TECHNO INDIA UNIVERSITY
WEST BENGAL

Syllabus

School of Architecture,

Techno India University

West Bengal

COURSE PLANNING

1ST SEMESTER
(SYLLABUS AFTER 2023)

Course Code	Course Title	Contact Hrs./Week			Credit
		L	S	P	
Theory					
TIU-UMA-T111	Mathematics I	2	0	0	2
TIU-UEA-T103	English for Communication	2	0	0	2
TIU-UME-T101	Engineering Mechanics (AR)	2	0	0	2
TIU-UAR- T107	Building Material & Science-I	2	0	0	2
TIU-UAR-T103	Principles of Architecture	2	0	0	2
Practical					
TIU-UCE-L101	Workshop Practice & Model Making-I	0	0	3	2
TIU-UAR-L101	Computer Application-I: Non-Graphic	0	0	2	2
Sessional					
TIU-UAR-S101	Architectural Graphics-I: Basic	0	4	0	4
TIU-UAR-S103	Free Hand Sketch Workshop	0	4	0	4
TIU-UAR-S105	Descriptive Geometry-I	0	4	0	4
TIU-UEA- S101	Career Advancement & Skill Development (AR)	0	2	0	2
Institute Programme					
TIU-UES- S199	Entrepreneurship Skill Development (AR)	0	0	0	2
Total Credits					**30**

MATHEMATICS-I (TIU-UMA-T111)

L – S – P (2 – 0 –0) **Credits-2**

CO	DESCRIPTION	
CO-1:	Explain the functions of a single variable using limit, continuity and apply Rolle's Theorem and Mean value Theorem	K4
CO-2:	Determine successive derivatives, Taylor's series for functions	K4
CO-3:	To calculate the curvature, asymptotes for curves	K4
CO-4:	Determine partial derivatives for functions of multiple variables	K4
CO-5:	Interpret transformation of axes and standard geometrical structures viz., pair of straight lines, planes, circles, conic sections in two-dimensional geometry	K4
CO-6:	Explain the concepts of geometry in three-dimensions including co-ordinates in three dimensions and equations of planes, straight lines, spheres, cylinders, cones	K4

MODULE – I

Functions of a Single Real Variable: n-th order derivative, Liebnitz theorem for successive differentiation, Rolle's theorem (statement only), Mean value theorems of Lagrange and Cauchy, Taylor's theorem with Lagrange's and Cauchy's forms of remainders, Taylor's and Maclaurin's series, expansion of functions, curvature, asymptotes, curve tracing

MODULE – II

Functions of Several Real Variables: Partial derivatives, chain rule, differential and small error, Euler's theorem for homogeneous functions, Taylor's theorem. (statement only), expansion of functions of two real variables, maxima and minima, Lagrange's method of undetermined multipliers.

MODULE – III

Infinite Series: Geometric series**,** Comparison test, p-series, D'Alembert's Ratio Test, Cauchy's Root Test, Rabbe's test, Power series, and radius of convergence.

MODULE – IV

Multiple Integrals: Double integral, change of order of integration, change of variables, determination of area, volume, moment of inertia, centroid.

Recommended Books:

1. Advanced Engineering Mathematics by i) E. Kryszig, ii) Peter V.O'Neil.
2. Engineering Mathematics by iii) B. S. Grewal, iv) S. Arumugam, A. Thangapandi Isaac & A. Somasundaram v)S.S.Sastry.

ENGLISH FOR COMMUNICATION (TIU-UEA-T103)

L – S – P (2 – 0 –0) **Credits-2**

COURSE OBJECTIVES:

1. The aim of this course is to educate and acquaint students with the concepts of Communicative and Business English and provide them with the necessary skills, enhancing their confidence while fostering the learners' critical thinking.
2. On completion of this course, the student would be enabled to focus on their overall personal and professional goals.

COURSE OUTCOME:

CO	DESCRIPTION	K-level
CO-1:	Demonstrate the ability to communicate professionally with clients, colleagues, and stakeholders in the field of architecture.	K2
CO-2:	Design and deliver clear and engaging oral presentations on architectural topics.	K3
CO-3:	Work effectively in multidisciplinary teams, demonstrating strong collaborative communication skills.	K4
CO-4:	Write clear and concise technical documents, including project proposals, reports, and research papers related to architecture.	K3
CO-5:	Recognize and respect cultural differences in communication styles and adapt communication strategies accordingly.	K3
CO-6:	Demonstrate the ability to apply sustainable and ethical principles in architectural design and practice, considering environmental, social, and economic factors.	K4

Module	Topic Covered
I	Comprehension: Listening and Reading comprehension
II	Note-taking, Reviewing, Summarising, Interpreting, Paraphrasing, Email writing
III	Social etiquette and grooming

Suggested Readings:

1. Taylor, Shirley. Communication for Business, 4th Edn. Pearson Education
2. Kaul, Asha. Effective Business Communication, Prentice Hill.
3. Rizvi, M. Ashraf . Effective Technical Communication. Tata McGraw Hill.
4. Raman, M & Singh, P. Business Communication. OUP.
5. Blundell J. A & Middle N. M. G. Career – English for the Business and Commercial World. OUP.

BUILDING MATERIAL & SCIENCE-I(TIU-UAR-T107)

L – S – P (2 – 0 –0) **Credits-2**

CO	Course Outcomes	K-level
CO1	Understand the composition, properties, and classification of bricks, and the introduction to brickworks including masonry bonding and ornamental bonding.	K2, K3
CO2	Analyze the classification and properties of stones, types of stone masonry, and understand the use of artificial stones in construction.	K4, K5
CO3	Understand the types and properties of metals used in construction, including pig iron, cast iron, wrought iron, and the defects in steel.	K2, K3
CO4	Examine the qualities of timber for construction, including the methods of seasoning, storage, and preservation, and the use of industrial timber in building components.	K4, K5
CO5	Understand the classification, properties, and uses of lime and cement, and how different grades of cement are used in construction.	K2, K3

CO6	Analyze the types of mortar and concrete, their compositions, grades, and applications in construction, and understand quality control methods in concrete production.	K4, K5

MODULE I

BRICK: Composition — Sizes — Properties and Classification of bricks — Testsfor bricks Introduction of Brickworks: masonry bonding & ornamental bonding — Substitutes for bricks

MODULE II

STONES: Classification of stones — Common building stones used in India — Characteristics and use of stones —Dressing of stone — Artificial stones—

Introduction of Stonework: Rubble and Ashlars masonry.

MODULE III

METALS: Pig iron, cast iron, wrought iron – types, properties, steel – properties, types, market form of steel and uses of steel in construction, properties of mild steel and hard steel, defects in steel.

MODULE IV

TIMBER: Qualities of timber for construction – Seasoning, Storage and Preservation of timber – Use of different types wood in various parts of building – Industrial timber: veneers, plywood, fibre board, etc.

MODULE V

LIME: Classification of lime – Fat and hydraulic lime – properties and use.

MODULE VI

CEMENT: Composition of ordinary cement – Function of cement ingredients – Properties of cement – Fineness, Soundness, Setting times, etc. – Grades of cement and different types of cements used in construction – Storage of cement in site.

MODULE VII

SAND: Sources of Sand, Classification, Test of Sand. Grades of sand and their uses

MODULE VIII

MORTAR: Types of mortar – lime mortar, mud mortar, lime-surkhi mortar, cement mortar – Different grades of mortar, their compositions and properties – Preparation of cement mortar – Use and selection of mortar for different construction work.

MODULE IX

CONCRETE: Compositions and grades of concrete – Various steps in concrete construction – batching, mixing, transporting, compacting, curing, shuttering, jointing – Tests and quality control of concrete – Design Mix of concrete.

Recommended Books

1. B. C. Punmia; Building Materials andConstruction.
2. Bindra & Arora; Building Materials andConstruction.
3. W.B.Mckay,_Building Construction',Vol. 1,2,3 Longmans,U.K.1981.

PRINCIPLES OF ARCHITECTURE (TIU-UAR-T103)

L – S – P (3 – 0 –0) **Credits-3**

CO	Course Outcomes	K-level
CO1	Understand the design process, including the vertical and lateral thought processes, and the importance of design thinking.	K2, K3
CO2	Analyze the perception of light, brightness, hue, saturation, and the concept of visual texture, as well as the figure-ground relationship in spatial composition.	K4, K5
CO3	Apply principles of figure organization and the grouping of elements, including spatial and tonal factors, to create meaningful visual compositions.	K3, K4
CO4	Analyze the concept of unity in design, including movement, balance, rhythm, proportion, and geometric ratios, and understand their role in creating harmony in architectural composition.	K4, K5
CO5	Understand colour theory, including the principles of subtractive mixing, the colour wheel, and tone control, and analyze the psychological basis of colour relationships in design.	K2, K3
CO6	Explore 2-D and 3-D organization techniques in architecture, including space illusion, plastic effects, and the interrelationship between material, structure, and form in design methodology.	K3, K4

MODULE I

Introduction: Defining design — Design as a process — Thought process as a design process: Vertical & Lateral

MODULE II

Contrast: Perception of Light: Chrome – Brightness – Hue – Saturation — Perception of Reflecting Surfaces: Tonal quality: value, hue & intensity – Visual texture — Composition – Figure-Ground Relationship: Space, Shape, Format, Figure, Ground, Closure

MODULE III

Figure Organisation: Spatial basis for Grouping of figure elements: Shapes that Touch: Corner to corner – Corner to side – Side to side — Shapes that Overlap: Partially – Completely — Shapes that Interconnect: Interpenetrating – Interlocking – Interlacing — Likeness basis for Grouping of figure elements: Formal factors: Shape – Size – Position (direction, interval, attitude) — Tonal Factors: Achromatic-chromatic – Warm-cool – Value – Hue – Intensity — Visual Texture — Meanings from experience: Representation – Association – Symbolism — Variety in Unity: Hogarth‘s —line of beauty‖

MODULE IV

The Idea of Unity: Qualities of Unity: Pattern of Movement – Balance – Proportional Relationships – Rhythm — Background of Visual Unity: Structure of Visual Field – Eye movements in perception — Movement & Balance: Movement in Design – Dynamic Values in the Field — Balance: Axial Balance– Radial Balance – Occult Balance — Proportion & Rhythm: Analyzing proportion & rhythm: Simple numerical ratios – Values of the summation series – Geometric Ratios – Dynamic symmetry (golden- mean rectangle, root-five rectangle, root-two rectangle) & Intrinsic geometric ratios — Rhythm: Sequence of Progression & Alteration – Occult Rhythm — Dominance & Sub-ordination.

MODULE V

Colour Pigment & Tone Control: Colour Theory: Subtractive mixing — Colour Wheel: Primaries – Secondaries – Tertiaries — Tone Control: T = H + B + W – Tints [T = H + W] – Shades [T = H + B] – Greyed tones [T = H + (B + W)] – Complimentary (T = H + cH).

MODULE VI

Colour Relationships: Colour Schemes: Related (Monochromatic & Analogous) – Contrasting (Complementary, Split Complimentary & Triad) — Physiological-Psychological basis for Colour Relations: Likeness – Sequence in hue, value and intensity perception – Psychological complements

Simultaneous Contrast: Value Contrast – Hue Contrast – IntensityContrast.

MODULE VII

2-D Organisation: Basis of Space Illusion — Indication of Depth on a Two- Dimensional Plane: Contrast & gradation in size – Converging parallels & diagonal action – Position in the picture plane – Overlapping – Transparency – Diminishing detail – Atmospheric perspective – Advancing & receding colour — Plastic Effect on Two-Dimensional Plane: Structural Enhancement, line – Differences of tone – Charoscuro Modelling – Effect of light.

MODULE VIII

3-D Organisation: Closed and Open Form — Inter-relationship between Material, Structure & Form: Homogeneous materials – Assembled materials.

MODULE IX

Design Methodology: General principles of architectural design on the basis of functions and forms Brief – Analysis – Synthesis – Implementation – Communication & Feedback — Journey from known tounknown.

Recommended Books:

1. Design Fundamentals/Robert Scott — Form, Space andOrder
2. F.D.K. Ching — Introduction toArchitecture
3. J. C. Snyder & A. J. Catanese — Space, Time andArchitecture
4. Siegfried Giedion — Space, Time andArchitecture

ENGINEERING MECHANICS (TIU-UME-T101)

L – S – P (3 – 0 –0) **Credits-2**

CO	DESCRIPTION	K-LEVEL
C-01	To understand the basics of vector mechanics and its application in engineeringmechanics.	K1
C-02	Tounderstanddifferentforcesystemsandthemethodsoffindingtheirresultantsandtobe well-versed with theconditions ofequilibriumin2D.	K1
C-03	To be able to apply the laws of static equilibrium in solving problems which can involve friction.	K3
C-04	Tobeabletocomputecentroidsofplaneareas,compositeareasandtobeabletocomputearea momentsofinertiaandradiiofgyrationofplanefigures.	K3
C-05	Tounderstandbasicprinciplesof kinematicsofparticles,plane,rectilinearand curvilinearcoordinatesystemsandprojectilemotion	K2
C-06	To understand basic principles of kinetics of particles leading toNewton's laws and tobeabletoapplytheworkenergyandthelinearimpulse-linearmomentumtheoremsinsolvingtypicalproblems.	K3

MODULE I

Introduction: Concept of engineering mechanics – statics & dynamics – scalar quality –vector quality – addition & subtraction of vectors – basic units – derived units – SI units – relationship:m.l.t.

MODULE II

System of forces: Definition of a force with explanation – linear representation of force – system of co-planar forces – parallelogram law of forces – composition and resolution – transmissibility of forcesaction and reaction – Triangle law & Polygon law of forces – determination of resultant by analytical and graphical method with equalitarian space diagram – vector diagram – Bow'snotation

MODULE III

Moments & couples: Definition of moment of a force about a point – physical significance of moment, moment of a system of parallel and inclined forces – Varignon's theorem – definition of moment of a couple – physical significance of couples equivalent couples – resultant of any number of coplanar couples – replacement of a force about a point by an equal like parallel force together with a couple – resultant of a couple and aforce.

MODULE IV

Condition of equilibrium: Lami's theorem – Triangle law & Polygon law of equilibrium – conditions of equilibrium of co-planer system of concurrent forces – conditions of equilibrium of co-planar system of non-concurrent parallel forces (like & unlike) – conditions of equilibrium of co-planar system of non-concurrent non-parallel forces (simple problems excluding statically indeterminant).

MODULE V

Friction: Definition – useful and harmful effects of friction – laws of static friction – co-efficient of friction – angle of friction – angle of repose – equilibrium of a body on a rough inclined surface with and without external force.

MODULE VI

Centre of gravity: Concept & definition – centre of mass – centroid — methods of finding out centroids of simple area — finding the centroid of the following areas by integration: (i) uniform triangular lamina, (ii) uniform rectangular lamina, (iii) uniform circular lamina, (iv) uniform semi-circular lamina, and, (v) uniform lamina of quadrant of a circle — finding the centroid of the following sections using the method of moment: (i) t-section, (ii) equal and unequal angle sections, (iii) equal and unequal i-sections, (iv) channel-sections, (v)z-sections.

MODULE VII

Moment of inertia: Definition and unit — m i of a lamina — theorems of finding out m i by: (i) parallel axis theorem, and, (ii) perpendicular axis theorem — radius of gyration — finding out m I of the different sections about axes lying in the plane of the sections by integration — m i of irregular areas such as I sections, t-sections, angle-sections, channel sections, z-section, composite sections (composite area method) – related simple problems — polar m i

MODULE VIII

Rectilinear motion: Displacement-time and velocity-time diagrams – motion equations (with deduction) – Newton's Second Law of Linear Motion p = mf and momentum of a body – conservation of momentum of a body – numerical problems

MODULE IX

Curvilinear motion: Angular displacement – angular speed – angular velocity – relation between angular speed & angular velocity – angular acceleration – relation between linear & angular velocity – relation between linear & angular acceleration – motion and path of a projectile (numerical problems) – centripetal and centrifugal force (numerical problems)

Recommended Books:

1. Engineering Mechanics International student ed./Timoshenko & Young/MGH

WORKSHOP PRACTICE & MODEL MAKING-I (TIU-UCE-L101)

L – S – P (0 – 0 –3) Credits-2

CO	Course Outcomes	K-level
CO-1	Understand the process of laying brick courses and various bonding techniques with and without mortar.	K2, K3
CO-2	Apply the principles of mortar mixing and preparation for masonry and plaster work, including cement mortar.	K3, K4
CO-3	Understand the process of lime burning and preparation of lime mortar for masonry and plaster applications.	K2, K3

CO-4	Create architectural models using different materials such as cardboard and ivory sheets.	K5, K6
CO-5	Apply welding techniques on MS sections, understanding the different types of welds used in construction.	K3, K4
CO-6	Study and develop the surfaces of 3-D objects, including the drawing of unfolded surfaces, and submit reports on practical exercises.	K3, K4

MODULE I
Laying of Brick courses & various bonds of brick courses with & without mortar.

MODULE II
Mortar mixing & Mortar preparations of cement mortar for masonry and for plaster.

MODULE III
Lime burning and preparation of lime mortar for masonry & lime plaster.

MODULE IV
Architectural Model Making with different materials such as card board, ivory sheets,

MODULE V
Welding of MS section: types of Weld.

MODULE VI
Study of development of surfaces, drawing of unfolded surfaces of 3-D objects.

MODULE VII
Submission of Report on all the above items at the end of the Semester. Report to contain sketches, Photographs etc.

COMPUTER APPLICATION-I: NON-GRAPHIC (TIU-UAR-L101)

L – S – P (0 – 0 –3) Credits-2

CO	Course Outcomes	K-level
CO-1	Understand the basic functionalities of word processing, including page setup, text formatting, and inserting tables, headers, and footers.	K2, K3
CO-2	Apply word processing skills to create simple letters and communication formats, and utilize spell check and alignment tools.	K3, K4
CO-3	Understand spreadsheet functionalities, including page setup, text formatting, cell management, and the use of commonly used formulas.	K2, K3
CO-4	Analyze data management in spreadsheets, including inserting images, data, and managing common formula views.	K4, K5
CO-5	Design presentations using various elements like text boxes, images, shapes, animations, and custom animations.	K5, K6
CO6	Understand slide management techniques, including packaging presentations	K2, K3

	and integrating sound and video elements.	

MODULE I

Word Processing: Page setup, margins – Header Footer insertion – Indents and hanging Indents – Text and fonts – Paragraph & Alignment – Spell check – Simple Letter & communication Formats – Table and other Inserts

MODULE II

Spread Sheets: Page setup, margins – Header Footer insertion – Text and fonts – Cell Management– Spell check – Insert Image, data etc – Data Management – Commonly used Formula –View Management

MODULE III

Presentation: Slide Design – Text box – Insert Picture, Shapes etc – Spell check – Insert Sound & Video – Animation & Custom Animation – Packaging of Presentation – Slide Management

ARCHITECTURAL GRAPHICS-I: BASIC (TIU-UAR-S101)

L – S – P (0 – 4 –0) **Credits-4**

CO	Course Outcomes	K-level
CO-1	Understand the hue spectrum and representation of primary, secondary, and tertiary colours through colour-wheel, and the study of related and contrasting colour schemes.	K2, K3
CO-2	Apply principles of two-dimensional composition by studying monochromatic and chromatic shapes and compositions using simple geometrical shapes.	K3, K4
CO-3	Analyze three-dimensional compositions by studying monochromatic and chromatic forms using simple solids.	K4, K5
CO-4	Understand modular composition and apply principles of ratio and proportion in design compositions based on modules.	K2, K3
CO5	Apply the design process in model making, including studying the relationship from whole to part and part to whole using homogeneous and assembled materials.	K3, K4
CO-6	Create three-dimensional models and compositions by applying various elements and principles of design using both homogeneous and assembled materials.	K5, K6

MODULE I

Colour Schemes: Study of the hue spectrum and representation of the primary, secondary and tertiary colours through colour-wheels — Study of related and contrasting colour schemes through simple applications

MODULE II

Two Dimensional Composition: Study of monochromatic and chromatic shapes through two-dimensional composition of simple geometrical shapes

MODULE III

Three Dimensional Compositions: Study of monochromatic and chromatic forms through three-dimensional composition of simple solids

MODULE IV

Modular Composition: Study of modules through compositions based on the principles of ratio and proportion

MODULE V

Model making: Study of the design process from whole to part and part to whole applying different elements and principles of design using homogeneous and assembled materials.

FREE HAND SKETCH WORKSHOP (TIU-UAR-S103)

L – S – P (0 – 4 –0) **Credits-4**

CO	Course Outcomes	K-level
CO1	Understand the basics of freehand drawing, including shading, shadowing, and using different colours in various media such as pencil, crayons, and watercolour.	K2, K3
CO2	Apply freehand drawing techniques to delineate landscape elements such as trees, shrubs, and water bodies, and present them in plans, elevations, and 3D views using various mediums.	K3, K4
CO3	Understand and apply the concept of scale in freehand sketching by presenting and rendering objects, human figures, and cars in different scales.	K3, K4
CO4	Create monochromatic and coloured presentation drawings of buildings, furniture, and other objects in plans, elevations, and views using different media.	K5, K6
CO5	Apply various techniques for presenting and rendering landscape elements in freehand, integrating these elements with built forms and showing them in different perspectives.	K3, K4
CO6	Develop freehand sketches for architectural projects, including detailed views of buildings and furniture, applying appropriate rendering techniques in both monochrome and colour.	K5, K6

MODULE I

Freehand Drawing: Freehand drawing of objects / group of objects with shades & shadows and using colours in various media such as pencil, crayons, watercolour, poster colours etc.

