS:-

- 1) close traversing of building by compass
- 2) Planimeter
- 3) Block contouring
- 4) Plain table survey sheets

SUBJECT : HISTORY OF ARCHITECTURE - II

SYLLABUS FOR FORTH SEM.

| | | |
|---------------------|--------------------|----------------|
| Lectures - 03 | Paper - 80 | Internal - 20 |
| Studio --- | Duration - 3 hours | External - - |
| Total per week - 03 | | Theory - 80 |
| | | Total - 100 ** |

NOTE:- ()** Means combine passing for internal Termwork & Theory paper & External oral as applicable.

Subject includes the study of various styles in Architecture mainly in Asian countries i.e. India and Indian subcontinent, East Asia and West Asia, through various ages from prehistoric period to colonial period. The study can actively help in its preservation and evolution in design process.

It is not only the study of building but also the effect of climate, religious, social and political conditions, technological development, material selection and aesthetical influence on the building design through various periods. It is not only the study of only monumental building but other building types, market places, and city planning etc.

Students will study in detail the History of Architecture of India, and a brief introduction of the History of Architecture in other countries as specified.

Topics :

1) Study of Indian Islamic Architecture.



Delhi Provincial style under slave, Khilaji, Tughalaq & Lodhi dynasty Punjab provincial style



Bengal and Hunapur provincial style

Malawa and Gujrat provincial style

Deccan provincial style - Gulbarga, Bidar & Golconda

Bijapur provincial style

Mughal period under Babar & Humayun

Mughal period under Akabar

Mughal period under Jahangir and Shahajhan

Mughal period under Aurangjeb and after

2) Brief introduction to the colonial Architecture in Indian sub continent
e.g. India, Pakistan, Sri Lanka and Bangladesh

3) Brief Introduction to the Architecture in china .

4) Brief Introduction to the Architecture in Japan

Assessment:

- Continuous assessment and marking system should be followed
- For internal assessment, each topic should be assessed on basis of sketches and tutorials

Ref. Books:

- Indian Architecture - Islamic Period - by Percy Brown
- The Architecture of India Islamic period - by Satish Grover
- Architecture of Pakistan - Kamil Khan Mumtaz
- Fatepur Sikri - Marg Publication
- The saltanat Architecture - Marg Publication

SUBJECT : BUILDING SERVICES – II (WATER SUPPLY & ELECT.)**SYLLABUS FOR FOURTH SEM.**

| | | | | | |
|----------------|----|----------|------|----------|-----|
| Lectures | 01 | Paper | 50 | Internal | 50 |
| Studio | 02 | Duration | 2 hr | External | - |
| Total per week | 03 | | | Theory | 50 |
| | | | | Total | 100 |

WATER SUPPLY

Per capita quality and quantity of water supply, sources of water supply at plot level, Municipal water supply system, wells, deep well, shallow well, bore well, rooftop rainwater harvesting, recycling of water.

Metering of water supply, connection to municipal main, water supply layout inside plot, sump and underground water storage tank, construction in various materials, connections, advantages and disadvantages of various types of tanks, Pump,

Over head water storage tank, design, construction in different materials, various connections.

Pipes of different types, materials, fittings, workmanship. Valves, taps.
Layout of water supply inside toilets.

Hot water supply, domestic water heaters of various types, hot water piping, materials, insulation to pipes, layout of hot water piping.

ELECTICITY

Generation of electricity, clean and green energy concepts, Small Generators, stand by systems and inverters, UPS etc

Ampere, volts, A. C, D. C supply, three phase, Single phase etc, Supply of electricity to plot, sub station, H T panel and L T panel, Underground and overhead cabling, metering of electricity. Electric supply at plot level.

Bus Bar; Meter board, earthing, Distribution board, fuse, MCB ULCB etc, switch boards, switches, socket etc, wiring systems, wires and cables, lamps and luminaries, fans, domestic appliances, layout of electricity in a flat, residence

Assessment:

- Drawing sheets and Notes based on the above topic.
 - Continuous assessment and marking system should be followed
- Internal assessment will be based on above understanding of topics.

S.Y.B. ARCHITECTURE DEGREE COURSE

AR04 - 09

SUBJECT : COMPUTER TECHNOLOGY IN ARCHITECTURE - IV

SYLLABUS FOR FOURTH SEM.

| | | |
|---------------|--------------|---------------|
| Lectures - 01 | Paper - - | Internal - 50 |
| Studio - 02 | Duration - - | External -- |
| Total - 03 | | Theory - - |
| | | Total - 50 |

This course is an introduction to computational design using a range of techniques from NURBS modeling, simple programming and parametric modeling to basic digital fabrication using different types of soft wares



Concept of 3D modeling, Introduction to 3D Digital modeling. Study climatic aspect like shades and shadows of 3D Digital models.

Digital 3D model of small scale Historical Building/climate responsive building.
Concept of UCS



3 Dimensional drawings primitive mesh and surfaces.
Viewing commands & view points.



Introduction to shading & rendering.



Rendering of the plans, sections, elevations, perspectives using different presentation soft wares.



Introduction to interactive multimedia technology for design presentation.



Assessment:

- Drawing sheets and Notes based on the above topic.
- Continuous assessment and marking system should be followed Internal assessment will be based on above understanding of topic

