



5-Year Bachelor of Architecture (B.Arch.) Curriculum and Syllabus
Fourth Semester

Course Code	Course Title	Contact Hrs. / Week			Credit
		L	S	P	
Theory					
TIU## - 4##	Theory of Structure - II	4	0	0	3
TIU## - 4##	Building Services (Electrical& lighting)	3	0	0	2
TIUAR - 401	History of Architecture - II	3	0	0	3
Practical					
TIUAR- 403	Site Exposure-1	0	0	2	1
TIUAR- 404	Computer Application- II : CAD 3D	0	0	3	2
Sessional					
TIUAR- 405	Architectural Design - III	0	8	0	10
TIUAR- 406	Details of Construction - III	2	6	0	4
TIUAR- 407	Landscape Practice	0	6	0	4
Institute Programme					
TIUFY- 4##	Career Advancement Skill Development	3	0	0	3
TIUFY- 4##	Entrepreneurship Skill Development	0	0	0	2
Total Credits					34



4TH SEMESTER SPL (Only for 2013-14 Batch)

Course Code	Course Title	Contact Hrs. / Week			Credit
		L	S	P	
Theory					
TIUACE - 408	Theory Of Structure - II	4	0	0	3
TIUEE - 409	Building Services (Electrical & Lighting)	3	0	0	2
TIUAR - 408	Building Services (Water Supply & plumbing Services)	3	0	0	2
TIUAR - 401	History of Architecture - II	3	0	0	3
TIUAR - 402	Landscaping & Site planning	2	0	0	2
Practical					
TIUAR- 403	Site Exposure	0	0	0	1
TIUAR- 404	Computer Application- I & II : CAD 3D	0	0	3	2
Sessional					
TIUAR- 405	Architectural Design - III	0	8	0	10
TIUAR- 406	Details of Construction - III	2	6	0	4
TIUAR- 407	Landscape Practice	0	6	0	4
Institute Programme					
TIUSD- 401	Career Advancement Skill Development	3	0	0	3
TIUFY- 4##	Entrepreneurship Skill Development	0	0	0	2
Total Credits					38



THEORY OF STRUCTURE II (TIU## - 4##)

L – S – P (4 – 0 – 0)

Credits-3

MODULE I

Steel structures: Permissible stresses; Design of truss members; Simple riveted and welded connections including beam-end connections

MODULE II

Built-up beams and columns: Design of base-plate, gusset plate and concrete footings for steel columns- Grillage foundation

MODULE III

Reinforced concrete:

- Permissible stresses, Rectangular, T and L beams;
- Double reinforced beams
- One way slab; Columns and isolated footings
- Design of lintels and Chajjas
- Cantilever beams
- Distribution of base pressure; Middle third rules; earth pressure
- Design of simple retaining wall; Cantilever retaining wall.

Recommended Books:

1. C.K.Wang ; Intermediate Structural Analysis, McGraw-Hill International.
2. S. Ramamurtham; Theory of Structures, Danpat Rai Publication.
3. S.S.Bhavikatti ;StructuralAnalysis (Vol-I),Vikash Publishing House Pvt.Ltd.
4. S.S.Bhavikatti ;StructuralAnalysis (Vol-II), Vikash Publishing House Pvt.Ltd.
5. B.G.Neal ,The Plastic Method of Structural Analysis, Chapman and Hall Ltd.
6. B.C. Punmia, Strength of Material and Theory of Structures (Vol-II), Laxmi Publication.



**BUILDING SERVICES- ELECTRICAL & LIGHTING (TIU## - 4##) L – S – P (3 – 0
– 0)
Credits-2**

MODULE I

Fundamentals of electricity, current, voltage; Distribution of electric power in towns / cities and house hold connections;

MODULE II

Elements of building wiring system – feeders, panel board, circuit breakers' fuses, switches etc.; Electrical symbols

MODULE III

Installations from meter board to individual point; Electrical wiring system; Distribution boards and layout of points; Different materials and specification; Earthing agreements; Lighting conductors

MODULE IV

Fixtures and accessories used in electrical installation; Schematic layout of installations and points for different building types;

MODULE V

Fundamentals of light. General definition of terms related to optical sensitivity, visual performance & vision, Visual field, Application of lighting and illumination in Architecture. Methods of lighting; Direct, Indirect, suspended, portable, concealed lighting. Decorative lighting. Flood lighting; Calculation of artificial lighting by various methods.

MODULE VI

Artificial sources of light; Lamps and their characteristics: Incandescent lamp, Fluorescent lamp, Gas filled lamp, HID lamp. Neon lamp and LED lamp. Polar Curves Luminaries and their applications

MODULE VII

Definition of Light power, light flux Light intensity, Laws of Illumination: inverse square law and Lambert's Cosine law. Application of law of illumination. General formula for illumination calculation of distributed source. Coefficient of utilization.