MODULE II

Delineation of landscape elements: Presentation and rendering of Trees, herbs, shrubs, ground covers, contours & water bodies as a single entity and in clusters / groups in association with built forms, in plans, elevations and 3- dimensional views rendered in various mediums

MODULE III

Working with Scale: Presentation and rendering of various designed objects, human figures, cars etc in different scales

MODULE IV

Delineation of buildings: Monochromatic / Coloured Presentation drawings of sites / buildings / building parts / furniture in plan/s, elevation/s and view/s using various mediums

Recommended Books:

1. Rendering with Pen and Ink / M.W. Gill

DESCRIPTIVE GEOMETRY-I (TIU-UAR-S105)

L – S – P (0 – 4 –0) **Credits-4**

CO	Course Outcomes	K-level
CO-1	Understand the different types of lines used in engineering drawing and the various lettering techniques.	K2, K3
CO-2	Apply the concept of scale in engineering and architectural drawing, including representative fraction and diagonal scales.	K3, K4
CO-3	Develop skills in drawing various 2D objects and curves, including concave, convex, and angle bisecting techniques.	K3, K4
CO-4	Understand and apply the principles of orthographic projection, including first and third angle projections, and projection of straight lines, lamina, and solids.	K3, K4
CO-5	Analyze and draw the true shape of sections of solids, applying appropriate techniques for surface development.	K4, K5
CO-6	Study and apply the techniques for the intersection of surfaces and surface developments, both parallel and radial.	K3, K4

Introduction to Engineering Drawing and Descriptive Geometry; Introduction to the drawing instruments and their use

MODULE I

Line types: Types of lines used in Engineering Drawing – Lettering techniques and types

MODULE II

Scale: Concept of Representative Fraction – Scales generally used for Architectural and Engineering Drawing – Concept of Diagonal Scale

MODULE III

Drawing of different lines and 2-D Objects: Curve line drawing (concave, convex curve) – bi section of angles – different line drawings – drawing technique of 2D Objects

MODULE IV

Orthographic Projections: Planes of Projection – Concept of 1st angle and 3rd angle projection – ISI code of practice – projection of straight line, lamina and solid

MODULE V

Section of Solids: True shape of a section 12

MODULE VI

Surface Development: Principal Developments – Parallel and Radial Developments

MODULE VII

Intersection of surfaces

Recommended Books

1. B. Gupta; A Textbook of EngineeringDrawing
2. N.D. Bhatt; EngineeringDrawing
3. Hiram. E. Grant; Engg Drawing, ,Mc.Graw Hill BookCompany
4. Sherkey W, MORGAN; Architectural Drawing, Mc GrawHill
5. Arthur L. Guptill, Watson; Rendering in Pen and Ink,- Guptill Publications, NewYork.

CAREER ADVANCEMENT & SKILL DEVELOPMENT (AR) (TIU-UEA-S101)

L – S – P (0 – 2 –0) **Credits-2**

CO	DESCRIPTION	K-level
CO-1	Apply concepts from Indian architectural history to understand contemporary urban forms.	K3
CO-2	Analyze the socio-political implications embedded in architectural spaces.	K4
CO-3	Demonstrate the ability to critically evaluate architecture using appropriate analytical frameworks.	K3
CO-4	Interpret architectural narratives through historical and cultural lenses.	K2
CO-5	Understand literary, visual, and architectural texts to explore themes of memory, identity, and space.	K2
CO-6	Develop interdisciplinary perspectives by integrating literature, history, and architectural studies.	K3

Suggested texts might include, but not limited to the following:

- Alexanre Lange, "How to be an Architecture Critic", Places The Journal of Public Scholarship on Architecture, Landscape, and Urbanism.March 2012. https://placesjournal.org/article/how-to-be-an-architecture-critic/?cn-reloaded=1
- Srinath Perur, "Lost Cities- Muziris: Did Black Pepper cause the demise of India's Ancient Port", The Guardian, August 2016. https://www.theguardian.com/cities/2016/aug/10/lost-cities-3-muziris-india-kerala-ancient-port-black-pepper
- Introduction to Indian Architecture (Bindia Thapar 2004, Periplus Asian Architecture)
- 'Fall of the House of Usher' (Edgar Allan Poe, 1839)
- ' The Hanging' (George Orwell, 1931)

COURSE PLANNING

2ND SEMESTER

(SYLLABUS AFTER 2023)

Course Code	Course Title	Contact Hrs./Week			Credit
		L	S	P	
Theory					
TIU-UCE-T102	Strength of Materials (AR)	2	0	0	2
TIU-UMA-T108	Mathematics II	2	0	0	2
TIU-UAR-T102	Building Material & Sciences II	2	0	0	2
TIU-UAR-T104	Environmental Science	2	0	0	2
TIU-UAR-T106	Evolution of Architecture	4	0	0	2
Practical					
TIU-UAR- L102	Computer Application- 2 : CAD 2D	0	0	3	2
TIU-UAR- L104	Workshop Practice & Model Making-2	0	0	3	2
Sessional					
TIU-UAR- S102	Details of Construction I	2	4	0	4
TIU-UAR- S104	Descriptive Geometry II	0	6	0	4
TIU-UAR -S 106	Architectural Design I	0	6	0	4
TIU-UEA- S100	Career Advancement Skill Development (AR)	0	2	0	2
Institute Programme					
TIU-UES- S198	Entrepreneurship Skill Development	0	0	0	2
Total Credits					**30**

STRENGTH OF MATERIALS (TIU-UCE-T102)

L – S – P (2 – 0 –0) **Credits-2**

CO	Course Outcomes	K-level
CO1	Understand the mechanical properties of materials, types of stresses and strains, and their effects on materials under different loads.	K2, K3
CO2	Analyze the shear force and bending moment in simple beam cases, including cantilever beams and simply supported beams, and interpret the corresponding diagrams.	K4, K5
CO3	Apply the theory of bending stresses in beams, including the derivation of the simple bending formula, neutral axis, and section modulus.	K3, K4
CO4	Calculate the deflection and slope of beams using standard formulas, considering different loading conditions such as point loads and uniformly distributed loads.	K3, K4
CO5	Understand and analyze the behavior of columns, including definitions, classifications, slenderness ratio, and critical loads, and apply Euler's formula for critical load.	K4, K5
CO6	Solve problems related to simple stresses, shear force, bending stresses, deflection of beams, and columns, applying theoretical concepts to practical scenarios.	K5, K6

MODULE I

Simple Stresses & Strains: Mechanical Properties of Materials – Definitions with explanations only — Different types of loads and their effects on materials– Tensile, Compressive, Shear and Impact — Simple stresses and types of stresses — Simple strains and type of strains — Stress-strain diagram for M.S.in tensile test showing salient points such as Proportional Limit, Yield point, Elastic Limit, Ultimate points and Breaking Point — Study of stresses – Strain diagram for Cast Iron and Dead Steel — Modulus of Elasticity — Ultimate stress, working stress and Factor of safety and their effect on simple designs — Stresses in members with stepped cross section and stress in composite members — Stress in nuts and bolts — Temperature stress and strain — Simple Problems

MODULE II

Shear Force & Bending Moment: Types of beams, types of supports and types of loads on beams — Definitions of B.M and S.F and their sign conventions — Bending Moment and Shear Force diagrams of simple cases such as: Cantilever beams with point loads and UDL, Simply supported beams with point loads and UDL, Simply supported overhanging beam – one side and both sides – Simple Problems

MODULE III

Bending Stresses in Beams: Definitions of bending stress deduction of simple bending formula i.e. M/I = f/y = E/R with their usual notations (assumption made in theory of simple bending) – Neutral axis — Moment of Resistance, Section modulus and Radius of Gyration— Related problems in bending stress for symmetrical section about axis parallel to the plane of bending

MODULE IV

Deflection of Beams: Differential equation of elastic curve – Relation among deflection, slope, shear force, bending moment and rate of loading – Sign convention of slope and deflection — Standard formula (no proof) for maximum slope of deflection in: (a) cantilever beam subjected to point load at free end alone & when subjected to uniformly distributed load on entire span; (b) simply supported beam carrying a point load at mid span alone & when carrying a uniformly distributed load on entire span — Problems related to above two cases of cantilever and simply supported beams

MODULE V

Columns: Definitions of Columns & Struts – Long, Medium & Short columns – Effective Length – Slenderness Ratio – Critical load – Safe load — Different kinds of end conditions
Euler's formula for critical load (no proof) — Assumptions made and its limitations — Strength ofcolumns

Recommended Books:

1. Timoshenko,S.P.&Young,D.H.;_ElementsofStrengthofMaterials';5thedition,East WestPress,1993;Timoshenko,S.;_StrengthofMaterial';TataMcGrawHill,New Delhi

MATHEMATICS II (TIU-UMA-T108)

L – S – P (2 – 0 –0) **Credits-2**

CO	Course Outcomes	K-level
CO-1	Decide the convergence of an infinite series	K4
CO-2	Determine the solutions of second order differential equations with variable coefficient reducible to constant coefficient and evaluate multiple integrals	K4
CO-3	Analyze direct data using statistical methods	K4
CO-4	Analyze grouped data using statistical methods	K4
CO-5	Calculate basic operations of vector algebra	K4
CO-6	Interpret geometrically different aspects of vector algebra	K4

MODULE I

Co-ordinate Geometry – Two dimensions: Transformation of coordinates – Translation Rotation only, Reduction of general equation of second degree

MODULE II

Co-ordinate Geometry – Three dimensions: Coordinates, Direction Cosines, Planes, Straight lines, Spheres, Standard equations of simple surface e.g. cylinders, cones, ellipsoids, Hyperboloids etc.

MODULE III

Vector Algebra: Sum and products of vectors, Application of Geometry and Mechanics

MODULE IV

Statics: Analysis data (direct and grouped), Frequency Diagrams, Ogive, Histogram, Measures of central tendency: Mean, Median, Mode, Measures of dispersion, Skewness, Curtosis Fitting of curves (Least square method).

MODULE VI

Differential Equations: Second order differential equations with constants co-efficient and with variable co-efficient reducible to case constant co-efficient, applications

Recommended Books:

1. Advanced Engineering Mathematics by i) E. Kryszig, ii) Peter V.O'Neil.
2. Engineering Mathematics by iii) B. S. Grewal, iv) S. Arumugam, A. Thangapandi Isaac & A. Somasundaram v)S.S.Sastry.

BUILDING MATERIAL & SCIENCE II (TIU-UAR-T102)

L – S – P (2 – 0 –0) **Credits-2**

CO	Course Outcomes	K-level

CO1	Understand the properties and uses of clay products such as tiles, terra-cotta, earthenware, stoneware, porcelain, and vitreous materials.	K2, K3
CO2	Analyze the types and uses of special concrete, including water repellent, waterproofing compounds, accelerators, air-entraining agents, and fly ash.	K4, K5
CO3	Apply knowledge of wall and floor tiles, including their properties, classification, selection criteria, and the methods of fixing tiles for various applications.	K3, K4
CO4	Understand the characteristics and processes involved in varnishes, paints, and distempers, and evaluate different types of paints such as aluminum, cement-based, and enamel paints.	K2, K3
CO5	Study the types and uses of plastics and polymers in building construction, including nano-paints and their properties.	K2, K3
CO6	Analyze miscellaneous materials such as glass, fiberglass, cork, rubber, gypsum, and asbestos, and understand their uses in the building industry.	K4, K5

MODULE I

Clay Products: Tiles, their properties and use - terra-cotta, earthenware, stoneware, porcelain, vitreous.

MODULE II

Special Concrete: Water repellent, Waterproofing compounds, Accelerators, Air entraining agents. Hardeners, plasticizer, Fly ash. Their availability and uses. Light weight concrete, ready-mix concrete, and precast concrete

MODULE III

Wall & Floor Tiles: General character and construction process of traditional flooring like: IPS flooring, Terrazzo flooring. Sizes, Classification & Properties of tiles used in wall and flooring. Selection criteria & Methods of fixing various types of tiles.

MODULE IV

Varnishes, Paints Distempers: Characteristics and process of varnishing, Type and Compositions of Paints, Types of painting system: aluminum paints. Cement-based paints, oil emulsion paints, enamel paints and their selection criteria.

MODULE VI

Plastics and Polymers: Types and Use of Plastic in building construction. Properties of Plastic. Use of various Polymer Materials in building industry, Use of Nano-paints.

MODULE VII

Miscellaneous Materials: Glass, Fibre glass. Cork, rubber, Gypsum, sealants, Asbestos, heat and sound insulative materials. Their trade name and uses.

Recommended Books:

1. B. C. Punmia; Building Materials and Construction .Laxmi Publications Pvt Ltd, New Delhi,1993
2. Bindra & Arora; Building Materials andConstruction.
3. W.B.Mckay,_Building Construction‘,Vol.1,2,3Longmans,U.K.1981.
4. Arthur Lyons; Materials for Architects and Builders- An Introduction; Arnold, London1997

ENVIRONMENTAL SCIENCE (TIU-UAR-T104)

L – S – P (2 – 0 –0) **Credits-2**

CO	Course Outcomes	K-level
CO1	Understand the multidisciplinary nature of environmental science, its deinition, scope, importance, and the need for public awareness.	K2, K3

CO2	Analyze the concept of ecosystems, including the structure and function of ecosystems, energy and nutrient flow, and the roles of producers, consumers, and decomposers.	K4, K5
CO3	Understand the causes and effects of environmental pollution, including physical, chemical, and biological transformations of pollutants, population explosion, and human health.	K2, K3
CO4	Examine air pollution, its causes, effects, and control methods, including photochemical smog, greenhouse effect, ozone depletion, and relevant pollution control laws.	K4, K5
CO5	Evaluate water pollution, its sources, pollutants, effects, and treatment methods, including municipal water supply, disinfection, and wastewater treatment.	K5, K6
CO6	Understand natural resources and biodiversity, including renewable and non-renewable resources, deforestation, sustainable development, and biodiversity conservation.	K2, K3

MODULE– I

Environmental Awareness: Multidisciplinary nature of environmental Science, Definition, scope, importance and need for public awareness

MODULE– II

Ecology and Environment: concept of an ecosystem ,structure and function of an ecosystem, producer ,consumer and decomposer, energy and nutrient flow biogeochemical cycles, food chain ,food web, ecological pyramid

MODULE– III

Environmental Pollution : Segments of environment, sources, pathways and fate of environmental pollutants, causes of environmental pollution ,physical ,chemical and biological transformation of pollutants , population explosion, environment and human health, human rights, value education ,women and child welfare

MODULE– IV

Air Pollution: various segments of atmosphere and their significance, classification of air pollutants, toxic effects, sampling and analysis, stationary and mobile emission, sources and their control, photochemical smog ,sulphurous smog, green house effect, global warming, ozone depletion, Air (prevention and control of pollution)Act(10)

MODULE– V

Water Pollution: Water resources ,sources of water pollution ,various pollutants, their toxic effect, potability of water , municipal water supply , disinfection, characteristics of waste water, primary and secondary waste water treatment, BOD and COD measurement and their significance ,rain water harvesting ,water shed management, Water (pollution and control)Act.(12)

MODULE– VI

Natural Resources and Biodiversity: Renewable and non renewable resources, Forest resource, consequences of deforestation, floods and draughts, equitable use of resources for sustainable development, Dams benefits and problems, Biodiversity: ecosystem diversity, threats to biodiversity, conservation of biodiversity.

MODULE– VII

A brief introduction to Noise Pollution, Soil Pollution, Solid Waste Management.

Recommended Books:

1. Sharma and Kaur, EnvironmentalPollution
2. De, Environment Chemistry

EVOLUTION OF ARCHITECTURE (TIU-UAR-T106)

L – S – P (4 – 0 –0) **Credits-2**

CO	Course Outcomes	K-level Range
CO1	Understand the early interventions in the natural environment, including megalithic and funerary architecture, and the development of symbolic structures like Stonehenge and Neolithic settlements.	K2, K3
CO2	Analyze and differentiate various systems of enclosure, including trabeated, arcuated, and corbelling systems, and understand their conceptual development in architecture.	K4, K5
CO3	Explore surface treatment and ornamentation techniques, and understand the principles and applications of surface treatments in architectural design.	K3, K4
CO4	Study the architectural developments in Ancient Egypt, focusing on tomb architecture, temples, and the evolution of space organization and architectural elements in Egyptian temples.	K4, K5
CO5	Examine architectural developments in West Asia, including Mesopotamian, Assyrian, Babylonian, and Persian architecture, with a focus on city planning, building techniques, and the use of arches.	K4, K5
CO6	Understand the principles of architecture and town planning in the Indus Valley, with a study of public buildings like the Great Bath and Granary, and early Vedic residential architecture.	K2, K3

MODULE I

Introduction and Prehistoric Developments: Introduction to early interventions in the natural environment — Megalithic – Funerary architecture– Religious/Symbolic developments as at Stonehenge, Salisbury Plains, England – Neolithic settlements eg, CatalHuyuk,Anatolia.

MODULE II

Systems of Enclosure: Principles and examples of Trabeated, Arcuated and Corbelling systems, introduction to different developments of the arcuated form at conceptual level.

MODULE III

Surface Treatment and Ornamentation Techniques: Principles and techniques for treating surfaces definitions and examples.

MODULE IV

Architectural developments in Ancient Egypt: The contextual factors influencing the architecture – use of temporary materials of vegetable origin in the vernacular architecture and their translation into stone– evolution of tomb architecture from mastabas (in different stages), to The Step Pyramid to Bent Pyramid to the True Pyramids – Construction materials and systems in the pyramids of Egypt – Temple architecture – typology of temples –– detail study of conceptual space organization and architectural elements in Egyptian temple architecture with examples.

MODULE V

Architectural developments in West Asia: The contextual factors influencing the architecture – building techniques and processes – three dimensional articulation of spaces
architectural elements – external finishing techniques – building services – introduction of the arch – temples and palaces as the chief building typologies – principles of architectural organization – symbolism and meaning – social underpinnings – Early Mesopotamian Architecture, Assyrian Architecture, Babylonian Architecture and City Planning, Persian Architecture (Palace ofPersepolis).

MODULE VI

Architecture and Town Planning Principles in the Indus Valley: The contextual factors – town planning principles, residential architecture, public buildings such as The Great Bath in Mohenjo Daro and The Granary in Harappa.

MODULE VII

Early Vedic Architecture: The contextual factors influencing the architecture –residential architecture, introduction to the elements used in the essentially rural settlements – fences, roof and walls of huts, gateways, etc.

MODULE VIII

Buddhist Architectural Developments: Ashokan edicts - Buddhist Stupa architecture – Detailed study of the Sanchi Stupa

MODULE IX

Rock Cut Architecture of India: Buddhist, Jain and Brahmanical Pillars - Early Examples - Barabar Hills, Bihar - Orissan (Jain) monastic retreats at Udaygiri - Hinayana Phase – chaityas and viharas – Mahayana Phase – Rationale for developments – chaityas and viharas –- Brahmanical Phase – Detailed study of the culmination of Rock cut architecture in India, the Kailasha Temple at Ellora.

Recommended Books:

1. A History of Architecture (Century Edition) / Sir Banister Fletcher / Butterworth Heinemann (Hb), CBS(Pb)
2. Indian Architecture Vol. 1 (Buddhist & Hindu) / Percy Brown / D.B.Taraporevala
3. Buddhist and Hindu Architecture in India / Satish Grover /CBS
4. Architecture: From Prehistory to Postmodernity / Marvin Trachtenberg and Isabelle Hyman/ PrenticeHall
5. A World History of Architecture / Marian Moffett, Michael Fazio & Lawrence Wodehouse / McGraw-Hill
6. Encyclopedia of Architectural Technology / Ed: Pedro Guedes /McGraw-Hill
7. The Story of Architecture from antiquity to the present / Jan Gympel / KÖNEMANN(Pb)
8. The Great Ages of World Architecture / G. H. Hiraskar / DhanpatRai.

COMPUTER APPLICATION II CAD 2D (TIU-UAR-L102)

L – S – P (0 – 0 –3) **Credits-2**

CO	Course Outcomes	K-level

CO1	Understand the applications of AutoCAD for 2D architectural drawing, including sheet layout, toolbar generation, and basic drawing operations.	K2, K3
CO2	Apply drawing and modification operations in AutoCAD, including the use of colour, hatch, and object properties.	K3, K4
CO3	Create and modify blocks, and use text and dimensioning tools for accurate architectural representation.	K5, K6
CO4	Apply formatting operations such as dimension styles, text formatting, and line types in AutoCAD to ensure consistency and clarity in drawings.	K3, K4
CO5	Understand and use layers in AutoCAD, including assigning line types, thickness, scale, and generating UCS (User Coordinate System) for efficient drawing management.	K3, K4
CO6	Create simple architectural elements and building drawings in 2D using AutoCAD, and compose drawing sheets for presentation and printing.	K5, K6

MODULE I

AUTOCAD applications in two-dimensional architectural drawing; Sheet layout and toolbargeneration;Different Draw and modifyoperation;Colour and Hatch, ObjectPropertiesMaking of blocks;Text andDimensioning;Formatting operation: dimensions, text, line typeetc.

MODULE II

Creation and Use ofLayerAssigning Line types, Line thickness, Line typeScale;UCS generations, Use of Viewport;Creation ofentities; Composition of Drawing sheets

MODULE III

Digitization ofimages;Creation of simple architectural elements, building drawings in2-D;

WORKSHOP & MODEL MAKING II (TIU-UAR-L104)

L – S – P (0 – 0 –3) **Credits-2**

CO	Course Outcomes	K-level
CO1	Develop 3D forms using various materials such as clay, plaster of Paris, wax, acrylic sheets, and wood, applying techniques for creating both 2D and 3D models.	K5, K6
CO2	Understand and apply carpentry tools and techniques for timber model making, including the construction of wooden joints.	K3, K4
CO3	Apply rendering techniques such as pencil rendering, pen and ink, and watercolour to create expressive presentations.	K3, K4
CO4	Understand the basics of photography and apply photographic techniques for capturing and presenting design concepts.	K3, K4
CO5	Explore the principles of set designing through exercises, understanding spatial	K3, K4

	arrangements and design expression.	
CO6	Understand and apply techniques in wall painting and sculpture making, integrating artistic expression with practical skills.	K5, K6

MODULE– I

Model making exercise (Minimum 2 assignments): Study and develop 3D forms using plastic material such as clay and plaster of paris, putty- Develop 2/ 3D forms using hard material such as paper, paper board, thermo Cole, wire, cardboard, wax, POP, acrylic sheets, wood, plastics, glass fiber.

MODULE– II

Timber model making exercise. (Minimum 1 assignment): Exposing to carpentry tools, machines and timber joints- Exposing to different types of timber joints and wooden construction

MODULE– III

Rendering techniques exercises (Minimum 1 assignment each medium): Pencil rendering**-** Pen and ink**-** Water colour

MODULE– IV

Photography exercises

MODULE– V

Set designing exercises

MODULE– VI

Wall painting, sculpture making exercises

Recommended Books:

1. Rendering with pen and ink byGill
2. Wenninger (Magrus. J.) Spherical Models, Cambridge University Press,1979
3. John W. Mills, The Technique of Sculpture, B.T. Batsford Ltd., New York ReinfoldPublishing
4. Corpn., London,1966.
5. Mitchell, W. J., Digital Design Media by, Published by Van Nostrand Reinhold,USA

DETAILS OF CONSTRUCTION I (TIU-UAR-S102)

L – S – P (2 – 4 –0) **Credits-4**

CO	Course Outcomes	K-level
CO1	Understand the various building components such as foundation, plinth, flooring, and roof, and develop plans and sections for a small building.	K2, K3
CO2	Apply the principles of brick masonry by developing different brick bonds (English, Flemish, Rat-trap) for one-and-a-half thick walls, and understand their layout at corners, junctions, and brick columns.	K3, K4
CO3	Design and detail wooden doors and windows, including various types such as battened, ledged, braced, flush, panelled, and pivoted windows, along with corner and bay window details.	K5, K6
CO4	Apply waterproofing details to different building levels, including foundation, walls, roofs, and other components such as sills and lintels, and understand the materials involved in damp-proofing.	K3, K4
CO5	Study and report on different types of brick bonds used in wall construction and paving, and analyze traditional building components and woodworks through sketches and photographs.	K4, K5
CO6	Classify the requirements for Damp Proof Course (DPC) at various building levels and apply	K3, K4

	the correct materials and methods for their installation.	

Course Objective:

1. To label the various parts ofbuilding
2. To develop the brick bond for different types of wall junction
3. To compare the material consumption in various brickbonds
4. To apply the different types of Door Window detailing in buildingapplication
5. To classify the requirement of DPC in various levels inbuilding

MODULE I

BASIC BUILDING COMPONENTS: Development of Plan & Section of a small building to understand foundation, plinth, flooring, sill, lintel, roof slab and parapet. Typical Building Skin Section for a Two Storied House

MODULE II

BRICK MASONRY: Types of Brick bonds: English, Flemish & Rat-trap bond for one and half thick walls. Detail brick layout at corners, junctions and brick columns.

MODULE III

WOODEN DOORS & WINDOWS: Details of door and ventilator. Battened /ledged/Braced door, Flush/Panelled door. Venetian door. Details of window, glazed, pivoted, louvered window, corner and bay window.

MODULE IV

DETAILS: Waterproofing details in different levels: Details of simplefoundation, wall, roof, Details of sill, lintel and roof in RCC, RB and steel, Damp proof details of basement, plinth, sill, lintel, and rooflevel.

MODULE V

SITE STUDY & REPORT: Different types of brick bonds in wall & Paving with sketches and some photographs, Traditional building component and Wood works

Recommended Books:

1. B. C. Punmia; Building Materials and Construction .Laxmi Publications Pvt Ltd, New Delhi,1993.
2. Bindra & Arora; Building Materials andConstruction.
3. W.B.MacKay,_BuildingConstruction‘,Vol. 1,2,3Longmans,U.K.1981.

DESCRIPTIVE GEOMETRY II (TIU-UAR-S104)

L – S – P (0 – 6 –0) **Credits-4**

CO	Course Outcomes	K-level
CO1	Understand the principles of axonometric projection systems, including isometric, dimetric, and trimetric projections, and apply isometric scale for projecting points, lines, polygons, and solids.	K2, K3
CO2	Apply perspective projection systems, including one-point, two-point, and three-point perspectives, and develop an understanding of perspective terminology like vanishing points, eye level, and horizon line.	K3, K4
CO3	Analyze the basic principles of sciography, including the effect of light sources and the casting of shadows on points, lines, polygons,	K4, K5

	and solids.	
CO4	Develop skills in creating axonometric views of built forms, buildings, and complex structures using the isometric scale.	K5, K6
CO5	Apply sciography techniques to create shading effects for single and group objects, built forms, and furniture in drawings.	K3, K4
CO6	Understand the concept of orientation sheets for projection systems and apply these concepts in the creation of detailed visual representations.	K2, K3

MODULE I

Axonometric Projection System

Isometric Projection System of points, lines, polygons and solids on Isometric plane using Isometric Scale.-Dimetric and Trimetric Projections systems-Isometric View/s of built forms / buildings / complex structures

MODULE II

Perspective Projection System

Development of concepts on Perspective Projection Systems – types of Perspectives - learning of various relevant nomenclatures like Station Point, Picture Plane, Eye Level, Vanishing Points, Horizon Line – Orientation Sheet- One-Point Perspective Projection- Two- Point Perspective Projection- Three-Point Perspective Projection

MODULE III

Sciography

Study of basic principles of Sciography – light sources - casting shades and shadows of points, lines, polygons and solids – Orientation Sheet Sciography - single and group of objects, built forms, furniture etc.

Recommended Books:

1. Engineering Drawing / N. D. Bhat — Basic Perspective Drawing /J.
2. Montage — Architectural Graphics / F. D. K.Ching

ARCHITECTURAL DESIGN I (TIU-UAR-S106)

L – S – P (0 – 6 –0) **Credits-4**

CO	Course Outcomes	K-level
CO1	Understand the relationship between space, form, function, and design, and study the composition of 3D forms, shades, and shadows.	K2, K3
CO2	Apply design elements and principles to create small objects, focusing on function, structure, and aesthetics.	K3, K4
CO3	Analyze the concept of space, internal and external form, and volume, and approach design as a continuous process of aesthetics, function, and technology.	K4, K5
CO4	Apply design principles related to functions, circulation flow, site conditions, and climate in creating spaces for different activities.	K3, K4
CO5	Understand and apply anthropometrics and ergonomics concepts to design spaces based on human activity standards and space allocation.	K3, K4

CO6	Design single units such as living spaces, cooking spaces, and stalls, ensuring functional relationships with adjoining areas, and work within a defined area for simple functions.	K5, K6

Course Objective:

1. After completion of this course student will be able to
2. To identify and relate the concepts of space, form andorder.
3. To distinguish and analyze three dimensional designedspace.
4. To design objects based on the concept of space andform.
5. To classify different functional spaces and analyze their spacerequirements.
6. To compile data required for architecturaldesigning.
7. To identify the human standards of design based onergonomics.
8. To innovate, modify and evaluate an existingspace.

MODULE– I

Relationship between Basic Design and Architectural Design: comprehensive understanding of space, form, function anddesign.
Study of 3-d forms/shades and shadow study andcomposition.

MODULE– II

Application of elements of design to achieve design principles in creative work.
Design of small objects (parts of building, like, window grill, boundary wall, floor tiles and similar projects) with respect to function structureaesthetics.

MODULE– III

Introduction to external and internal form concept, their quality, concept of space, relation of space and volume.
Approach to design as a continuous process through aesthetics, function and technology; study of basic components of a building and theirfunctions.
Examples of Dimensions of differentrooms.

MODULE– IV

Principal of design with reference to function, various activities and related spaces; Data collection, environments, climate, orientation, site conditions, circulation flow diagrams.

MODULE– V

Study of basic human needs, standard measurements of human activities and allocation of spaces: Concepts of Anthropometrics and ergonomics.

MODULE– VI

Study and concept of measured drawings of small buildings.

MODULE– VII

Study and design of single units like living spaces, sleeping and cooking spaces, stalls, bus- stops, telephone booths, etc detailed design of single room for simple function showing relationship with adjoining areas for other activities not more than 25sq.mts.
Design problems dealing with planning for activities such as individual living units shops, stalls, snack bars, unilevel activities with three to four functions of total area upto 80 sq.mts.

Recommended Books:

1. Ching, D.K; From, Space andOrder.
   A. Peter Fawcett; Architecture DesignNotebook.
2. http://www.scribd.com/doc/45018090/Architecture-Design-Notebook
3. Robin Boyd; Puzzle ofArchitecture
4. National Building Code,BIS

5. Time SaversStandard

CAREER ADVANCEMENT & SKILL DEVELOPMENT (AR) (TIU-UEA-S100)

L – S – P (0 – 2 –0) **Credits-2**

COURSE OUTCOMES:

On completion of the course the students will be able to:

CO	DESCRIPTION	K-level
CO1	Investigate how built environments reflect and reinforce power, surveillance, and trauma in visual storytelling.	K4
CO2	Analyze the psychological dimensions of space as portrayed in cinematic works like *Vertigo* and *Arkham Asylum*.	K4
CO3	Demonstrate an understanding of how architecture functions as both a literal and symbolic space in literature, film, journalism, and graphic novels.	K3
CO4	Interpret real-world architectural issues through investigative journalism, including urban poverty and social mobility.	K2
CO5	Understand literary, visual, and architectural texts to explore themes of memory, identity, and space.	K2
CO6	Develop interdisciplinary approaches to storytelling by synthesizing architectural theory with narrative form.	K3

Suggested texts might include, but not limited to the following:

1. Vertigo (Alfred Hitchcock, 1958)
2. Master Builder (Henrik Ibsen, 1892)
3. Searching for Sugar Man (Malik Bendjelloul, 2012)
4. Joshua Davis and David Wolman, “Pipino, Gentleman Thief”, Epic Magazine, Oct 26, 2014. https://medium.com/epic-magazine/pipino-gentleman-thief-ede9713dafb1#.wy5ljyqb3
5. Daniel Brook, “The Slumdog Millionaire Architect,” New York Magazine, June, 2014. https://www.nytimes.com/2014/06/22/magazine/the-slumdog-millionaire-architect.html?src=me&_r=0
6. Kyle Chayka, How the Coronavirus Will Reshape Architecture, The New Yorker, June 2020. https://www.newyorker.com/culture/dept-of-design/how-the-coronavirus-will-reshape-architecture
7. Batman: Arkham Asylum (Grant Morrison, Dave McKean, 1989) https://www.zipcomic.com/batman-arkham-asylum-1989

COURSE PLANNING

3RD SEMESTER

(SYLLABUS AFTER 2023)

Course Code	Course Title	Contact Hrs./ Week			Credit
		L	S	P	
Theory					
TIU-UCE-T209	Theory of StructureI (AR)	4	0	0	2
TIU-UAR-T201	Water Supply and Plumbing Services	2	0	0	1
TIU-UAR-T203	History of Architecture I	4	0	0	3
TIU-UAR-T205	Climatology	2	0	0	2
TIU-UAR-T207	Landscaping and Site Planning	2	0	0	2
Practical					
TIU-UCE - L205	Surveying & Levelling (AR)	2	0	2	2
TIU-UAR-L201	Computer Application III (CAD 3D)	0	0	2	2
TIU-UAR-L203	Educational Tour	0	0	0	2
Sessional					
TIU-UAR-S201	Architectural Design II	0	6	0	6
TIU-UAR-S203	Details of Construction II	2	4	0	4

TIU-UEN-S297	Career Advancement & Skill Development (AR)	0	2	0	2
Institute Programme					
TIU-UES-S299	Entrepreneurship Skill Development (AR)	0	0	0	2
Total Credits					**30**

THEORY OF STRUCTURE - I (TIU-UCE-T209)

L – S – P (4 – 0 –0) **Credits-2**

CO	Course Outcomes	K-level
CO1	Understand the theory and assumptions of pure bending, including bending stress distribution in beams and composite sections.	K2, K3
CO2	Apply the equation of shear in beams and calculate shear stress distribution in beam cross-sections.	K3, K4
CO3	Analyze the deflection of beams using differential equations, the double integration method, and area-moment theorems for various beam configurations.	K4, K5
CO4	Apply Castigliano's First Theorem to determine deflections due to axial loads and bending in statically determinate structures.	K3, K4
CO5	Understand and apply the theory of torsion to solid and hollow shafts under torsion, and calculate stresses due to combined torsion and bending moments.	K2, K3
CO6	Analyze and design columns and arches using Euler's theory and Rankine's formula, and apply Eddy's theorem to determine internal forces and moments.	K4, K5

MODULE I

Pure Bending:

Theory, assumptions and equation of bending. Concept of Sectional modulus, Distribution of bending stress in beam cross-section. Bending Stress Distribution in composite beam cross section, Concept of Modular Ratio.

MODULE II

Assumptions and equation of shear in beam section Shear stress in the Beam cross-section

MODULE III

Differential equation of the elastic curve – Deflection of beams (due to bending only) by double integration method – Area moment theorems – Applications to simply supported, cantilever and overhanging beams.

MODULE IV

Strain energy for axial load, bending Castigliano's First theorem. Applications to find beam deflection and deflection of Statically Determinate Truss.

MODULE V

Theory of Torsion, Equation of Torsion, Solid & Hollow shaft under pure torsion, percentage of savings, stresses due to combination of Torsion and bending Moment.

MODULE VI

Theory of Columns – Euler's theory for different support conditions –Rankin's Formula.

MODULE VII

Analysis of three hinged arches of parabolic and circular shape, Eddy's theorem. Bending moment, Normal thrust and radial shear.

Recommended books:

1. B.C. Purmia, Laxmi Publication; Strength of Material and Theory of Structures(Vol-I).
2. S. Timoshenko: Strength of Material, Tata McGraw Hill, NewDelhi.
3. S.Ramamurtham, Strength of Material, DhanpatRaiPublication.
4. Singer; Strength ofMaterial.
5. Srinath ;StrengthofMaterial.

WATER SUPPLY & PLUMBING SERVICES (TIU-UAR-T201)

L – S – P (2 – 0 –0) **Credits-1**

CO	DESCRIPTION	K-level
CO1	Understand the principles of water supply systems, including sources, treatment processes, methods of supply, and distribution systems for different building types.	K2, K3
CO2	Analyze domestic water piping systems, including cold and hot water distribution, plumbing fittings, and layout design for water supply in residential buildings.	K4, K5
CO3	Design sanitation and drainage systems for various building types, considering the requirements, standards, and design of sewerage systems, septic tanks, and sewage treatment.	K5, K6
CO4	Apply knowledge of sewerage systems, including calculations of sewage and stormwater quantities, sewer shapes, and factors affecting sewer design, and apply Manning's formula.	K3, K4
CO5	Design and evaluate sewer appurtenances, including manholes, culverts, and catch basins, and understand their proper location and function in sewer systems.	K5,K6
CO6	Understand and apply the materials, fittings, and appliances used for water supply, sanitation, drainage, and fire fighting in building design and plumbing systems.	K3,K4

MODULE I

Water Supply: Sources and Requirements as per building types, Potable water-Norms, treatment processes, methods of supply, Water distribution and storage systems: Principles and general requirements.

Domestic water piping systems: Water distribution networks. Cold and hot water distribution within the building. Specifications and sketches of various plumbing fittings for buildings. Uses of valves, taps, and their different types. House/service connection. Layout of water supply lines in a domestichouse.

MODULE II

Sanitation and Drainage: Requirements and standards as per norms. Plumbing systems. Components of drainage and sanitation systems. Design considerations for drainage and sewerage systems for various building types. Details of a Septic tank and capacity calculation.

Sewer System: Quantity ofsewage andstorm water, infiltration, runoff calculation,Manning's formulae, partial flow diagram. Design of Sewers, shapes of sewers, factors affecting the design

of sewers. Materials, bend, pipe joints used in sewer systems.

Sewer appurtenances: Manholes, Sub drains, culverts, ditches and gutters, drop inlets and catchbasins roads and pavements, storm overflow/regulators. Intercepting chambers, inspection chambers and their proper location and ventilation of sewers. Laying and testing of sewer. Gradient used in laying of drains and sewers, and respective sizes

Sewage treatment: The process of self-purification Disposal of sewage from isolated building (septic tank, imhoff tank), sewage breakdown. Plumbing definitions and related terms, plumbing systems (one pipe, two pipe; etc), House drainage system and sanitary appliances and traps.

Design considerations on drainage scheme: Preparation of plan, Planning of bathrooms, lavatory blocks and kitchen in domestic and multi-storeyed buildings. Indian standards for sanitary convenience. Model bye laws regarding sanitation of buildings

MODULE III

Materials, Fittings and Appliances for water supply, sanitation, drainage, and fire fighting.

Recommended books:

1. B. C. Punmia; Water Supply andSanitation.
2. S.C. Rangwala, Water Supply and Sanitary Engineering, Charter Publishing House,
   3. Anand 388 601,1989.
3. C.S, Shah; Water supply and Sanitation Engineering.

HISTORY OF ARCHITECTURE I (TIU-UAR-T203)

L – S – P (4 – 0 –0) **Credits-3**

CO	Course Outcomes	K-level
CO1	Understand the evolution of temple architecture in India, including the influence of Vedic and Buddhist architecture, and the development of North and South Indian temple styles.	K2, K3
CO2	Analyze the architectural evolution of Southern Indian temples, including Dravida, Vesara, and Hoysala architecture, with detailed studies of key dynastic contributions.	K4, K5
CO3	Evaluate the development of Northern Indian temples and Jain temples, focusing on the principles of design, iconography, and notable examples like the Dilwara Temple.	K5, K6
CO4	Understand the evolution of Islamic architecture in India, including Sultani architecture, mosque and tomb design, and the terminology associated with Islamic architectural components.	K2, K3
CO5	Analyze the development of mosques and tombs under various Islamic dynasties (Slave, Khilji, Tughlaq, etc.), and study examples like the Tomb of Sher Shah.	K4, K5
CO6	Examine the architectural contributions of the Mughal Empire, including the sandstone phase (Babar & Humayun) and the marble phase (Shahjahan), with case studies like the Taj Mahal and Red Fort.	K5, K6

MODULE I

Evolution of Temple Architecture in India: Introduction - Earliest Temples of India**:** Influence of Vedic and Buddhist Architecture on temple design – basic functions and forms – nomenclature - Study of Gupta Temples - development of two main styles: South Indian (Dravida and Vesara Temples) and North Indian (Nagara Temples)

MODULE II

Temple Architecture of Southern India: Evolution of Dravidan Temples - basic principles of forms and functions – superstructure -iconography – relevant nomenclatures - temple development under Chalukya, Pallava, Chola, Pandya, Vijaynagar and Nayaka dynasties with examples\ Development of Vesara Temples – HoysalaArchitecture

MODULE III

Temple Architecture of Northern India: Introduction to evolution of North Indian i.e. Nagara / Indo Aryan style – basic principles of forms and functions – superstructural uniqueness - iconography – temple development under Orissa, Khajuraho, Bengal and Gujarat group with examples Development of Jain Temple – principles of design – iconography - Study of the Dilwara Temple, MountAbu

MODULE IV

Evolution of Islamic Architecture in India: Introduction – **Sultani Architecture:** Introduction to Islamic Architecture in India – Vocabulary and Principles – Religious and Secular Structures – Essential of a typical Indian mosque – Components of a typical tomb building – relevant nomenclatures like squinch, arch, domes, maqsurah, sahn, liwan, mihrab, qibla etc-

MODULE V

Development of Mosques and Tombs under Slave, Khilji, Tughlaq, Sayyid and Lodi dynasties – principles of design – scale – fusion elements – site planning – relevant nomenclatures - **Tomb of Sher Shah** – design principles – scale – iconography – site planning

MODULE VI

Introduction to the provincial styles of Islamic Architecture in India Islamic Architecture in Bengal – design principles – scale and proportion – fusion elements – drop arches, cross vault, bow-roof - examples

MODULE VII

Mughal Architecture: Earlier Sandstone Phase**:** Babar & Humayun: Beginning of garden tomb – ex. Humayun's Tomb — Akbar: assimilation of traditional Indian and Islamic style - red sandstone with insertion of marble – trabeated construction system with tudor arch – study of Fatehpur Sikri Later Marble Phase: Jahangir: Formal Mughal Gardens in Kashmir – marble structure – human scale – pietra dura and opus sectile work – ex. Tomb of Itmad-Ud- Daulla, Agra — Shahjahan: Age of marble – dome assuming Persian bulbous form constricted at neck – use of optical illusion – study of Taj Mahal, Agra and Red Fort, Delhi.