MODULE VIII

Standard level of illuminations for various tasks, Basic lighting design, Direct, Indirect and semi-direct lighting. General and local lighting, Glare and glare control.

MODULE IX

Lighting design of: Residential units, Shops & Restaurants, general office, conference hall, Art – gallery and Museum Parks & playgrounds Road/area lighting and Landscape Lighting.

Recommended Books:



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1. Derek Philips; Lighting in Architectural Design.
2. G.K.Lal, Elements of Lighting, 3-D Publishers.
3. R.G. Hopkinson and J.D.Kay, The lighting of buildings, Faber and Faber, London, 1969.
4. Philips Lighting in Architectural Design, McGraw Hill, New York, 1964.
5. I.E.S. Handbook.
6. International Lighting Review – Quarterly Journal.



**HISTORY OF ARCHITECTURE II (TIUAR - 401
0)**

L – S – P (3 – 0 –

Credits-3

MODULE I

Architecture of Classical Greece: Democratic city-states, human scale, columnar & trabeated architecture, extrovert Space — Orders: Doric, Ionic, Corinthian — Elements of urban architecture: Acropolis at Athens with idea about agora, stoa, bouleutorion, theatre, odeion, stadium, hippodrome and gymnasia — Detail study of the Parthenon, Athens

MODULE II

Architecture of Classical Rome: Imperial nation-state, monumental scale, arcuated architecture, introvert space, use of new materials — Orders added: Tuscan and Composite or Roman — Comparative proportions of the Classical Orders — Idea about the temples, forum, basilicas, thermae & balneae, theatre, amphitheatre, circuses, triumphal arches & columns, aqueducts & bridges — Detail study of the Pantheon, Rome

MODULE III

Early Christian Architecture: Expression of Christian ethos through adaptation of existing building elements – Basilican Churches — Detail study of the Basilica of St. Peter, Rome with emphasis

MODULE IV

Byzantine Architecture: Difference in the nature of Christ – Orthodox Churches & Greek Cross – Spanning square plan with pendentives – Use of large opening creating radiant interior — Detail study of the Hagia Sophia, Constantinople

MODULE I

Romanesque Architecture: Consolidation of Papal hierarchy – Development of stone vaulting into groined systems – Tracery admitting diffused light – Church plan as a Latin Cross — Detail study of the Pisa Cathedral with Baptistery & Campanile

MODULE V

Gothic Architecture: Medieval age – Structure conceived as framework of organised coherent system of pointed arches, flying buttresses & vaults – Rectangular church plans with high pinnacles — Detail study of the Notre Dame, Paris

MODULE VI

Renaissance Architecture: Reformation movements – Revival of classical learning – Use of stucco for increasingly refined interiors – Systematisation of architectural drawing – Architects as important personalities – Detail study of the evolution of the plan of the Cathedral of St. Peter, Rome — Baroque: movement, spatial invention, drama and freedom of detail – Detail study of Piazza of St. Peter, Rome — Rococo

Recommended Books:

1. Sir Banister Fletcher's History of Architecture (Century Edition)/ Butterworth Heinemann
2. (Hb), CBS Publishers & Distributors (Pb)
3. The Story of Architecture from antiquity to the present/ Jan Gympel / Könemann (Pb) —



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4. A World History of Architecture/ Marian Moffett, Michael Fazio & Lawrence Wodehouse /
5. McGraw-Hill

6. Encyclopaedia of Architectural Technology: Ed. Pedro Guedes / McGraw-Hill
7. Crash course in Architecture/ Eva Howarth/ Caxton Editions
8. The Great Ages of World Architecture/ G. H. Hiraskar/ Dhanpat Rai



SITE EXPOSURE (TIUAR - 403)

L – S – P (0 – 0 – 2)
Credits-1

Three site visits to be paid to 3 different sites and site appreciation reports to be submitted

MODULE I

Residential

MODULE II

Industrial

MODULE III

Commercial



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COMPUTER APPLICATION- II: CAD 3D (TIUAR - 404)

L – S – P (0 – 0 – 3)

Credits-2

- Introduction to SKETCHUP
- Rendering in Sketchup
- Project Submission in Sketchup
- Rendering in Photoshop
- Introduction to other required softwares like 3D MAX and Architectural Revit
- Project Submission in Architectural Revit



ARCHITECTURAL DESIGN III (TIUAR - 405)

L – S – P (0 – 10 – 0)

Credits-10

Application of Design theory and principles and Design of Low rise / medium rise buildings with complex issues to be tackled covering functional relationship, climatic condition and social aspects along with structural considerations

MODULE I

Primary school / Neighbourhood Shopping

MODULE II

Nursing Home / Artists' Exhibition Space

MODULE III

Critical appraisal of a major building

Viva voce

Final Viva-vice on all the design assignments to be conducted at the end of the semester



DETAILS OF CONSTRUCTION III (TIUAR - 406)

L – S – P (2 – 6 – 0)

Credits-4

LECTURE CLASSES

MODULE I

Pitched Roofs: Nomenclature, Types - Lean-to-roof , Coupled roof , Closed couple roof, King Post Roof Truss, Queen Post Roof Truss, Steel trusses; Roofing materials with fixing details; Roof drainage systems and details.