Recommended Books:

1. Indian Architecture Vol. 1 (Buddhist & Hindu) / Percy Brown / D.B. Taraporevala Sons & Co. Pvt. Ltd.
2. Indian Architecture Vol. 2 (Islamic Period) / Percy Brown / D.B. Taraporevala Sons & Co. Pvt. Ltd.
3. Islamic Architecture in India / Satish Grover / Galgotia Publishing Company, NewDelhi
4. Buddhist and Hindu Architecture in India / Satish Grover /CBS
5. A History of Architecture / Sir Banister Fletcher / Butterworth Heinemann (Hb), CBS(Pb)
6. The Great Ages of World Architecture / G. H. Hiraskar / DhanpatRai
7. A World History of Architecture / Marian Moffett, Michael Fazio & Lawrence Wodehouse / McGraw-Hill

CLIMATOLOGY (TIU-UAR-T205)

L – S – P (2 – 0 –0) **Credits-2**

CO	Course Outcomes	K-level
CO1	Understand the elements of climate, tropical climate classification, and the concept of climate-balanced architecture.	K2, K3
CO2	Analyze the climatic factors that affect building design, including solar radiation, temperature, humidity, wind, and the importance of building orientation in different climatic zones.	K4, K5
CO3	Understand the desirable conditions for comfort in the built environment, including ventilation requirements, comfort zones, and bio-climatic charts.	K2, K3
CO4	Apply principles of thermal design, including heat exchange processes, solar gain factors, and calculation of heat loss and gain through building materials.	K3, K4
CO5	Design natural ventilation strategies, focusing on cross-ventilation, opening sizes, and humidity control to maintain a comfortable indoor environment.	K5, K6
CO6	Design thermal control strategies using structural controls such as shading devices, solar control, and the effects of the sun's position on buildings.	K5, K6

MODULE I

Introduction

Climate andWeather-Elements ofClimate-Classification of tropical climates-Climate balanced Architecture

MODULE II

Comfortable Built Environment: Orientation of Buildings

Basic climatic zones: hot & arid, hot / warm &humid,cold-Climatic factors: solar radiation & temperature, clouds, relativehumidity-prevailing wind; measuring instruments and siunits

Features of dwellings in tropics: aspects of day lighting, plantation oftrees.

MODULE III

Comfort: The Desirable Conditions

Requirement ofventilation-Heat balance of body-Sun path diagram — comfort zone & bio-climatic chart — comfort range-Air change per hour — recommended values of air changes for different occupancies as per the NBC-Methods ofventilation

MODULE IV

Principles of Thermal Design

Thermal quantities – Heat flow, heat flow rate, density of heat flow rate—
Sol-air temperature — Solar gainfactor
Heat Exchange Process: Conduction – Convection – Radiation through windows- Evaporation — Calculation of heat loss & heat gain — Cooling & heating by air — Transmittance of Composite Walls, ThermalGradient

MODULE V

Means of Thermal Control: Natural Ventilation

Principle of nature ventilation in buildings- Cross-ventilation — position of openings – size of openings — control of openings: sashes, canopies, louvers wind shadow — humidity control: wind scoop

MODULE VI

Means of Thermal Control: Structural Controls
Solar control: internal blinds & curtains – heat absorbingglasses
Sun's position: effects of angle of incidence – stereographic projection – shadow angles
Shading devices: vertical & horizontal – design of shadingdevices

MODULE VII

Principles of Lighting

Aims of good lighting and realization of thesame
Planning the brightness pattern considering the visual task, the immediate background of the task (central field & visual field) and thegeneral
Surroundings (peripheralfield)
Glare: direct, reflected &veiling
Recommended values of illumination level for different occupancies as per the NBC.

MODULE VIII

Daylighting

Sources of light of a point inside a building: skylight, externally reflected light, internally reflected light, direct sunlight — working plane — Daylight factor — components of daylight factor: sc, erc, irc — daylight penetration

Recommended Books:

1. Narashimhan; An Introduction to BuildingPhysics.
2. O.H. Koenigsberger and others, Manual of Tropical Housing and Building – Part I – Climatic Design, Longmans ,1980.
3. M.Evans- Houising Climate & Comfort – Architectural Press, Londan,1980.
4. B. Givoni, Man, Climate and Architecture, Applied Science, Banking Essex,1992.
5. Donald Watson and Kenneth Labs; Climatic Design – McGraw Hill Book Company – New Yark –1983

LANDSCAPING & SITE PLANNING (TIU-UAR-T207)

L – S – P (2 – 0 –0) Credits-2

CO	Course Outcomes	K-level
CO1	Understand the role of landscaping and landscape architecture in architecture, and the social and cultural dimensions of landscape.	K2, K3
CO2	Analyze the evolution of garden patterns and landscape design, with a focus on Eastern, Central, Western traditions, and colonial influences, and their impact on architecture.	K4, K5
CO3	Apply guidelines for landscaping specific areas such as residential, commercial, recreational, and public spaces, and understand the use of natural and man-made landscaping elements.	K3, K4
CO4	Design and evaluate site plans, incorporating natural elements like trees, shrubs, rocks, and water features, as well as man-made elements such as paving, outdoor furniture, and sculptures.	K5, K6
CO5	Understand and apply site planning principles, including site surveys, inventory, documentation, and grading for efficient road alignment and surface drainage systems.	K3, K4
CO6	Design and analyze earthworks, surface drainage systems, and catchment areas, calculating surface runoff and discharge rates in site planning.	K5, K6

MODULE I

Introduction:

Definition of Landscaping — Appreciation of scale in terms of garden, landscape and nature.

Role of landscaping and landscape architect in architecture — Evolution of Landscaping— Elements of landscaping: Natural & Man-made- An introduction to social and cultural dimensions oflandscape.

MODULE II

Evolution of Garden Patterns:

An outline of the chronology of development and evolution of landscape and garden design in relation to architecture and city planning from the earliest period to the presentday.

Development of landscape design and gardens till the early 19th century: Detailed study of selected examples from Eastern, Central and Westerntraditions.

Influences and linkages across cultures and traditions, e.g Chinese tradition and the English Landscape style, influence of Persian traditions towards the West andEast.

Colonial landscape development inIndia

Ancient Indian traditions; siting of structures, complexes and cities; traditional landscapes such as ghats, gardens, kunds, sacred groves etc. The comparative analysis of examples of landscape designs: siting, relationship to surroundings, use of landscape elements, function, scale, symbolism, etc. Illustrative range of examples from various geographic locations and periods, highlighting aspects of Form, Space andOrder.

MODULE III

Guidelines for Landscaping of Specific Areas:

Residential: Individual and group of buildings; Commercial: Shopping Mall; Recreational: Parks and Play Areas; Public Spaces: Plaza, Precinct andSquares

Natural Elements of Landscaping: Rock & Landform — Water —Plants:

Different types of trees, shrubs, ground covers & climbers with their characteristics mentioning the basis of their selection for differentpurposes

Manmade Elements of Landscaping: Materials, construction details and maintenance of the

following manmade elements of landscaping—
Paving: Hard and soft – Layout for formal and informal paving – Different kinds of paving materials: soil, stabilized *murrum*, brick & stone etc.
Outdoor Furniture – Outdoor Light Fixtures – Signage & Signboard – Sculpture –Fences
Artificial Rock – ArtificialWaterfall

MODULE IV

Site Planning:

Site planning process and its significance; establishing relationship between site characteristics and design requirements. Inventory, documentation and site planning checklist.
Site Survey and Appraisal; topographic surveys and their methodology, visualising landforms. Understanding contours and their characteristics, graphical representation, deriving contours by interpolation.

Earth form Grading; symbols and annotations, basic grading principles, grading terraces, grading of roads across/along contours, Basics of road alignment (horizontal and vertical).
Surface Drainage: Site planning for efficient drainage; understanding drainage pattern and watershed area, calculation of surface runoff, determination of catchments area and discharge rate; types of drainage systems
Earthworks cut and fill processes, volume computations.

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 / Lliffee,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
9. Sylvia Crowe Sheila Haywood, The Gardens of Mughal India, Vikas PublishingHouse
10. Testsuro Yoshida, Gardens of Japan, Jr. Marcus G. Sims,1963
11. John O. Simonds – Earthscape, mcgraw Hill Book Co., NewYork

SURVEY & LEVELLING (TIU-UCE-L205)

L – S – P (2 – 0 –2) **Credits-2**

CO	Course Outcomes	K-level Range
CO1	Understand the various types of surveys, including chaining, taping, angle measurements, and the corrections involved in these processes.	K2, K3
CO2	Apply principles of chain surveying, including methods of linear measurement, instrument usage, and plotting survey data.	K3, K4
CO3	Conduct compass surveys using a prismatic compass, and perform chain and compass traversing and plotting of the compass traverse.	K3, K4
CO4	Understand and apply the plane table survey method, including identifying and correcting errors in plane tabling.	K3, K4
CO5	Apply leveling techniques, including the adjustment of dumpy levels, reciprocal leveling, and profile leveling for accurate measurement.	K3, K4
CO6	Analyze and interpret contour maps by performing contouring and interpolation, understanding their importance in site planning and design.	K4, K5

MODULE I

Introduction: Types of Surveys, Chaining, Taping, Corrections, Angle and Direction Measurements.

MODULE II

Chain surveying: Principles, Methods of linear measurement; Instruments for Chaining; Chaining over uneven ground; Chaining tape corrections including sag corrections; Chain triangulation; Selection of stations, locating ground features; Plotting of chain survey' determination of area by chain survey, setting out of a building

MODULE III

Compass survey: Use of prismatic compass; Chain and Compass traversing, Plotting compass traverse

MODULE IV

Plane table survey: Introduction and method; Errors in plane tabling 3

MODULE V

Leveling: Adjustment of dumpy level; Reciprocal leveling and profile leveling; Countering and interpolation of contour maps

Recommended books:

1. B. C. Punmia; SURVEYING VolumeI

COMPUTER APPLICATION III (CAD 3D) (TIU-UAR-L201)

L – S – P (0 – 0 –2) **Credits-2**

CO	Course Outcomes	K-level
CO1	Understand the basic 3D operations, including the development of regions, polylines, and generation of surfaces and solids.	K2, K3
CO2	Apply 3D operations such as union, subtraction, and intersection, along with rotating, mirroring, and arraying objects in AutoCAD.	K3, K4
CO3	Utilize UCS operations, 3D viewports, and pan/zoom to generate different 3D views, understanding the advantages of wireframe, hide, and shade modes.	K3, K4
CO4	Create and render 3D objects and architectural drawings, applying material attachment and rendering techniques using AutoCAD and Photoshop.	K5, K6
CO5	Develop perspective views and adjust camera settings, including window orbit and rendering with backgrounds and foregrounds.	K3, K4
CO6	Explore 3ds Max for material attachment, light focusing, different views, and rendering, applying these techniques to previous exercises.	K3, K4

MODULE I

Creation of simple Architectural elements, Building Drawings in2D, Composition of DrawingSheets, Practice and preparation of 2D documentations based on class projects in the previous, semester in ArchitecturalDesigns, Details of task to be determined each semester by the individualInstructor.

MODULE II

Basic operations of3-D, Development of regions, polylines, Generation of surfaces and solids, 3-D operation: Union, Subtraction and Intersection; 3-D operation: Rotate, Mirror and Array;Operations in3-D, Solidsediting;,UCSoperation;Working with 3-D Viewports and 3-D Pan/Zoom to generate differentviews.Implications and advantage of 3-D wireframe, Hide, Shade etc. in generating 3-D views, Making of perspective views, adjustment of Camera, window orbitetc.Material Attachment andRendering.
Exercise 1: Drawing of simple 3-Dobjects
Exercise 2: Drawing 3-D of a building.

MODULE III

Introductionto3DSMax,Materialattachment,Lightfocusing,Differentviews,Rendering with Background and Foreground. [Application to the previousexercise], Material Attachment and Rendering.Final rendering in Photoshop.

Recommended books:

1. AutoCADManual
2. AutoCAD CommandReference
3. Introduction to 3DSMax

EDUCATIONAL TOUR (TIU-UAR-L203)

L – S – P (0 – 0 –0) **Credits-2**

CO	Course Outcomes	K-level
CO1	Understand the process of documenting historic buildings, landscapes, and interiors through mapping, hand-sketching, and preparing measured drawings.	K2, K3
CO2	Apply report writing skills to prepare a comprehensive report on the educational tour, including the itinerary, places visited, and the architectural significance of monuments.	K3, K4
CO3	Analyze and document the history, architectural styles, structural systems, and special features of the visited sites.	K4, K5
CO4	Document the social, economic, and cultural aspects of the region, including traditions, flora, fauna, and urban landscape features.	K4, K5
CO5	Develop measured drawings and renderings of the structures visited, ensuring proper documentation techniques are followed for presentation.	K5, K6
CO6	Present findings through a seminar, demonstrating the ability to verbally communicate architectural observations and design insights.	K5, K6

Objective:

To develop skills in architectural observation, documentation, and reporting through the study of historic buildings, landscapes, and interiors during a guided educational tour.

Tour Duration:

7–10 days

Activities:

Site visits to historic precincts and monuments
On-site sketching, mapping, photography, and measured drawings
Study of architectural styles, structural systems, and cultural contexts

Interaction with local environment, communities, and urban settings

Post-Tour Requirements:
Students will prepare a detailed report that includes:
Tour summary: itinerary, places visited, and participant details
Architectural descriptions: history, style, condition, structure, and critique
Socio-cultural and environmental observations
Reflections: key learnings, unresolved questions, and conclusions

Measured Drawing Presentation:
Students will submit hand-drafted and rendered measured drawings, demonstrating accurate documentation techniques.

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

ARCHITECTURAL DESIGN II (TIU-UAR-S201)

L – S – P (0 – 6 –0) **Credits-6**

CO	Course Outcomes	K-level
CO1	Analyze the design of small residential buildings or guest houses by using space proximity studies, proximity charts, and bubble diagrams for spatial arrangements.	K4, K5
CO2	Apply flow charts to analyze the movement from one space to another, improving the functionality and flow of spaces in a building design.	K3, K4
CO3	Understand the interpretation of climatic data and apply it to formulate appropriate design approaches for low-rise buildings.	K2, K3
CO4	Design functional spaces for buildings such as clinics, dispensaries, clubs, and cyber cafes, taking into account the specific requirements of each type of building.	K5, K6
CO5	Design spaces for restaurants (both outdoor and indoor), considering user experience, circulation, and environmental factors.	K5, K6
CO6	Design memorials with landscaping, play schools, and crèches, incorporating appropriate site planning, user interaction, and thematic design elements.	K5, K6

Objectives:
Design of Low-rise buildings using certain methods in the design process such as:
1. Analysis of space proximity studies with the help of Proximitycharts
2. Use of Flow charts to analyse movements from space tospace
3. UseofBubblediagramsas_reduceddrawings‘
4. Interpretation of climatic data to formulate designapproaches

MODULE I

Small residential building / guest house

MODULE II

Clinic/ Dispensary/ Club/ Cyber Cafe

MODULE III

Restaurant (both outdoor and indoor)

MODULE IV

Memorial with landscaping/ Play school / Crèche

***Viva voce**

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

Recommended Books:

1. Ching, D.K; From, Space andOrder.
2. A. Peter Fawcett; Architecture DesignNotebook.
3. http://www.scribd.com/doc/45018090/Architecture-Design-Notebook
4. Robin Boyd; Puzzle ofArchitecture
5. National Building Code,BIS
6. Time SaversStandard

DETAILS OF CONSTRUCTION II (TIU-UAR-S203)

L – S – P (2 – 4 –0) **Credits-4**

CO	Course Outcomes	K-level
CO1	Understand the principles and types of foundations, including shallow and deep foundations, and their construction details, including basement and retaining wall details.	K2, K3
CO2	Apply the methods and materials for various types of flooring, including resilient, vibration-resistive, and special flooring materials, with an emphasis on proper installation techniques.	K3, K4
CO3	Understand and apply methods of damp prevention and waterproofing in buildings, including basement damp proofing and flat roof waterproofing.	K3, K4
CO4	Design and detail various roof types, including flat roofs, inclined roofs, and common roof coverings, with emphasis on waterproofing and rainwater gutter details.	K5, K6
CO5	Apply structural and material considerations in spanning openings, including lintels, arches, and corbels, and create detailed masonry openings with appropriate projections.	K3, K4
CO6	Design special doors and windows, including sliding, folding, and automatic doors, with detailed hardware and frame specifications.	K5, K6

Course Objective:

Identify and understand the building construction principles (structures, materials, graphic conventions, technical standards of design).

Identify the various elements of flooring

Develop and understand the different types offoundation

Understand the layout and construction details of different types ofstaircase

Apply the special types of Door Window detailing in buildingapplication

Site visits to be organized to make the students aware of various technical aspects, practical difficulties, onsite decisions which will strengthen the knowledge for handling and executing aproject

MODULE I

FOUNDATION & BASEMENT:

LECTURE CLASSES

Purpose; Essential requirements; Settlement; Classification –Shallow (Wall footings, Inverted arch foundation, Isolated footings, Combined footing, Strip footing, Cantilever footing, Mat or raft foundation) Deep: (Pile foundation, Pier foundation).

SHEETS

Wall foundation, isolated and combined foundation inRCC.

Raft foundation. Parts of pile foundation and its type, GrillageFoundation.
Construction detail of basement wall, Retaining wall, floor and foundation with particular emphasis to their damp proofing protection against rain water and provision for natural lighting andventilation.

MODULE II

FLOORING: STUDIO EXERCISES

1. Types of flooring, methods of laying, furnishing of floors with different floor finishes like cement, colored cement, mosaic, terrazzo, tilesetc.
2. Special consideration for rubber, Linoleum and PVC flooring, Flag Stone Flooring, parquetflooring.
3. Different types of resilient and vibration resistivefloor.

MODULE III

DAMP PREVENTION AND WATER PROOFING: LECTURE CLASSES

Causes and effects of dampness in buildings; Methods of damp prevention - Membrane damp proofing, Integral damp proofing, Surface treatment, Guniting; Damp Proofing of Basement, Foundation & Plinth, Cavity walls, Projections, Expansion/SeismicJoints;
Water proofing treatment - Flat Roofs & Terraces, Parapet Wall (Details of Coping and Drip course), Window Sill &Chajja (Detail of Dripcourse)

MODULE IV

ROOFING: STUDIO EXERCISES

1. Types of roof, Parts of roof and Types of Roof trusses.
2. Flat roof with wood and RCC, simple jack arch, Waterproofing, Rainwater gutter details.
3. Inclined Roof - Common roof covering and its arrangement: tiles, asbestos and metal sheets etc. with fixing and rainwater gutter

MODULE V

SPANNING OF OPENINGS: LECTURE CLASSES

Corbels, Lintels and Arches; Typical detail of a masonry window opening showing sill, lintel &chajja projection; Lintel types by construction methods: Brick lintel, RCC lintel (precast and cast-in-situ); Typical details of an arch opening with nomenclature; Types of Arches - Semi- circular, Segmental, Flat, Relieving archetc.

MODULE VI

SPECIAL DOOR & WINDOW: STUDIO EXERCISES

1. Special doors and windows: One way and both way-swinging door, sliding door (manual and automatic), folding, revolving, collapsible and rolling door with hardware details.
2. Window and Ventilator with Aluminumframe.

MODULE VII

STAIRS: LECTURE CLASSES

Components and requirements; Classification based on form, structural systems, materials; Typical construction details such as balustrade fixing, nosing, etc.

MODULE VIII

UPPER FLOORS: LECTURE CLASSES

Timber Floor; Jack arch floor; RCC Floor - Slab (one-way, two-way & cantilever), Beam & slab, Flat Slab, Ribbed floor; Pre-cast concrete floors; Steel Floor with joist and deck-plate.

MODULE IX

STAIRCASE: STUDIO EXERCISES

1. Different elements of staircase, Relation between Tread and Riser, Types of staircase
2. Construction Details of a concrete staircase, balustrade and handrail detail

***SITE VISIT:**

At least one visit to be paid to the construction site covering various sequences of construction and a report to be submitted by individual students as a part of the sessional work.

Recommended Books:

1. Building Construction - W.B. Mc. Kay Vol. 1-4
2. The Construction of Building 2 -Barry
3. Building Construction Illustrated - Francis D.K. Ching Van NostrandReinhold
4. Construction Technology - R. Chudly Vol. 1-4
5. Materials - Mitchell`s Building Construction – Alan Everett - B.T. BatsfordLtd
6. Components and Finishing - Mitchell`s Building Construction - Alan Everett - B.T. BatsfordLtd
7. Construction for Interior Designers - RolandAshcroft
8. Building ConstructionDictionary
9. B. C. Punmia; Building Materials and Construction .Laxmi Publications Pvt Ltd, New Delhi,1993.
10. Bindra & Arora; Building Materials andConstruction
11. Francis D. K. Ching, Building Construction Illustrated VNR,1975

CAREER ADVANCEMENT & SKILL DEVELOPMENT (AR) (TIU-UEA-S297)

L – S – P (0 – 2 –0) Credits-2

COURSE OUTCOME:

On completion of the course, the student will be able to:

CO	Course Outcomes	K-level
CO1	Recognize and use common French greetings and expressions.	K1
CO2	Memorize and repeat simple sentences using regular verbs and basic vocabulary.	K1
CO3	Understand and respond to basic questions about personal identity.	K2
CO4	Identify and explain short passages related to daily life.	K2
CO5	Construct short texts such as self-introductions and informal messages.	K3
CO6	Arrange isolated sentences and questions to engage in simple spoken exchanges in a variety of familiar contexts.	K4

COURSE OBJECTIVE:

Enable the student to:

1. Acquire basic communication skills in French.
2. Develop listening, speaking, reading, and writing abilities at a beginner level.
3. Understand and use simple grammatical structures and everyday vocabulary.
4. Engage in basic conversations in French related to common situations.

COURSE CONTENT:

MODULE 1:
INTRODUCTION TO FRENCH LANGUAGE
- The French alphabet and pronunciation
- Greetings and introductions
- Numbers and basic expressions of time

MODULE 2:
IDENTITY AND PERSONAL INFORMATION
- Talking about oneself and others
- Nationalities, professions, and family
- Using "être" and "avoir" verbs

MODULE 3:
EVERYDAY INTERACTIONS
- Asking for and giving personal details
- Talking about preferences and habits
- Introduction to regular -ER verbs

MODULE 4:
- Ordering at a café or restaurant
- Asking for directions
- Using "aller" and "faire" verbs

MODULE 5:
DESCRIBING DAILY LIFE
- Talking about routines and leisure activities
- Expressing likes and dislikes
- Introduction to present tense conjugation

COURSE PLANNING

4TH SEMESTER

(SYLLABUS AFTER 2023)

Course Code	Course Title	ContactHrs./ Week			Credit
		L	S	P	
Theory					
TIU-UCE-T210	Theory of Structure II (AR)	4	0	0	2
TIU-UEE-T212	Building Services (Electrical & lighting) (AR)	2	0	0	2
TIU-UAR-T202	History of Architecture II	3	0	0	3
Practical					
TIU-UAR-L202	Computer Application IV (CAD 3D)	0	0	3	2
TIU-UAR-L204	Site Exposure	0	0	2	1
Sessional					
TIU-UAR-S202	Details of Construction III	2	6	0	4
TIU-UAR-S204	Landscape Practice	0	6	0	4
TIU-UAR-S206	Architectural Design III	0	8	0	8
TIU-UEN-S298	Career Advancement Skill Development (AR)	0	2	0	2
Institute Programme					
TIU-UES-S298	Entrepreneurship Skill Development (AR)	0	0	0	2
Total Credits					**30**

THEORY OF STRUCTURE II (TIU-UCE-T210)

L – S – P (4 – 0 –0) **Credits-2**

CO	Course Outcomes	K-level
CO1	Understand the fundamental principles of steel structures, including permissible stresses and the design of truss members, riveted, and welded connections.	K2, K3
CO2	Apply knowledge of built-up beams and columns, including the design of base plates, gusset plates, concrete footings, and grillage foundations.	K3, K4
CO3	Analyze and design reinforced concrete elements such as beams (rectangular, T, L-shaped), slabs, and columns under permissible stresses.	K4, K5
CO4	Design double reinforced beams, cantilever beams, and distribution of base pressures in reinforced concrete structures.	K3, K4
CO5	Design simple structural components such as lintels, chajjas, and isolated footings, and understand the middle third rule and earth pressure distribution.	K3, K4

CO6	Design retaining walls, including cantilever and simple retaining walls, while considering structural principles and safety requirements.	K5, K6

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 andChajjas
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-HillInternational.
2. S. Ramamurtham; Theory of Structures, DanpatRaiPublication.
3. S.S.Bhavikatti ;StructuralAnalysis (Vol-I),Vikash Publishing HousePvt.Ltd.
4. S.S.Bhavikatti ;StructuralAnalysis (Vol-II), Vikash Publishing HousePvt.Ltd.
5. B.G.Neal ,The Plastic Method of Structural Analysis, Chapman and HallLtd.
6. B.C. Punmia, Strength of Material and Theory of Structures (Vol-II), LaxmiPublication.

BUILDING SERVICES-ELECTRICAL & LIGHTING (TIU-UEE-T212)

L – S – P (2 – 0 – 0) **Credits-2**

CO	Course Outcomes	K-level
CO1	Understand the fundamentals of electricity, current, voltage, and the distribution of electric power in towns, cities, and households.	K2, K3
CO2	Analyze the components of a building wiring system, including feeders, panel boards, circuit breakers, fuses, switches, and electrical symbols.	K4, K5
CO3	Design electrical installations from the meter board to individual points, including wiring systems, distribution boards, and material specifications.	K5, K6
CO4	Apply knowledge of lighting and electrical fixtures, accessories, and schematic layouts for different types of buildings.	K3, K4
CO5	Evaluate artificial lighting sources and their characteristics, such as incandescent, fluorescent, LED, and HID lamps, and calculate illumination requirements.	K5, K6
CO6	Design lighting systems for various building types, including residential units, offices, galleries, parks, and road/area lighting, considering glare control and illumination standards.	K5, K6

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; Earthling agreements; Lightingconductors

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 ofutilization.

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:

1. Derek Philips; Lighting in ArchitecturalDesign.
2. G.K.Lal, Elements of Lighting, 3-DPublishers.
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 – QuarterlyJournal

HISTORY OF ARCHITECTURE II (TIU-UAR-T202)

L – S – P (3 – 0 –0) **Credits-3**

CO	DESCRIPTION	K-level
CO1	Understand the architectural principles of Classical Greece, including the democratic city-state layout, columnar architecture, and the study of the Parthenon and Acropolis.	K2, K3
CO2	Analyze the monumental scale and architectural features of Classical Rome, including the use of new materials, arcuated architecture, and the study of the Pantheon and Roman temples.	K4, K5
CO3	Evaluate Early Christian architecture, focusing on the expression of Christian ethos through basilican churches and a detailed study of St. Peter's Basilica.	K5, K6
CO4	Understand Byzantine architecture, including the Greek Cross plan, pendentives, and the radiant interior, with a detailed study of the Hagia Sophia.	K2, K3
CO5	Analyze Romanesque architecture, including the consolidation of the Papal hierarchy and the development of stone vaulting, with a detailed study of the Pisa Cathedral.	K4, K5
CO6	Examine Gothic and Renaissance architecture, focusing on the use of pointed arches, flying buttresses, and Baroque spatial invention, with a detailed study of the Notre Dame and St. Peter's Cathedral.	K4, K5

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 withemphasis

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)/ ButterworthHeinemann
2. (Hb), CBS Publishers &Distributors(Pb)
3. The Story of Architecture from antiquity to the present/ Jan Gympel / Könemann (Pb)—
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/ CaxtonEditions
8. The Great Ages of World Architecture/ G. H. Hiraskar/ DhanpatRai

COMPUTER APPLICATION IV (CAD 3D) (TIU-UAR-L202)

L – S – P (0 – 0 –3) **Credits-2**

CO	Course Outcomes	K-level
CO1	Understand the principles and functions of SketchUp as a 3D modeling tool, and apply it to architectural design.	K2, K3
CO2	Apply rendering techniques in SketchUp to create realistic 3D models and visualizations of architectural projects.	K3, K4
CO3	Create and submit architectural projects in SketchUp, demonstrating the ability to model and visualize designs effectively.	K5, K6
CO4	Apply Photoshop rendering techniques to enhance 3D models created in SketchUp, improving the presentation of architectural designs.	K3, K4
CO5	Explore and understand the functionalities of 3ds Max and Architectural Revit, learning how to integrate these tools into architectural project workflows.	K2, K3
CO6	Submit completed architectural projects using Architectural Revit, demonstrating knowledge of the software's capabilities for building design and documentation.	K5, K6

a. Introduction toSKETCHUP
b. Rendering inSketchup
c. Project Submission inSketchup

d. Rendering inPhotoshop
e. Introduction to other required softwares like 3D MAX and ArchitecturalRevit
f. Project Submission in ArchitecturalRevit

SITE EXPOSURE (TIU-UAR-L204)

L – S – P (0 – 0 –2) **Credits-1**

CO	Course Outcomes	K-level
CO1	Understand the process of site exposure and its importance in architectural education.	K2, K3
CO2	Apply observation skills during site visits to assess the spatial organization and functionality of residential buildings.	K3, K4
CO3	Analyze industrial sites, focusing on their architectural layout, materials, and construction methods.	K4, K5
CO4	Apply critical thinking to commercial sites, evaluating factors such as accessibility, site planning, and environmental considerations.	K3, K4
CO5	Document site observations through detailed reports, showcasing an understanding of the site context and design implications.	K5, K6
CO6	Present findings from site visits, synthesizing information gathered from residential, industrial, and commercial sites.	K5, K6

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

DETAILS OF CONSTRUCTION III (TIU-UAR-S202)

L – S – P (2 – 6 –0) **Credits-4**

CO	Course Outcomes	K-level
CO1	Understand the types, nomenclature, and construction details of pitched roofs, including materials, roof drainage systems, and various trusses.	K2, K3
CO2	Apply knowledge of different finishes, including flooring, wall finishes, and cladding, and their detailed construction methods.	K3, K4
CO3	Analyze and design partition walls, screen walls, and structural glazing, understanding their construction and functional purposes.	K4, K5
CO4	Apply construction techniques for false ceilings, including details for suspended ceilings, understanding their function and construction methods.	K3, K4

CO5	Understand the properties and applications of thermal and acoustic materials in construction, applying them effectively in building designs.	K2, K3
CO6	Prepare municipal drawings in compliance with local bye-laws, demonstrating knowledge of regulatory requirements and appropriate drawing standards.	K5, K6

LECTURE CLASSES

MODULE I

Pitched Roofs: Nomenclature, Types - Lean-to-roof ,Coupledroof , 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

WallCladding

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, OrientLongman
2. Varghese P.C., 2005 Building Materials, Prentice' Hall of India PrivateLimited
3. Sharma S.K., 2000 A Text Book Of Building Construction, S.Chand&CompanyLimited
4. Kumar Sushil, 2000 Building Construction, Standard PublishersDistributors
5. Arora S.P., Bindra S.P., 2000 A Text Book Of Building Construction (Planning Techniques And Methods Of Construction), DhanpatRaiPublications
6. Duggal S.K., 2003, Building Materials, New Age InternationalPublishers

LANDSCAPE PRACTICE (TIU-UAR-S204)

L – S – P (0 – 6 –0) **Credits-4**

CO	Course Outcomes	K-level
CO1	Understand the principles and elements of landscaping for residential spaces, including the integration of recreational spaces such as parks and playgrounds.	K2, K3
CO2	Apply knowledge of landscape design to create landscaping schemes for residential spaces, ensuring functionality and aesthetic value.	K3, K4
CO3	Design and create landscaping schemes for commercial and recreational spaces, considering user experience, accessibility, and environmental factors.	K5, K6
CO4	Critically evaluate and select sites for landscaping based on previous designs or external architectural sources.	K4, K5
CO5	Synthesize design principles with practical considerations to create functional and visually pleasing landscapes for residential and commercial spaces.	K5, K6
CO6	Present and communicate landscaping designs effectively, including layout plans, plant selections, materials, and environmental considerations.	K5, K6

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 & HarrisMcGraw-Hill
2. LANDSCAPE ARCHITECT'S PORTABLE HANDBOOK / N. Dines /McGraw-Hill
3. Landscape Architecture / J. O. Simonds / Lliffee,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 ;*Siteplanning* ;MIT Press, Cambridge, MA –1967
9. J. E. Ingels; *Landscaping – Principles andPractice*.
10. P. Walker, Theodre D; *PlantingDesign*

ARCHITECTURAL DESIGN III (TIU-UAR-S206)

L – S – P (0 – 8–0) **Credits- 8**

CO	DESCRIPTION	K-level
CO1	Apply design theory and principles to design low-rise and medium-rise buildings, addressing complex issues such as functional relationships, structural considerations, and site context.	K3, K4
CO2	Design a primary school and a neighborhood shopping center, focusing on spatial organization, functionality, and user experience.	K5, K6
CO3	Design a nursing home and artists' exhibition space, addressing specific user requirements, accessibility, and environmental considerations.	K5, K6
CO4	Analyze and critically evaluate a major building, assessing its design effectiveness, structural integrity, and compliance with functional, environmental, and social considerations.	K4, K5
CO5	Synthesize design elements for functional and aesthetic coherence in buildings with diverse user needs, applying principles of architecture and urban planning.	K5, K6
CO6	Present design projects effectively in the final viva voce, demonstrating comprehensive knowledge of architectural design principles, process, and critical analysis.	K5, K6

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

CAREER ADVANCEMENT SKILL DEVELOPMENT (TIU-UEN-S298)

L – S – P (0 – 2–0) Credits-2

CO1	Recognize and use an expanded range of everyday expressions.	K1
CO2	Understand and respond to conversations involving personal experiences.	K2
CO3	Use the passé composé and imparfait to talk about past events.	K3
CO4	Appraise short narratives, dialogues, and informational texts.	K4
CO5	Compose personal letters and messages.	K5
CO6	Generate and sustain conversations about familiar topics.	K5

COURSE OBJECTIVE:

Enable the student to:

1. Strengthen and expand their communication skills in French.
2. Develop greater fluency in listening, speaking, reading, and writing.
3. Understand and apply more complex grammatical structures and vocabulary.
4. Express ideas in past and future tenses in conversations and written texts.

COURSE OUTCOME:

On completion of the course, the student will be able to:

COURSE CONTENT:

MODULE 1:

EXPRESSING PAST EVENTS
Introduction to passé composé
Using auxiliary verbs "être" and "avoir"
Talking about past experiences

MODULE 2:

DESCRIBING ROUTINES AND HABITS IN THE PAST
Introduction to imparfait
Differences between passé composé and imparfait
Describing past habits and ongoing actions

MODULE 3:

FUTURE PLANS AND INTENTIONS
Expressing future intentions with "aller + infinitive"
Talking about upcoming events and travel plans
Making appointments and invitations

MODULE 4:
SHOPPING, SERVICES, AND TRANSACTIONS
Asking for help and making purchases
Using expressions of quantity and price
Talking about preferences and needs

MODULE 5:
SOCIAL INTERACTIONS AND EVERYDAY SCENARIOS

1. Making polite requests and giving advice
2. Expressing opinions and emotions
3. Writing informal letters and messages

COURSE PLANNING

5TH SEMESTER

(OLD SYLLABUS)

Course Code	Course Title	ContactHrs./ Week			Credit
		L	S	P	
Theory					
TIU-UCE-T311	Design of Structures -I (AR)	3	0	0	3
TIU-UAR-T305	Mechanical Services (AR)	2	0	0	2
TIU-UAR-T301	Contemporary Architecture I	3	0	0	3
TIU-UAR-T303	Estimation & Specification	2	0	0	2
Practical					
TIU-UAR-L301	Estimation Practice	0	0	3	2
TIU-UAR-L303	Educational Tour	0	0	0	2
TIU-UAR-E301	Architectural Journalism & Photography (Elective I)	0	0	2	1
TIU-UAR-E303	Film/Theatre SetDesigning (Elective I)	0	0	2	1
Sessional					
TIU-UAR-S301	Architectural Design - IV	0	12	0	8
TIU-UAR-S303	Working Drawing - I	2	8	0	4
TIU-UEA-S301	Career Advancement & Skill Development (AR)	0	3	0	3
Institute Programme					
TIU-UES-S399	Entrepreneurship Skill Development (AR)	0	0	0	2
Total Credits					**32**

DESIGN OF STRUCTURES-I (TIU-UCE-311)

L – S – P (3 – 0 –0) **Credits-3**

CO	Course Outcomes	K-level
CO1	Understand the composition, properties, and behavior of concrete, including strength, durability, modulus of rupture, creep, shrinkage, and the types of reinforcing bars.	K2, K3
CO2	Learn the concepts of nominal mix and design mix, along with design philosophies like the Working Stress and Limit State Methods, and various limit states in concrete design.	K2, K3
CO3	Study the design of singly reinforced, doubly reinforced, and T-beams for flexure using Limit State Methods, and apply IS-code provisions to solve numerical problems.	K3, K4
CO4	Understand shear failure, shear reinforcement, bond, and anchorage, and design beams considering both flexural and shear forces, with reinforcement detailing.	K3, K4
CO5	Learn the design of short and long columns, including axial compression and bi-	K3, K4

	axial bending, using IS-code provisions and interaction diagrams for reinforcement detailing.	
CO6	Study the design of isolated footings for rectangular and circular columns, focusing on reinforcement detailing and solving numerical problems.	K3, K4

Course Objective:

To classify various types of RCC material depending upon the strength and durability parameter
To design a beam for a given system of loading and structural geometry, for flexure and shear
To design a slab for given building floor for different end support conditions
To design a column for given axial load andmoments
To design a dogleg staircase for given stair well space in residential or public building
To outline the features of IS code provisions regarding limit state method for designing concrete structure
To summaries the conceptual idea behind the development of pre-stressed structural component for general use

MODULE I

Basic Material Properties & Design Concept

Introduction to Concrete Technology, Composition of Concrete and the properties, Strength and Durability, Modulus of Rupture, Creep and Shrinkage of Concrete, Reinforcing Bars, Types and grade, Stress-Strain Diagram of Steel and Concrete. Concrete Mix Design: Nominal Mix and Design Mix. Design Philosophies, Working Stress Method, Limit State Method, Various Limit States.

MODULE II

Design for Flexure

Introduction, assumption, flexure design of singly reinforced & doubly reinforced and T- beams by Limit State Methods. IS-Coded provisions, Numerical Problems.

MODULE III

Design for Shear, Bond

Shear failure of beams. Shear reinforcement, Curtailment of reinforcement. Bond, Anchorage and Development length, IS-Code provisions, Design of a beam with flexural and shear consideration. Reinforcement Detailing, Numerical Problems.

MODULE IV

Design of Compression Members

Short and Long Columns, IS-Code Provisions, Design of Short Columns under Axial compression, Design of Columns under bi-axial bending, use of interaction diagram for design. Lateral ties. Reinforcement Detailing, Numerical Problems.

MODULE V

Design of Footing

Isolated footings for rectangular and circular columns. Reinforcement Detailing, Numerical Problems.

MODULE VI

Design of Slabs & Stairs

Effective span, one way and two way slabs. Design of Slabs with various boundary conditions by IS-Code methods. Reinforcement Detailing, Numerical Problems. Types of stairs, Design of Dog Legged & Open Wall Stairs. Reinforcement Detailing, Numerical Problems.

MODULE VII

Introduction to Pre-stressed Concrete

Introduction to Pre-stressed Concrete, Pre and Post tensioning systems, Advantages, Basic design concept of Pre-stressed concrete beam, Analysis of prestress and bending stress, Resultant Stress, Thrust Line, Concept of Load balancing, Various losses of stresses. Simple Numerical Problems

IS Codes:

1. IS 465: 2000.
2. SP-16
3. SP-34

Note:

- *All the Design of Concrete Structural Elements must be based on "Limit State Method"*
- *Students are allowed to bring IS 465: 2000 and SP-16 in the examination hall for referring the designsolutions.*

Recommended Books:

1. B. C. Punmia; *Reinforced concrete structure (Vol -I)*.
2. S. Unnikrishna Pillai & Devdas Menon; *Reinforcement Concrete Design, Tata McGraw Hill, New*
3. *Delhi.*
4. N.Krishna Raju; *Structural Design and Drawing, Reinforced Concrete and Steel, University Press*
5. *(India)Ltd.*
6. Mallick and Gupta; *ReinforcedConcrete*.
7. P.C.Varghese; *Limit State Design of Reinforced ConcreteStructures*.
8. James R. Libby, *Prestressed Concrete Design and Construction*, *The Ronald Press Company.*
9. N.Krishna Raju; *Prestressed Concrete*, *Tata McGraw Hill, NewDelhi*.

MECHANICAL SERVICES (TIU-UAR-T305)

L – S – P (2 – 0 –0) Credits-2

CO	Course Outcomes	K-level
CO1	Understand the role of an architect in integrating mechanical services, their impact on space planning, architectural design, high-rise buildings, construction cost, and global environment.	K2, K3
CO2	Study the standard requirements for mechanical ventilation in various building types and learn to control the quality, quantity, temperature, and humidity of air for comfort.	K3, K4
CO3	Learn the principles of psychrometry, including air conditioning systems for different climates, and apply psychometric charts for cooling and heating systems.	K3, K4
CO4	Understand different types of air conditioning systems and learn how to calculate cooling loads.	K3, K4
CO5	Study the major air conditioning equipment, their characteristics, and optimal placement within buildings, along with considerations for reducing heat gain and designing economic air supply and return ducts.	K3, K4
CO6	Explore the design and demand for vertical transportation systems, including lifts and escalators, and understand their functioning, automatic control systems, and detailed planning.	K3, K4

Objectives:

To differentiate between Natural Ventilation and MechanicalVentilation.

To identify the factors responsible for comfortconditions.
To define the different PsychrometricProcesses.
To identify the factors responsible for cooling loadcalculation.
To classify different types of Air Conditioning systems and their suitability for different psychrometricconditions.
To identify different Air Conditioning equipments and their suitable location inbuildings.
To explain the function of mechanical equipments for vertical transportation (elevators and escalators forbuildings).
To explain the different fire fighting methods to be adopted inbuildings.
To plan buildings as per the fire safetynorms.