MODULE II

Finishes:

Flooring – Brick, Stone, Concrete, Terrazzo, Tiled, Timber (Parquet), Asphalt, Rubber, PVC, Linoleum , Cork, Magnesite, Glass and Acid-Proof; Internal Wall and Ceiling Finishes - Cement Plaster, Gypsum Plaster, Wall putty, Gypsum Plaster Board; External Finishes - Cement Plaster (Smooth Wood Float Finish, Pebble Dash Finish, Textured Finish, Rough Cast Finish or Sponge Finish), Pointing; Cladding (external & internal) - Timber/Timber product, Brick Tiles, Ceramic Tiles, Stone Tiles, Metal, PVC, FRP, GFRC; Paints – Constituents, Functions, Types; White Washing & Colour Washing.

MODULE III

Partition walls, screen walls, structural glazing: Uses, Details of construction

MODULE IV

False Ceilings: Uses, Details of construction 6

MODULE V

Thermal and Acoustic Materials: Types, Properties, Applications, Details of construction

STUDIO CLASSES

MODULE I

Details of Pitched Roofing: Details of a typical pitched roof on steel trusses showing their fixing details and roof drainage through gutter; roofing materials being — (a) Tiles, and, (b) Corrugated Galvanised Iron sheet. The scale of reference plan and reference section be drawn in minimum 1:50 scale, and, other details at ridge, eaves etc. in suitable scale, minimum scale being 1:25.

MODULE II

Partition Wall: Details of typical brick partition walls showing masonry openings in suitable scale, minimum scale being 1:25.

MODULE III

False Ceiling: Details of suspended type false ceilings in suitable scale, minimum scale being 1:25.



MODULE IV

Curtain Wall: Details of curtain walls using suitable scale, minimum scale being 1:25.

MODULE V

Wall Cladding

MODULE VI

Municipal drawing involving preparation of set of drawings as per provisions of Bye laws of different municipalities including, but not limited to KMC/ HMC/Bidhannagar/HIDCO/Bengal Municipal Act, etc.

Recommended Books:

1. McKay W.B., 2000 Building Construction, Orient Longman
2. Varghese P.C., 2005 Building Materials, Prentice Hall of India Private Limited
3. Sharma S.K., 2000 A Text Book Of Building Construction, S.Chand & Company Limited
4. Kumar Sushil, 2000 Building Construction, Standard Publishers Distributors
5. Arora S.P., Bindra S.P., 2000 A Text Book Of Building Construction (Planning Techniques And Methods Of Construction), Dhanpat Rai Publications
6. Duggal S.K., 2003, Building Materials, New Age International Publishers



LANDSCAPE PRACTICE (TIUAR - 407)
0)

L – S – P (0 – 6 –

Credits-4

MODULE I

Landscaping of A Residential Space Students are required to prepare landscaping schemes for a given residential space which has a recreational space attached to it in the form of a park and/or a playground. Each student is to select his or her site in consultation with the teacher-in-charge, which may be designed by the student in the previous semesters or a one designed by any other architect collected from primary or secondary source.

MODULE II

Landscaping of a Commercial / Recreational Space Each student is required to prepare landscaping schemes for a given commercial/ recreational space.

Recommended Books:

1. TIME-SAVER STANDARDS FOR LANDSCAPE ARCHITECTURE / Dines & Harris / McGraw-Hill
2. LANDSCAPE ARCHITECT'S PORTABLE HANDBOOK / N. Dines / McGraw-Hill
3. Landscape Architecture / J. O. Simonds / Liffiee, London
4. Designs of the Landscape / Preece / CBS
5. Landscape Detailing Vol. I / M. Little wood / CBS
6. Landscape Detailing Vol. II / M. Little wood / CBS
7. Landscape for Living / G. Eckbe / F. W. Dodge Corporation, N.Y.
8. Kevin Lynch ; *Site planning* ; MIT Press, Cambridge, MA – 1967
9. J. E. Ingels; *Landscaping – Principles and Practice*.
10. P. Walker, Theodore D; *Planting Design*