MODULE I

Introduction –
Mechanical Services required inBuildings
Role of an Architect regarding mechanicalServices.
The scope and impact of Mechanical system- Impact of spaceplanning
Impact on ArchitecturalDesign
Impact on High riseBldg
Impact on constructioncost
Impact on Globalenvironment

MODULE II

Mechanical Ventilation –
Standard requirements of ventilation for different conditions of living andworks.
Conditions forcomfort
Control of quality, quantity, temperature and humidity ofair.

MODULE III

Psychrometry-
Introduction, meaning of air conditioning, different psychometric properties, psychrometric processes, Psychometric chart & its application summer air conditioning system, winter air conditioning system, year-round air-conditioning system

MODULE IV

Principles of refrigeration & Air -Conditioning
Different types ofAir-Conditioning.
Cooling loadCalculation

MODULE V

Air Conditioning Equipments -
Major equipment used in Air conditioning - their characteristics & suitable place for location, consideration for reduction of heat gain and economic layout of supply and return airducts.
SchematicdrawingsshowingtheAirconditioningsystemofanofficebuilding, hotel, auditoriumetc.

MODULE VI

Mechanical Equipments for vertical transportation – Building design and vertical transportation, Demand for vertical transportation
Lift and Escalators: types, uses, functioning, automatic controlsystem.
Plans & sections to explain different parts of lifts andescalators.

Planning for verticaltransportation

MODULE VII

Fire Safety
Role and Importance, Fire safety design, planning for fireprotection.

Fire detection & firefighting
Different firefighting methods to be adopted inbuildings.

Recommended Books:

1. Arora&Duinkand,;—TextbookofRefrigeration&Airconditioning||
2. Architectural Graphic Standard (HVACSystem)
3. National Buildingcode.
4. William.K.Y.Tao;—MechanicalandelectricalSystemsinBuildings||
5. V.P.Lang,|| Principles of airconditioning||
6. RodneyR.Alder;||VerticalTransportationforBuilding||

CONTEMPORARY ARCHITECTURE I (TIU-UAR-T301)

L – S – P (3 – 0 –0) **Credits-3**

CO	Course Outcomes	K-level
CO1	Understand the advent of steel, glass, and ferro-concrete in architecture, and explore the contributions of key figures like Henry Labrouste and Gustave Eiffel during the Great Exhibitions.	K2, K3
CO2	Study the Art Nouveau movement and key architects like Victor Horta, H.P. Berlage, and H.H. Richardson, focusing on 'True Construction' and the evolution of balloon frame structures.	K2, K3
CO3	Learn about the Chicago School, including the work of Louis Sullivan, and explore Organic Architecture with a focus on Frank Lloyd Wright's design principles.	K3, K4
CO4	Study the contributions of Walter Gropius and the Bauhaus movement, as well as Le Corbusier's approach to functionalist design in modern architecture.	K3, K4
CO5	Examine the development of the International Style through the works of architects like Mies van der Rohe, Philip Johnson, and Louis I. Kahn.	K4, K5
CO6	Explore the works of influential 20th-century architects such as Eero Saarinen, Alvar Aalto, Oscar Niemeyer, Frank O. Gehry, and Norman Foster.	K4, K5

MODULE I

Introduction : Advent of Steel , glass and Ferro-concrete
Late Renaissance and development of openspaces
Advent of Steel and HenryLabrouste
Great Exhibitions of 1851 and 1889 and theircontributions
GustaveEiffel
Development of Ferro concrete: Auguste Perret, TonyGarnier

MODULE II

Development of 'New Art & Architecture'
Le Art Nouveau movement and VictorHorta
H.P.Berlage,H.H.Richardsonand_TrueConstruction'
Balloon Frame Structure and Plane Surfaces inAmerica

MODULE III

Chicago School & Organic Developments
Chicago School: LouisSullivan
Organic Architecture: Frank LloydWright

MODULE IV

Programmatic Functionalism
Walter Gropius andBauhaus
LeCorbusier

MODULE V

Development of International Style
Mies van derRohe
PhilipJohnson
Louis IKahn

MODULE VI

20th Century World Architecture
Works of some master architects like, Eero Saarinen,,Alvar Aalto, Oscar Niemeyer, Richard Neutra, Norman Foster, Antonio Gaudi, FrankO. Gehry, I.
M. Pei, Kenzo Tange.

MODULE VII

Indian Architecture since Independence
B. V.Doshi
CharlesCorrea
Raj Rewal
A. P.Kanvinde
LaurieBaker

Recommended Books:

1. Sigfried Giedion ; Space, time andArchitecture.
2. Vincent Scully Jr; ModernArchitecture.
3. Vikram Bhatt and Peter Sciver; After the masters (Contemporary Architecture ofIndia).
4. Kenneth Frampton; ModernArchitecture.
5. Library of ContemporaryArchitects

ESTIMATION & SPECIFICATION (TIU-UAR-T303)

L – S – P (2 – 0 –0) **Credits-2**

CO	Course Outcomes	K-level
CO1	Understand the definition and types of specifications, the need for specifications, and the various types of tenders/contracts, with a focus on writing items for BOQ in item rate contracts.	K2, K3
CO2	Learn the importance and methods of approximate estimation for building projects and understand its role in early project planning.	K3, K4
CO3	Understand the process of preparing a detailed estimate, including the functions of measurement forms and abstract of estimate forms, and the significance of items in the BOQ.	K3, K4
CO4	Explore different methods of estimating building works at various stages, such as foundation, superstructure, and finishing works.	K3, K4
CO5	Learn to calculate the quantities for reinforced concrete works, including columns, lintels, slabs, and beams.	K3, K4

CO6	Understand the purpose of rate analysis, calculate the quantity of materials, and break down the components of rate analysis for accurate cost estimation.	K4, K5

Course Objective:

To differentiate between the general specification and detailedspecification.
To write the detailed specification of different items ofwork
To define different types of estimates and their suitability to different types ofworks.
To distinguish between the approximate estimates and the detailedestimate
To identify the different units of measurement for different items ofwork.
To calculate the quantity of different items of work using various methods of estimating.
To calculate the rate for different items ofwork
To classify different types of tenders/contracts
To prepare BOQ for item ratecontract

MODULE I

GENERAL SPECIFICATION & TYPES OF CONTRACT.

Definition of specification, need of thespecification.
General specification and DetailedSpecification
Types of Tender / contract and the reflection inBOQ.
Writing Items for BOQ for Item ratecontract.
Definitionof—Buildingestimate‖
Purpose ofEstimating.
Different Types ofEstimate.

MODULE II

APPROXIMATE ESTIMATE

Importance & purpose of Approximate / Roughestimation
Different methods of approximateestimate.

MODULE III

DETAILED ESTIMATE.

Preparation of Detailedestimate.
Functionof—Measurementform‖&—Abstract ofestimateform‖.
Description & significance of Item inBOQ.

MODULE IV

METHODS OF MEASUREMENT OF WORKS.

Different methods of estimating buildingworks.
Estimation of a simple building at differentstages:
Foundation up toplinth
Superstructure
Finishingworks

MODULE V

REINFORCEMENT QUANTITIES FOR RC WORKS.

CalculationofquantityforReinforcedconcrete(RC)for:Column,Lintel,Slab& Beam.

MODULE VI

ANALYSIS OF RATE & QUANTITY OF MATERIALS.

Purpose of Rateanalysis.
Quantity ofMaterials.
Different components of rate

Recommended Books:

1. M. Chakraborty; Estimating, Costing, Specification &Valuation
2. B.N. Dutta; Estimating &Costing
3. D.D.Kohli&R.C.Kohli ; A Text Book of Estimating andCosting

ESTIMATION PRACTICE (TIU-UAR-L301)

L – S – P (0 – 0 –3) **Credits-2**

Estimation of the residence, designed in Architectural design- Soft and hard copy of the detailed estimation using PWD SOR has to be prepared.

CO	Course Outcomes	K-level
CO1	Develop the skills to prepare detailed estimations for residential buildings, using the Public Works Department (PWD) Schedule of Rates (SOR) for accurate cost calculations.	K3, K4
CO2	Learn to generate both soft and hard copies of the detailed estimation, ensuring proper documentation and presentation of the cost breakdown for construction projects.	K5, K6
CO3	Integrate architectural design concepts with cost estimation processes, focusing on accurately estimating materials, labor, and other construction costs for residential projects.	K3, K4
CO4	Understand the importance of using the PWD SOR for estimating construction costs and apply it to create an accurate project budget.	K2, K3
CO5	Analyze the various components involved in the cost estimation process, including materials, labor, and overheads, for a residential building.	K4, K5
CO6	Communicate the final cost estimation clearly through both written reports and graphical representations, ensuring all details are presented comprehensively.	K5, K6

EDUCATIONAL TOUR (TIU-UAR-L303)

L – S – P (0 – 0 –0) **Credits-2**

CO	Course Outcomes	K-level
CO1	Document historic precincts, landscapes, and building interiors through mapping, sketches, photography, and measured drawings.	K3, K4
CO2	Prepare comprehensive reports covering tour itineraries, site descriptions, architectural analysis, and historical background with visual documentation.	K5, K6
CO3	Analyze monuments for their architectural style, structure, cultural significance, and present status to form an unbiased architectural critique.	K4, K5
CO4	Explore and evaluate the environmental, societal, and cultural context of visited locations, including natural and built elements.	K5, K6
CO5	Produce detailed hand-drafted and rendered drawings based on measured surveys of selected structures during the tour.	K5, K6
CO6	Communicate the findings of the tour effectively through seminar presentations and viva voce using drawings, photographs, and digital media.	K5, K6

1. Study of historic precincts/buildings, landscape and buildinginteriors.
2. Documentation through mapping, hand-sketching, preparation of measured drawings and detailed-drawings, report writing andphotography.
3. The tour would be for 7-10days.

The students are required to prepare a report based on the Educational Tour, which will develop the skills and methods of report writing. This will be supported by presentations in sheets, drawings, sketches, photographs and in electronic media.
Report should include the following:

7. The duration of the trip, the itinerary, the places visited, the number of pupil and teachers accompanyingthem.
8. The specific places, the important monuments, their description, historic background, architecturalstyles,presentstatus,structuralsystems,specialornotablefeaturesand an architectural unbiasedcriticism.
9. The people, societal framework, economical status, density, traditions and culture of theplace/region.
10. Environment, natural flora and fauna, and manmade interventions- urban scape and its specific features,problems.
11. Summary: New things learnt questions that remained unsolved,conclusion.

The measured drawing conducted during the tour, will be presented as well drafted drawings by the students. It should be hand drafted and rendered and all the methods for proper documentation of the structure measured will be considered in the presentation.
This will follow a seminar, where the students will present their work verbally.

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

ARCHITECTURAL JOURNALISM & PHOTOGRAPHY (TIU-UAR-E301)

L – S – P (0 – 0 – 2) **Credits-1**

CO	Course Outcomes	K-level
CO1	Understand the fundamentals of photography, including lighting, color, framing, distance, and visual angle, in relation to architectural expression.	K2, K3
CO2	Apply various photographic techniques such as exposure, aperture, shutter speed, and processing methods in capturing architectural spaces.	K3, K4
CO3	Analyze architectural journalism through the study of historical and contemporary writings, exploring critical themes and discursive techniques.	K4, K5
CO4	Evaluate the contributions of Indian and international architectural writers and critics through discussion and seminar presentations.	K5, K6
CO5	Integrate photography with architectural writing by producing critiques supported by photographic documentation.	K5, K6
CO6	Communicate architectural narratives effectively through a combination of visual and written media, developed during fieldwork exercises.	K5, K6

MODULE I

INTRODUCTION TO PHOTOGRAPHY

General introduction to the art of photography, concept of color, concepts of lighting, distance, visual angle, frames,media

MODULE II

PHOTOGRAPHIC TECHNIQUES

Types of camera, properties and priorities; Exposure, Aperture, Speed; Photographic films, Film processing color, black and white, printing techniques, developing.

MODULE III

JOURNALISM

Analysis of recent historical and contemporary examples of written and journalistic criticism of architecture, including selected writings by Indian and overseas critics; discursive techniques, analysis of major critical themes, thematic categories in architectural writing over the past threecenturies.

MODULE IV

ANALYSIS OF WORKS

Works of Indian and international writers and critics will be presented and discussed. Seminars on Indian architectural writers, journalists and critics

MODULE V

FIELD PROGRAM

Exercise on integrating photography in architectural journalism.

Recommended Books:

1. Dave Sounders, Professional Advertising Photography, Merchurst, London1988
2. Roger Hicks, Practical photography, Cassell, London1996
3. Julian Calder and john Garrett, The 35mm Photographer‘s Handbook, Pan Books, London1999
4. JulieAdairKing,DigitalPhotographyforDummies,COMDEX,NewDelhi1998

FILM/THEATRE SET DESIGNING (TIU-UAR-E303)

L – S – P (0 – 0 –2) **Credits-1**

CO	Course Outcomes	K-level
CO1	Analyze how films reflect cultural and social conflicts, and interpret motion pictures as cultural texts that provide insights into modern society.	K4, K5
CO2	Understand the evolution of theater and film set design, including production methods, dramatic theory, and scene design practices from the 20th century onward.	K2, K3
CO3	Apply principles of graphic design and typography in creating visual signage and exhibition materials for film and theatre.	K3, K4
CO4	Develop conceptual designs for theatre and film sets based on script analysis and visual storytelling techniques.	K5, K6
CO5	Evaluate the stage design process from inception to final performance, integrating research, spatial analysis, and artistic exprion.	K5, K6
CO6	Demonstrate the ability to design performance environments using language, color,	K5, K6

	architectural analysis, and media-based presentation techniques.	

COURSE OBJECTIVES

To inculcate the ability to translate the requirements of the script to physical manifestations according to the traditions followed in the theatre and cinemaindustry.

MODULE I

FILM AND SOCIETY

Examination of the twentieth-century culture and society through film. Critical analysis of cultural and social conflicts are portrayed and worked out in popular films, and examination of how motion pictures create a window into modern society. Film as cultural texts to better understand history and culturemanifestations.

MODULE II

HISTORY AND THEATER FILM SET DESIGN 6

Investigation the production methods, dramatic theory and conventions, and scene design of various performance media since the popularization of the motion picture, and how it has influenced all entertainment design in the 20th and 21st centuries.

MODULE III

GRAPHIC DESIGN AND TYPOGRAPHY FOR EXHIBIT DESIGN

Principles of layout for creating effective visual signage and explore the unique problems, technique, theory, and approaches of signage in film, theatre, and other forms of mediated exhibition. Introduction to the design applications for building signage.

MODULE IV

SET DESIGN AND CONCEPT WRAP

Introduction to the basic concepts, through theory and practice, of scene design in theatre, film, and other fine arts and entertainment media. Students will learn how to analyze scripts for proper scenery, how to conceptualize designs that will translate into actual sets, and develop visual thinking within the creative process.

MODULE V

STAGE DESIGN

Stage design process from inception to performance, script analysis, visual arts analysis, research skills, and the application of principles and elements of design. Understanding stage setting through language, color, and architecturalanalysis.

Recommended Books:

1. Time saver standards for building types,DeChiara and Callender, Mc Graw hillcompany
2. NeufertArchitect‘s data, Bousmaha Baiche& Nicholas Walliman, Blackwell scienceltd

ARCHITECTURAL DESIGN-IV (TIU-UAR-S301)

L – S – P (0 – 12 –0) **Credits-8**

CO	Course Outcomes	K-level
CO1	Apply design theory and architectural principles to solve complex building design problems, including low, medium, and high-rise structures.	K3, K4
CO2	Develop architectural design proposals that address functional relationships, user needs, and contextual issues such as climate and culture.	K5, K6
CO3	Integrate structural systems and building services within the design of high-rise and civic projects.	K3, K4
CO4	Evaluate and apply relevant building bye-laws and the provisions of the National Building Code (NBC) in the design process.	K5, K6
CO5	Design specialized building typologies such as town halls, civic centers, resorts, and exhibition pavilions with focus on spatial planning and form.	K5, K6
CO6	Demonstrate design thinking under time constraints through a timed design exercise with a clear design response.	K5, K6

Course Objectives:

Application of Design theory and principlesand

Design of Low rise / medium rise /high rise buildings with complex issues to be tackledcovering functional relationship, climatic condition, social aspects along with structural considerations and building services

Application and use of relevant building bye-laws and provisions of **NationalBuildingCode**

MODULE I

Commercial–cum- Residential complex (high rise)

MODULE II

Town Hall & Civic Centre/ Resort

MODULE III

Exhibition Pavilion / Country Club house/ Museum

Design (Time) Exercise

Any one of the above, not covered in the class 8 hrs.

WORKING DRAWING I (TIU-UAR-S303)

L – S – P (2 – 8 –0) Credits-4

CO	Course Outcomes	K-level
CO1	Understand the purpose, components, and conventions of working drawings, including architectural symbols, line weights, and dimensioning techniques.	K2, K3
CO2	Prepare detailed layout plans, foundation plans, and floor plans with proper schedules and annotations.	K3, K4
CO3	Develop elevations and sections—including staircases, toilets, and skin sections—with detailed labelling and technical accuracy.	K5, K6
CO4	Apply internal and external finish schedules in architectural drawings based on material specifications and design intent.	K3, K4
CO5	Generate door and window schedules, ensuring consistency with plans and elevations and integration with overall building design.	K3, K4
CO6	Compile a comprehensive set of contract documents through systematic preparation of construction drawings across different building elements.	K5, K6

Objectives

1. Explanation and demonstration of basics in working drawing study of process and Symbols of workingdrawings.
2. Building construction drawings to be prepared as a part of contract document with proper Labelling and dimensioningtechniques.
3. Working drawing to be made of one building in a complex chosen from earlierdesign
4. Projects carried out in the 4thsemester.
5. Prerequisites: BMC sessionals, Architecturaldetailing

- Layout plan of the whole complex and excavation plan of oneBuilding
- Foundationplan
- Ground floor plan along with schedule of internalfinishes
- Upper floor plans along with schedule of internalfinishes
- Terrace/ roof plan including roofdrainage
- All 2 side elevation with labelling of onebuilding
- External finishes of all types included in the complex; thedrawings
- Shall include all detailsrequired.
- Minimum 3 sections including one through staircase and toiletsand
- One skin section showing requireddetailing.
- Door window schedule to be prepared for the undertakenbuilding.

Minimum of 11 sheets to be done in the semester.

CAREER ADVANCEMENT & SKILL DEVELOPMENT (AR) (TIU-UEA-S301)

L – S – P (0 – 3 –0) **Credits-3**

CO	Course Outcomes	K-level
CO1	Apply narrative, history, and visual theory into architectural interpretation and creative projects.	K3
CO2	Assess the relationship between architecture and perception using media, film, and virtual environments.	K3
CO3	Demonstrate architectural experiences and ideas through effective written and oral communication.	K3
CO4	Interpret poetic and theoretical works to reflect on the emotional and cultural impact of architecture.	K2
CO5	Understand literary, visual, and architectural texts to explore themes of memory, identity, and space.	K2
CO6	Develop critical thinking and aesthetic sensitivity through engagement with diverse forms of expression.	K3

Suggested texts might include, but not limited to the following:

1.'The House Murdered' By Mahmoud Darwish

https://progressive.org/dispatches/the-house-murdered/

2.‘Architecture: An Essay on Art by Etienne Louis Boullee. 1954

3.‘Elegy Written in a Country Churchyard’ by Thomas Gray, 1751

https://www.poetryfoundation.org/poems/44299/elegy-written-in-a-country-churchyard

4.http://microsite.smithsonianmag.com/si_jukebox/200812-december/hagia-sophia/entrance.html (VIRTUAL TOUR OF THE HAGIA SOPHIA)

5.Docu Feature- "Innocence Of Memories", Based On Orhan Pamuk's "The Museum Of Innocence"

6.In Praise Of Shadows' By Junichiro Tanizaki

Http://Wwwedu.Artcenter.Edu/Mertzel/Spatial_Scenography_1/Class%20files/Resources/In%20prai Se%20of%20shadows.Pdf

7."Empire Of Signs" By Roland Barthes. (Pdf Attached) 'Architecture And Modernism', From Alain De Botton's "The Architecture Of Happiness'. (Pdf Attached)

8.'Skywalking in the city: Glass platforms and the architecture of vertigo' Davide Deriu, University Of Westminster

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6065305/pdf/main.pdf

9."Ways Of Seeing" By John Berger (Extracts) And The Documentary By BBC
http://waysofseeingwaysofseeing.com/ways-of-seeing-john-berger-5.7.pdf
https://www.youtube.com/watch?v=0pDE4VX_9Kk https://www.youtube.com/watch?v=m1GI8mNU5Sg
https://www.youtube.com/watch?v=Z7wi8jd7aC4 https://www.youtube.com/watch?v=5jTUebm73IY

10. 'Midnight in Paris: Surrealism at the Crossroads', 1929, THE DALI MUSEUM
https://www.youtube.com/watch?v=vEW0htZQxcM

COURSE PLANNING

6TH SEMESTER

(OLD SYLLABUS)

Course Code	Course Title	Contact Hrs./ Week			Credit
		L	S	P	
Theory					
TIU-UCE-T310	Design of Structures – II (AR)	3	0	0	3
TIU-UAR-T306	Pre-fabrication & Modular Co-ordination	3	0	0	3
TIU-UAR-T302	Architectural Acoustics	2	0	0	2
TIU-UAR-T304	Contemporary Architecture II	2	0	0	2
Practical					
TIU-UAR-E304	Construction Management (Elective II)	0	0	2	1
TIU-UAR-E302	Building System Integration (Elective II)	0	0	2	1
Sessional					
TIU-UAR-S306	Architectural Design - V	0	12	0	8
TIU-UAR-S302	Working Drawing - II	0	6	0	3
TIU-UAR-S304	Disaster Resistant Architecture	4	2	0	3
TIU-UEA-S300	Career Advancement Skill Development (AR)	0	3	0	3
Institute Programme					
TIU-UES-S398	Entrepreneurship Skill Development (AR)	0	0	0	2
Total Credits					**30**

DESIGN OF STRUCTURE II (TIU-UCE-T310)

L – S – P (3 – 0 –0) **Credits-3**

CO	Course Outcomes	K-level
CO1	Understand the structural properties of steel and its applications in various construction systems.	K2, K3
CO2	Analyze the behavior of riveted and welded joints under different loading conditions.	K4, K5
CO3	Apply IS codes and design principles to solve problems related to beams, trusses, and columns.	K3, K4
CO4	Design steel connections and foundations for various structural systems.	K5, K6
CO5	Evaluate the performance and efficiency of structural systems using IS 800.	K4, K5
CO6	Communicate and explain the design of steel structures effectively through written and oral presentation.	K5, K6

Course Objective:

To explain the structural property of structuralsteel
To list the various market form of structural steel section available and their respectiveuse
To analyze the equilibrium of a riveted and weldedjoint
To design a beam for a given system of loading and structural geometry, for flexure andshear
To design a column and associate foundation for given axial load andmoments
To design a case specific connection between beam to beam and beam tocolumn
To outline the features of IS code provisions regarding design method of steelstructure

MODULE I

Basic Material Properties & Design Concept

Material property of steel, Ductility, Behaviour of steel in cyclic loading, Different structural steel section used in India and their use. Different types of steel structural systems. Steel cable structural system, Structural configuration of tall steel structures Innovative use of structural steel, Hollow Tubular steel sections, Corrosion and fire resistance property of steel.

MODULE II

Rivet & Weld

Rivet and Welded connections. Property and the merits and demerits of Rivet and Weld. Different types of joints, Failure of Rivet and Weld. Rivet value. Bracket connection with eccentricity with Rivet and Weld. Numerical Problems

MODULE III

Design of Beam

Design Fundamental of Beam, Laterally supported and laterally unsupported beam, IS code provisions, Built-up-beams. Numerical Problems

MODULE IV

Design of Truss

Design fundamental of compression and tension member with angles. Design of simple trusses. Numerical Problems.

MODULE V

Design of Column

Design Fundamental of Axially and eccentrically loaded column, IS code provisions, Built-up-Columns, Lacing and battened column. Column Splice, Numerical Problems

MODULE VI

Design of Connection

Framed connection; unstiffened and stiffened seated connections for the connection for beam and beam-column-beam, Numerical Problems

MODULE VII

Design of Foundation

Slab base and gusseted base, column base subjected to axial load and moment; design of isolated grillage foundation, Numerical Problems

IS Codes:

1. IS 800
2. Steel Section Handbook

Recommended Books:

1. S.K.Duggal; Design of Steel Structures , Tata McGraw Hill, NewDelhi.
2. Ramchandra; Design of Steel Structures (Vol.I).
3. Negi; Design of SteelStructures.
4. Sarwer Alam Raz; Structural Design in Steel, New Age InternationalPublication
5. Thomas Burns; Structural Steel Design, DelmarPublication

PRE-FABRICATION & MODULAR CO-ORDINATION (TIU-UAR-T306)

L – S – P (3 – 0 – 0) Credits-3

CO	Course Outcomes	K-level
CO1	Understand the concepts of standardization, modular coordination, and their application in building design.	K2, K3
CO2	Analyze the benefits and challenges of prefabrication techniques in construction, both onsite and offsite.	K4, K5
CO3	Apply modular coordination principles for planning and drafting building units and components.	K3, K4
CO4	Design building components using standardized methods and modular coordination to achieve cost-effective construction.	K5, K6
CO5	Evaluate various cost-effective and environment-friendly technologies used in prefabrication and modular construction.	K4, K5
CO6	Communicate the application of prefabrication and modular coordination in construction projects through technical drawings and reports.	K5, K6

Objectives:

Application of provisions of National Building Code [India] or any other such case example with respect to modular coordination in building design and standardisation of building units & components

Application of prefabrication principles and processes as may be followed in small scale in a projectsite

Application of principles of specifying tolerances for building units &components

Application of construction techniques for different types of cost effective & environment friendly Technologies of building construction [partialprefabrication/pre-casting]

MODULE I

Introduction to the concepts of Standardization

1. Need, Importance andaim
2. Evolution of practice ofstandardization
3. Classification, Requirements & Validity ofstandards
4. Terms anddefinitions
5. Process of standardization & Actions for establishment ofstandards

MODULE II

Introduction to concepts of Modular Coordination

1. Objectives of Modular coordination & Definition of BasicModule
2. Modular controlling dimensions, Planning Modules and preferredMulti-modules,
3. Nominal size vis-à-vis Actualsize
4. Planning & placing ofcomponents
5. Annotations for Modular Draftingpractice
6. IMG recommendations on choice of multi-modules & BIS (NBC) recommendation on choice of modules for various buildingcomponents

MODULE III

Concepts of System Building & Number Patterns

1. Definition and classification of systemsbuildings
2. Concept of open system and closedsystem
3. Preferred sizes & need of NumberPatterns

4. Number Series and preferredsizes
5. Ehrenkratz's Modular NumberPattern

MODULE IV

Introduction to concepts of prefabrication

1. Factors affecting the growth of prefabricationindustry
2. Advantages & disadvantages of onsite & off-site prefabrication with respect to Indian scenario
3. Terms & Definitions as in IS(NBC)
4. Methods of prefabrication & Examples of prefabricatedcomponents
5. Process ofprefabrication
6. Various issues related to prefabrication industry & Examples of early prefabrication concepts

MODULE V

Concepts of Standardization of Joints and Tolerances

1. Importance of standardization of Joints & classification ofjoints
2. Considerations for corner connections & examples of variousjoints
3. Concept of Tolerance for Deviations in componentsizes
4. Tolerance equalization atjoints

MODULE VI

Cost Effective & environment Friendly Technologies

1. Innovative Building materials:- Sand-lime, Flyash lime, clay- flyash bricks, pre-cast concrete blocks, precast concrete stone masonryblocks
2. CostEffectiveFoundation&wallingtechniques:archfoundation.Rattrapbondetc.
3. Cost effective roofing techniques: Ferro-cement vaults, Wardha technique, Pyramidal roof

MODULE VII

Cost Effective Pre-cast Roofing & Flooring Components

1. RCC Planks & Joists, Pre-cast Channel units, Thin RC ribbed slab, Pre-cast Waffle slabs, Pre-cast RC/ Pre-stressed cored slabs, Pre-cast Brickpanels
2. Pre-cast RC Door & window frames, Pre-cast manhole covers, Ferro-cement door shutters, Ferro-cement watertanks

Recommended Books:

1. Kelly; The Prefabrication ofHouses
2. Nagarajan R.; Standards inBuilding;
3. Standards & Specifications for Cost-Effective, Innovative Building Materials and Techniques; BMTPC; NewDelhi
4. Nissen H.; Industrialized Building and Modular Design; Cement & Concrete Association; London;1972
5. Time Saver Standards: DesignData;
6. National Building Code; Bureau of Indian Standards; New Delhi;1983

ARCHITECTURAL ACOUSTICS (TIU-UAR-T302)

L – S – P (2 – 0 –0) **Credits-2**

CO	Course Outcomes	K-level
CO1	Understand the characteristics of sound and its behavior in various environments.	K2, K3
CO2	Analyze acoustic defects in different building types and propose solutions.	K4, K5
CO3	Apply acoustical design principles to create effective auditory environments for various spaces.	K3, K4
CO4	Evaluate the performance of sound systems in diverse acoustical environments.	K4, K5
CO5	Design solutions for controlling noise and reverberation in spaces like theaters and auditoriums.	K5, K6
CO6	Assess the selection of acoustical materials based on the specific needs of a building.	K4, K5

Course Objective:

To explain the various characteristics of sound including origin, propagation and auditory sensationofsound.
To distinguish the behaviour of sound for enclosed spaces and openspaces
To identify the acoustical design criteria for theatres, cinema halls, auditorium, conference halls etc.
To identify different acoustical defects and theirremedies.
To apply the Sabin‘s equation for reverberation timecalculation
To classify the different types of sound system and their suitability for different acoustical conditions.
To classify the different types of acoustical materials and their suitability for different acoustical conditions.

MODULE I

Sound Engineering:

Introduction to architectural acoustics - Characteristic and measurement of sound, frequency, intensity, decibel scale, auditory range, effects of sound on humans,loudness.

MODULE II

Room Acoustics:

Acoustics and acoustical environment, Behavior of sound in an enclosed space. Principle of geometrical acoustics, Different acoustical defects in auditorium and its solution, reverberation and reverberation time calculations – Sabine‘s formula and its interpretation, dead and live room.

MODULE III

Design of Auditorium:

Size, shape, sitting arrangement design criteria for speech and music, acoustical correction design and modification techniques, broadcasting studio, television studio, classroom, lecture hall, church andCathedral.

MODULE IV

Electro-acoustics:

Introduction of Electro-acoustical systems, Unidirectional and Stereophonic sound system, Digital and Surround-sound systems, Design criteria for Theatres, Motion picture halls, Multiplexes and Multipurpose Auditoriums.

MODULE V

Open air Acoustics:
Free field propagation of sound, absorption from air and natural elements, effect of barriers, effect of landscape element, thermal and wind gradient. Design of open-air theatre and planning of building. Reduction of noise by screening, Screening by Planting.

MODULE VI

Environmental Noise Control:
Noise sources, air borne and structure borne sound, NC curve, Propagation of noise of mechanical operation and impact noise, sound transmission through wall and partition, Vibration isolation – control of mechanical noise, floor, wall, ceiling treatment. Design Principles- reduction of noise at the source, Reduction of noise near the source. Application of sound absorption material, Reduction of noise by Structural Defence. Planning and analysis of problem. Reduction of noise by Town Planning and Regional Planning consideration.

MODULE VII

Acoustical Material:
General description of acoustical materials - acoustical tiles, fiberboard, resonator absorption unit absorber, carpets, acoustical plaster, resilient packing composite materials, etc. – Their use, selection criteria and construction.

Recommended Books:

1. A. B. Wood; A Text book ofsound.
2. T. M. Yarwood;Acoustics.
3. Duncan Templeton; Acoustics in The BuiltEnvironment.
4. J E Moore; Design for good Acoustics and noisecontrol.

CONTEMPORARY ARCHITECTURE II (TIU-UAR-T304)

L – S – P (2 – 0 –0) **Credits-2**

CO	Course Outcomes	K-level
CO1	Understand the evolution of contemporary architecture and its influences in India and globally.	K2, K3
CO2	Analyze the impact of colonial and post-independence architecture on modern Indian architecture.	K4, K5
CO3	Apply architectural theories and concepts to evaluate modern and post-modern works in India.	K3, K4
CO4	Design architectural solutions inspired by contemporary ideologies and movements.	K5, K6
CO5	Evaluate the works of contemporary architects in the context of Indian architectural practices.	K4, K5
CO6	Critique the integration of traditional and modern design elements in contemporary architecture.	K5, K6

EVOLUTION OF INDIAN CONTEMPORARY ARCHITECTURE

MODULE I

Architecture in colonial India
Early colonial period – Examples – St.Pauls Cathedral, Calcatta –Architectural character of Indo-Saracenic and Classical revival –University of Madras Senate House & Rippon Building, Central railway station Chennai.– Later Colonial period – Contribution of Edwin Lutyens & Herbert Baker to the lay-out and Architecture of New Delhi – Rashtrapathi Bhavan &ParliamentHouse.

MODULE II

Post-Nehruvian modernist architecture

Modernism, utilitarian modernism and neo-modernism, brutalism. Criticisms on the modern movement in India, countering the stigma of colonialism, the neo-vernacular, the community architectural movement, integrating the new and the old, revivalism and post-modernism.

MODULE III

Modernism after Corbusier and Khan

Corbusier‘ works in India – Chandigarh and the Ahemadabad buildings – their influence on the modern rationalists; Louis Kahn‘s works in India - their influence on the empiricists.

MODULE IV

Post independent architecture

Influences by post independence Architects- Architecture of Charles Corea - British council Library Delhi, Kanchenjunga Apartments, Mumbai, AchuyutKanvinde – IIT, Kanpur, Nehru science center, Mumbai, Anant Raje- Bhopal Development Authority Headquarters, Institute for Forest Management, Bhopal, B.V.Doshi – Sangath Office ,Ahemedabad, IIM Bangalore, Raj Rewal – Pragati Maidan New Delhi ,Asian Games village, New Delhi, Uttam jain - University of Jodhpur, Jodhpur, Neelam Cinema Theatre, Sanchore Hasmukh C Patel's - Entrepreneurship Development Institute of India, Gandhinagar, Sabarmathi River front Development, Ahmedabad.

MODULE V

Works of contemporary architects

Architects and their ideologies and philosophies towards architecture - Sanjay Mohe – Lecturer hallblock , IIM Bangalore, Karunashraya, Bangalore, Sanjay Puri- Mosaic hotel, Delhi CIE ,Cochin CNT - Tata Dhan Academy, Madurai , Dr. Reddy's laboratory, Hyderabad, Morphogenesis- Pearl Academy of Fashion, Jaipur, PVR, Bangalore, Jaisim –C R Simha, Bangalore ,IIPM , Bangalore, Bhooshan – Le olive Garden, The village, Mysore .

EVOLUTION OF INDIAN CONTEMPORARY ARCHITECTURE

MODULE VI

Self Conscious Modernity

Neo classicism, industrial revolution and its impact, new materials – steel, glass, concrete, arts and crafts movement, art nouveau – works of Gaudi, Chicago school, art deco, Louis Sullivan works, Adolf Loos and his arguments on ornamentation, Futurism, Expressionism – works of Mendelssohn and taut, destijl movement, Walter Gropius: Bauhaus and Harvard, Peter Behrens and the German Werkbund.

MODULE VII

Early Modern Architecture

Cubism, Constructivism, works of architects Philip Johnson – Glass house, Connecticut, Seagram Building,New York, Mies Vander Rohe - Barcelona Pavilion, Illinois Institute of Technology, Chicago, F.L.Wright- Falling water, Pennsylvania, Guggenheim Museum, New York , Richard neutra - Kaufmann Desert House, California, Oscar Niemeyer - Cathedral of Brasília, Museu Oscar Niemeyer ,Brazil Alvar Alto - Finlandia Hall, Finland, Le corbusier – Villa Savoye, France, Notre damn Ronchamp, Paris, Louis khan - The National Assembly Building, Bangladesh, Kimbell Art Museum, Texas

MODULE VIII

Later Modern Architecture

Post modernism and international style .Ideas and works of – Paul Rudolph- Arts and architecture building, Yale university, Orange County Government Center, New York, I.M.Pei- Grand Louvre, Paris, Everson Museum of Art, Kenzo Tange –Olympic arena, Tokyo, Fuji, Broadcasting center, Tokyo, Minoru Yamasaki – Dahran International airport, McGregor Memorial Conference Community Center, Detroit, Kisho Kurokawa - The Museum of Modern Art, Wakayama, Capsule tower, Tokyo, Richard Meier – Jubilee church ,Los Angeles , Smith house, Connecticut, Toyo Ito - U House, Tokyo , Serpentine Pavilion, London

MODULE IX

Alternative Practices and Ideas

Critical regionalism, works and ideas of Hassan Fathy, Geoffrey Bawa, Tado Ando, Laurie baker and Paulo Soleri

MODULE X

21st Century Architecture

Deconstructivism – Works of Zaha Hadid- London aquatic complex, 2012 Olympics, Zaragoza bridge pavilion, Spain , Daniel libeskind – Jewish museum, Berlin, World trade center, New York, Frank O Gehry – Guggenheim museum, Bilbao, Spain, Peter Eisenman Cardinal stadium, Arizona ,City of Culture of Galicia, Santiago Calatrova and his structural concepts- Lyon-satolas station, France, Milwaukee art museum, U.S.A , News forms and ideas of Norman Foster - American Air Museum, Cambridge, UK, Standsted Airport, London, Greg Lynn – Embryological house,U.S.A

Recommended Books:

1. Kenneth Frampton, Modern Architecture: A Critical History, Thames and Hudson,London.
2. Sigfried giedion, .Space time and Architecture: The Grwoth of a New tradition, Harvard UniversityPress.
3. Tzonis Alexander, Santiago calatrova , International Publications, January 2005, NewYork.
4. Steele James, Hassan fathy - The complete works ,London : Thames andHudson.
5. Miki Desai, Architecture and independence, Oxford University Press,2000.
6. Vikram Bhatt and Peter Scriver, Contemporary Indian Architecture: After the Masters,Mapin.
7. Lang, Desai, Desai – Architecture & Independence, Oxford University Press, NewDelhi.
8. Sarbjit Bahga et all, Modern Architecture in India, Galgotia Publishing Company, NewDelhi.

CONSTRUCTION MANAGEMENT (TIU-UAR-E304)

L – S – P (0 – 0 –2) **Credits-1**

CO	Course Outcomes	K-level
CO1	Understand the principles of construction management and project lifecycle.	K2, K3
CO2	Apply bar charts and network theories to analyze construction project timelines.	K3, K4
CO3	Analyze the feasibility of construction projects based on financial and resource parameters.	K4, K5
CO4	Evaluate project alternatives using techniques like NPV, IRR, and payback period.	K4, K5
CO5	Apply project monitoring techniques like WBS and progress curves to track project performance.	K3, K4
CO6	Create cost and resource optimization strategies for construction projects.	K5, K6

Course Objective:

Develop a bar chart for construction project of mediumscale
Analyze the recourse allocation and cost requirement from barchart
Apply the network theory to assess the critical path for aproject
Compare the financial feasibility of various projectoptions
Evaluate the optimum cost-time relation of a small scaleproject
Explain and adopt the concept of different project monitoringtechnique

MODULE I

Introduction and various stages of Construction Management.

Introduction to Management Principles. Introduction and objective of Construction Management. Types of construction Projects. Responsibilities of Project Manager. Life cycle of Project and various stages of Construction Management.

MODULE II

Bar Chart & Milestone chart

Introduction to Construction Planning & Scheduling techniques. Traditional techniques: concept of Bar Charts and Milestone charts. Cost & Resource Scheduling through Bar Chart Examples. Merits and demerits of Bar Chart.

MODULE III

Network Theory –I (CPM)

Introduction of Network Theory. Definitions and different types of: Event, activity, dummy, Network rules, Network event numbering (Fulkerson Rule), Hierarchies of complex network, Examples. CPM. Different element of CPM network with examples, Floats, Numerical Problems. Introduction of Project management software.

MODULE IV

Network Theory –II (PERT)

Introduction to PERT, Conceptual difference between PERT and CPM, Time Estimates, Event times, Slack, Time Computations with normal probability theory. Numerical Problems

MODULE V

Project Feasibility & Monitoring Technique

Project alternative selection technique, Time value of money, Investment Criteria: Pay Back Period, IRR NPV, Benefit Cost Ratio, and Break-Even Analysis. Project Monitoring Technique: Work Breakdown Structure, Progress Curve Method, Line of Balance.

MODULE VI

Cost & Resource Optimization Techniques

Cost Model: Direct & Indirect Cost component of Project, Cost Slope. Project Cost-Time analysis and optimization. Resource Usage Profile, Histograms. Resource allocation, smoothing & levelling techniques. Project Updating

MODULE VII

Construction Equipments, safety and quality control

Different types of Construction Equipments, Construction Safety requirements, Factor effecting quality of construction, Introduction to computer aided project management techniques.

Recommended Books:

1. Dr. B. C. Punmiya and K. K. Khandelwal – Project Planning and Control with PER\CPM Laxmi Publications, New Delhi,1987.
2. JeromwiertandF.K. Lavy;—AmanagementGuide to PERT/CPM||
3. S.P.Mukhopadhaya;—ProjectManagementforArchitectandCivilengineers||
4. Peurifoy&Schexnayder;—Construction Planning,Equipment,and Methods||
5. Prasanna Chandra;—ProjectsPlanning,Analysis,Financing,Implementation,&review||
6. D.Upadhayay;—Construction Management||
7. Mantri Institute;—Building ConstructionManagement||
8. James J .O'Brien,Fredrick L Plotnik,;CPM in Construction Management; Mc Grawhill;ConstructionEngineering.

BUILDING SYSTEM INTEGRATION (TIU-UAR-E302)

L – S – P (0 – 0 –2) **Credits-1**

CO	Course Outcomes	K-level
CO1	Understand the requirements of mechanical, electrical, and fire safety systems in tall buildings.	K2, K3
CO2	Apply the knowledge of vertical transportation systems, HVAC, and fire protection in tall buildings.	K3, K4
CO3	Analyze the spatial and technical requirements of building systems.	K4, K5
CO4	Design efficient water supply, sewage, and electrical systems for high-rise buildings.	K5, K6
CO5	Evaluate the integration of various building systems and their impact on building performance.	K4, K5
CO6	Communicate building system integration solutions through detailed drawings and presentations.	K5, K6

PURPOSE

To impart knowledge about the special service requirements of tall buildings and to create awareness about the systems, equipment and materials that are commonly employed in high rise buildings.

OBJECTIVES

Understanding the special systems required in mechanical, electrical and Fire safetyservices.
The ability to design vertical transportation systems, HVAC systems and Fire protection systems in line with the various standards, building codes and safetyrequirements.

MODULE I

Vertical Transportation

Introduction to passenger elevator codes – Express & Local Elevators, Sky lobbies etc., -

Study of elevator equipments, control systems and spatial requirements – Escalators and Capsule elevators – Stairways & Ramps

MODULE II

Fire Protection

Designing for fire safety – NBC – Fire alarm systems – Smoke detectors – Fire fighting support systems – Fire rating of materials - Fire escape stairs & Safety regulations – Lightning protection.

MODULE III

Thermal Control Systems

Calculation of Heating and Cooling loads – Selection of suitable HVAC system – Special equipments and systems for heating and cooling – Spatial requirements for HVAC plants – Design of duct layouts etc.,

MODULE IV

Water Supply and Sewage Disposal

Basic planning for water supply – Calculation of capacity for sumps and water tanks -–Skip stage pumping etc., - Rainwater harvesting methods – Sanitation arrangements in high rise structures – Service floors – Ducts and vertical shafts – Waste treatment etc.,

MODULE V

Electrical Systems

Planning transformer & generator rooms, Preparation of electrical layouts for tall buildings – Spatial requirements of electrical rooms and ducts – Intelligent systems for electrical and illumination.

Recommended Books:

1. Stein Reynolds Mc Guinness – Mechanical and Electrical equipment for buildings – vol 1 &2
    1. John Wiley & sons
2. Francisco Asensio Cerver – The architecture of Skyscrapers – Hearst Book International - New York,1997
3. Bennetts Ian & others – Tall building structuralsystems
4. Proceedings of the council for tall buildings – vol 1 &2

ARCHITECTURAL DESIGN V (TIU-UAR-S306)

L – S – P (0 – 12 –0) **Credits-8**

CO	Course Outcomes	K-level
CO1	Apply design theory and principles to complex architectural projects.	K3, K4
CO2	Design functional and aesthetically pleasing spaces while considering structural and climatic factors.	K5, K6
CO3	Integrate various design elements like structure, materials, and services in the design process.	K3, K4
CO4	Evaluate design solutions considering site constraints and building regulations.	K4, K5
CO5	Communicate design ideas effectively through sketches, presentations, and models.	K5, K6
CO6	Critique design projects based on criteria like sustainability, user needs, and functionality.	K5, K6

Objectives:

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

Application and use of relevant building bye-laws and provisions of **National BuildingCode**

Main Design Exercise Duration (approx.)

Sports Complex / Three StarHotel

Auditorium (1000 Capacity) / Amusement Park

Bank / PostOffice

Design (Time) Exercise Duration

Any one of the above, not covered in the class 8 hrs.

Viva voce

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

WORKING DRAWING II (TIU-UAR-S302)

L – S – P (0 – 6 –0) **Credits-3**

CO	Course Outcomes	K-level
CO1	Understand the detailed construction techniques used for buildings.	K2, K3
CO2	Apply drafting techniques to create construction documents for various building systems.	K3, K4
CO3	Analyze and interpret design intent through working drawings.	K4, K5
CO4	Design detailed architectural drawings for various components like toilets, kitchens, and electrical systems.	K5, K6
CO5	Evaluate the accuracy and completeness of construction drawings.	K4, K5
CO6	Communicate working drawings with proper labelling and dimensioning techniques.	K5, K6

Objectives

Building construction drawings to be prepared as a part of contract document with proper labelling and dimensioning techniques. Working drawings to be made in continuation of Working Drawing I for the building complex chosen earlier in Working Drawing I.

Prerequisites: Working Drawing I, Architectural Detailing.

Details of toilets including plan, elevation, sections ofit.

Details of kitchen including plan, elevation, sections ofit.

Layout of sanitary and plumbing lines on site and connection with the main sewer/ septictank

Designinganddetailing of septictankandsoakpitandatypicalG.T.,I.Chamberetc.

Electrical layout of a typical floor including specification offixtures

Detail Flooring Plan and internal FinishingPlan

Specific details required in the building complex, eg, Special carpentry detail, Metal finish detail,etc

Municipal submissiondrawings

Minimum of 11 sheets to be done in the semester.

DISASTER RESISTANT ARCHITECTURE (TIU-UAR-S304)

L – S – P (4 – 2 –0) **Credits-3**

CO	Course Outcomes	K-level
CO1	Understand the scope and objectives of disaster management in architecture.	K2, K3
CO2	Analyze various types of natural and man-made disasters and their impact on buildings.	K4, K5
CO3	Apply disaster-resistant design principles to minimize risk and enhance safety.	K3, K4
CO4	Evaluate the role of community and institutional involvement in disaster management.	K4, K5
CO5	Design disaster-resistant structures based on seismic and other hazard mitigation principles.	K5, K6
CO6	Communicate disaster management and mitigation strategies through detailed design plans.	K5, K6

Course Objectives:

Define the scope and objectives of the field of disaster management.

Introduce concepts and terms of disaster assistance examine tools and methods, and learn some technology appropriate to the field.

Develop knowledge on various types of disasters, acquire techniques for lessening impact of disaster and be all to involve community in disaster preparedness.

Apply modern skills and scientific technologies to combat disasters.

MODULE I

Contemporary, Natural & Man-made Disaster: Fundamentals of Disaster, Dimension & typology of Disaster, Phases of Disaster, Social & Political imperatives, Scale of Disaster, Causes of Disaster, and Disaster Cycle.

MODULE II

Agencies in Relief: Organizations dealing with disaster, UNDRO's mandate in Disaster relief and management, Role of UN in emergencies, IDNDR. Risk assessment & Analysis: Estimation of Risk, Problems with risk assessment, Risk perception and communication, instruments and equipments involved, Objectives of assessment, Type of risk.

MODULE III

Common Disasters: Causes, General characteristics, Predictability, Factor contributing to vulnerability, Risk reduction measures, Management measures, Specific preparedness, Plan for cyclone, flood, drought, earthquake, landslides and arsenic contamination.

MODULE IV

Earthquakes: Causes, Plate tectonic and seismic waves, Magnitude and Intensity of earthquake, Seismic Zones, BIS provisions on earthquake resistant built environment for non-engineered and reinforced concrete buildings. Fundamental of ductile detailing.

MODULE V

Planning Considerations: Study of disaster and effects on settlements, disaster atlas, Intervention into land use plan. Post disaster action, Community rehabilitation, Temporary and permanent basis, Institutional involvement and policy institutes

MODULE VI

Capacity building of disaster management teams, Role of Financial Institutions in Mitigation Effort, Group Dynamics, Concept of Team Building, Motivation Theories and Applications, School Awareness and Safety Programmes.

MODULE VII

Remote-sensing and GIS applications in real time disaster monitoring, prevention and rehabilitation, Laser Scanning Applications in Disaster Management, Quick Reconstruction Technologies, Role of Media in Disasters, Management of Epidemics, Forecasting / Management of Casualties.

Recommended Books:

(Disaster Management)

1. Vinod Kr. Sharma; Disaster Management, IIPA, NewDelhi.
2. Robest McNamara; Blundering into Disaster, 1987, Bloomsbusy,London.
3. Disaster Prevention and Mitigation, 1984, UNDRO Publication,Geneva.
4. Disaster Response- A Handbook for Emergencies, Babu Thomas,1993

CAREER ADVANCEMENT & SKILL DEVELOPMENT (AR) (TIU-UEA-S300)

L – S – P (0 – 3 –0) **Credits-3**

COURSE OUTCOMES:

On completion of the course the students will be able to:

CO	Course Outcomes	K-level
CO-1:	Analyze visual and narrative techniques in film and graphic novels to understand spatial storytelling.	K3
CO-2:	Examine surveillance, privacy, and spatial dynamics through critical engagement with visual narratives.	K1
CO-3:	Evaluate the impact of urban design on public life using critical listening and viewing strategies.	K5
CO-4:	Interpret the psychological and social dimensions of built environments through cinematic representations.	K2
CO-5:	Understand literary, visual, and architectural texts to explore themes of memory, identity, and space.	K2
CO-6:	Develop communication skills by articulating architectural insights drawn from popular culture and media.	K3

Suggested texts might include, but not limited to the following:

1. *Bansky Does New York* (Chris Mourkabel, 2014)
2. *Psycho* (Alfred Hitchcock, 1960)
3. Amanda Burden, "How public spaces make cities work"
4. https://www.ted.com/talks/amanda_burden_how_public_spaces_make_cities_work
5. Frank Millar and David Mazzucchelli, *Batman: Year One*
6. *Rear Window* (Alfred Hitchcock,1954)

COURSE PLANNING

7TH SEMESTER

(OLD SYLLABUS)

Course Code	Course Title	ContactHrs./ Week			Credit
		L	S	P	
Theory					
TIU-UAR-T401	Housing & Settlements	3	0	0	3
TIU-UAR-T403	Urban Design	3	0	0	3
TIU-UAR-T405	Architectural Conservation	2	0	0	2
TIU-UAR-T407	Valuation of Real Properties	2	0	1	3
TIU-UAR-T409	Energy Efficient Architecture	2	0	0	2
TIU-UAR-E401	VernacularArchitecture(Elective III)	2	0	0	1
TIU-UAR-E403	Architectural Psychology & Sociology (Elective III)	2	0	0	1
Practical					
TIU-UAR-L401	Educational Tour	0	0	0	2
Sessional					
TIU-UAR-S401	Architectural Design - VI	0	12	0	10
TIU-UAR-S403	Interior Design Practice	0	6	0	4
Institute Programme					
Total Credits					**30**

Note: The Sessional and theory subject load would not allow any space for Institute Programme since 7th Semester

HOUSING & SETTLEMENTS (TIU-UAR-T401)

L – S – P (3 – 0 –0) **Credits-3**

CO	Course Outcomes	K-level
CO1	Understand various housing typologies, delivery mechanisms, and forms of ownership relevant to diverse user groups and settlement types.	K2, K3
CO2	Analyze the current housing scenario, including housing finance systems, housing shortages, and demand-supply gaps in urban India.	K4, K5
CO3	Examine the causes and characteristics of slums and squatter settlements, and evaluate national-level schemes and policies for their improvement.	K5, K6
CO4	Assess components of housing cost and explore strategies for affordable housing through public and private interventions.	K5, K6
CO5	Apply urban planning processes, development plan formulation, and regulatory frameworks in the context of housing delivery and land development.	K3, K4
CO6	Design neighborhood layouts by applying subdivision norms, land use compatibility, and housing quality indicators.	K5, K6

Objectives

To select different types of housing and methods of delivery for housing schemes
To explain the issues involved with changing contextual policies for housing and generalize the new directions of opportunities
To analyse the different factors affecting the housing market
To assess housing shortage and decide criteria for selection of land for development in order to bridge the gap in a settlement/ part of a settlement
To analyse the nature and causes of growth of deficient housing / slums and identify differentiated needs across income categories
To explain the significance of current slum related contextual programmes, identify scope of improvement and formulate slum improvement schemes
To evaluate and apply the settlement plan provisions affecting the housing delivery and development
To apply the standards, norms and statutory regulations affecting the housing development and design of housingneighbourhoods
Parametric assessment of housingquality.

MODULE I

Introduction to Housing

Definition & concept ofHousing, Types of Housing: Detached, semi-detached, row, town house, apartment, Farmhousesetc., Form of Housing provision: Plotted, Group Housing, Cooperative, Self Help, Leasehold, Freehold / Condominium, Rental Housingetc., Special Housing types: Barrier free, Mobile homes, congregate housing for assisted living, disaster housing, Student & public housing, Guest house, Night shelters, Incremental Housingetc.

MODULE II

Housing Scenario & Housing Finance

Housing situation in India: anoverview, Census classification of houses, Computation of HousingShortageHousing Finance: Formal & Informal Housing Finance Markets, Mobilisation of Savings, Sources of Capital &InstitutionalFinance, Housing Micro-finance for Poor: Issues &Constraints, Housing Need vis-à-vis Demand, Public vis-à-vis PrivateSector

MODULE III

Housing & Urban slums
Understanding the causes of growth of Slums, Squatter settlements &Urbansprawl, Types and generic characteristics ofslums, An overview of measures & approaches to slums &squattersettlements, Objectives of National Slum Policy(2002), Concept of few schemes e.g.: Site & Services, EIUS, BSUP, VAMBAY,IHSDP

MODULE IV

Affordable Housing, new trends & Housing Policy
Components of Housing Cost & approach for affordablehousing, Characteristics of Urban housing vis-à-vis Ruralhousing, Goals, Objectives & contents of National Housing & Habitat Policy(2007), Examples of housing schemes &programmes e.g., IAY, IHSDPetc., Trends in HousingDesign

MODULE V

Urban Settlement Planning System & Processes
Recommended Planning system & inter-relatedplans, Scope, purpose & inter-relationship of variousplans, Plan formulationprocess, Public sector & private sector actions & concept of jointventure, Contents of a Developmentplan

MODULE VI

Norms & Standards for Urban & Housing Development
Town & Residential density, FAR, Different types of codes/ norms affecting settlement developmentplanning,Land –use Classification & compatibility of uses (e.g., compatible uses in residential zone), Factors affecting space standards / land requirements forfacilities, Land area requirement for different uses in a town & for community facilities in a sector/ residential planningarea, Design Considerations based on subdivision norms /regulations

MODULE VII

Concept of Neighbourhood& Housing Quality Indicators
Concepts of cluster, Blocks &Neighbourhood, Neighbourhood planning principles &examples, Indicators and checklist for safe communities orneighbourhoods, Housing QualityIndicators

Recommended Books:

1. J.D.Chiara et al; Time Saver Standards For Housing &ResidentialDevelopment.
2. Bawa R. L., Fernandes B. G.; Design for Living: A Guide for Planning ofResidential
3. Neighbourhoods; Galgotia Publishing Company; N.Delhi
4. Ilay Cooper, Barry Dawson, Traditional Buildings ofIndia
5. Modak & Ambedkar; Town & Country Planning &Housing
6. Poulose K T(compiled); Reading Material on Housing; Institute of Town Planners, India;New
7. Delhi;2002
8. ITPI; Urban Development Plan Formulation & Implementation Guidelines; Ministry of Urban Development & Poverty Alleviation; Govt. ofIndia
9. Charles Abrams; Housing in the thirdworld

URBAN DESIGN (TIU-UAR-T403)

L – S – P (3 – 0 –0) **Credits-3**

CO	Course Outcomes	K-level
CO1	Understand the evolution of human settlements and urban design from ancient to pre-industrial cities, with a focus on early examples of urban planning in India.	K2, K3
CO2	Analyze the impact of the industrial revolution on urban design concepts and their influence on the development of modern urban planning in India.	K4, K5
CO3	Evaluate the contributions of key urban planning theorists (Ebenzer Howard, Le Corbusier, etc.) and their influence on modern urban design concepts.	K5, K6
CO4	Apply principles and techniques of urban design, considering aspects such as aesthetics, conservation, value enhancement, and functional integration of urban spaces.	K3, K4
CO5	Design urban spaces by integrating surveys, scale considerations, activity mapping, and circulation patterns at regional and metropolitan levels.	K5, K6
CO6	Develop designs for various urban components, including town centers, civic spaces, shopping areas, and residential zones, based on modern urban design techniques and public policies.	K5, K6

Course Objective:

Obtain insight into how evolutionary processes have determined the state of human settlementsand urbandesign around the worldtoday.
Understand various issues and issues related to human settlements and urban design and their implications.
Integrate theories with the practical world through the different elements and forms so as understand urban form anddesign.
Extend the substantive knowledge of past human settlements to anticipate possible future outcomes and provide design interventions for them.

MODULE I

Evolution of human settlements in ancient period, early examples of urban design in medieval, classical and pre-industrial cities. Ancient text and treatise on planning in India.

MODULE II

Industrial revolution and town planning concepts, heritage and the roots of our modern concepts in urban design, settlement and area planning in India. Planning of new towns in India: Chandigarh, Gandhinagar and Bhubaneswar

MODULE III

Contribution of the following: Ebenzer Howard, Prattrick Geddes, Lewis Mumford, Robert Owen, C.A. Doxiadis, Tony Garnier and Le Corbusier and their modern planning concepts.

MODULE IV

Objectives and scope of Urban design, Basic functions, principles and techniques. Value enhancement, aesthetics and conservation aspects.

MODULE V

Surveys in Urban Areas, Scale in Urban design, Urban mass, perceiving & mapping a city, Urban Space. Urban activity & circulation. Examples at regional, metropolitan, Urban and project level.

MODULE VI

Designing the parts of city - central areas, the town center, civic spaces, shopping centres, Industrial Areas and estates. Residential areas & Housing.

MODULE VII

Techniques of Urban Design with emphasis on public policies, conservation and economic considerations, Road forms, serial, grid iron, Hierarchy of access routes – Pedestrian areas and malls & Urban elements.

Recommended Books:

1. Paul D. Spreiregen :Urban Design. The Architecture of towns & cities- McGrawHill
2. Gorden Cullen ;TownScape
3. Frederick Gibberd ;TownDesign
4. Edmond Bacon ; Design ofcities
5. Kevin Lynch; Image of thecity
6. Lewis Mumford; The City inhistory
7. S. C. Rangwala; TownPlanning
8. M. N. Buch ; Planning the IndianCity
9. Gallion ,A.B; The UrbanPattern.

ARCHITECTURAL CONSERVATION (TIU-UAR-T405)

L – S – P (2 – 0 –0) **Credits-2**

CO	Course Outcomes	K-level
CO1	Understand the concepts, theories, principles, and ethics of conservation, and assess the degrees of intervention in historic buildings and monuments.	K2, K3
CO2	Analyze the history of the conservation movement globally and in India, and examine key charters like the Venice Charter and Burra Charter.	K4, K5
CO3	Examine the causes of decay in cultural property, including biological, botanical, natural, and man-made factors, and assess remedies for decay.	K4, K5
CO4	Apply conservation techniques to specific building materials, focusing on historic parts of buildings such as foundations, walls, roofs, and terraces.	K3, K4
CO5	Evaluate the concept of historic towns, heritage zones, and integrated conservation, using global examples for planning and implementation.	K5, K6
CO6	Develop conservation plans based on inspections, surveys, and revitalization projects, and propose new uses for old buildings through adaptive reuse and redevelopment.	K5, K6

MODULE I

Definition of conservation and its socially accepted meanings, objectives, Theories, Principles and concepts of conservation and its application. Values and Ethics in conservation and Degrees of intervention in historic buildings & monuments &Why to conserveissues.

MODULE II

History of conservation movement in the world and Indian response to the movement. History of Indian conservation movement. Development of theory of conservation and various charters of International importance like Venice Charter, Burra Charter, Bombay HeritageAct.

MODULE III

Causes of Decay in Cultural property, External causes of Decay, Biological & Botanical causes, Natural disasters &Man made causes of decay, Remedies for these decay. The context of inspecting historic building – Inventory – Initial inspections of buildings – continuing Documentation, norms for grading andenlisting.

MODULE IV

Actual conservation techniques for relevant building materials. Some specifications & instruction about parts of buildings. Such as foundations walls, chhajjas, wall tops, roofs & terraces with various examples of conservation practised globally.

MODULE V

Concept of Historic towns, quarters & areas concept of Heritage zone and concept of Integrated conservation with global examples.

MODULE VI

Conservation Planning based on inspections and surveys. Examples of Revitalization projects all over the world. Reuse and Redevelopment of historic building and areas with examples of actual projects. Procedures for giving new uses to old buildings, examples of infill.

MODULE VII

Planning and Management aspects in conservation. Policies, legislation and agencies of conservation. Intra-disciplinary monitoring and management techniques. Economics in conservation, Public management of heritage, heritage ecosystem,

Recommended Books:

2. Sir Bernard M. Feilden; Conservation of Historic Buildings, Architectural Press,London.
3. Sir Bernard M. Feilden; Guidelines for conservation; Architectural Press,London.
4. A. G. K. Menon &B. K. Thapar; HeritageZones
5. Xavier Greffe; Managing our Cultural Property; Aryan Book International, NewDelhi.
6. Robert Pickard; Policy involved in HeritageConservation;
7. Eduardo Rojas & Claudio de Moura Castro; Lending for Urban HeritageConservation.
8. Nahoum Cohen, UrbanConservation.

VALUATION OF REAL PROPERTIES (TIU-UAR-T407)

L – S – P (2 – 0–1) **Credits-3**

CO	Course Outcomes	K-level
CO1	Understand the fundamental concepts of economics, land economics, and decision-making in the context of real property valuation.	K2, K3
CO2	Apply financial analysis concepts such as time value of money, cost of capital, and risk-return trade-offs to property valuation.	K3, K4
CO3	Analyze demand forecasting methods (Delphi, Trend projection, and Exponential) and assess uncertainties in demand prediction.	K4, K5
CO4	Evaluate project analysis methods, constraints, and feasibility studies for real estate investment projects.	K5, K6
CO5	Understand and apply concepts of valuation, depreciation, appreciation, and amortization in the context of property valuation.	K3, K4
CO6	Demonstrate techniques of land and property valuation, including rental, direct comparison, profit-based, development, and land/building methods.	K5, K6

MODULE I

Introduction

Elements of economics- Functions of utility, demand, production, cost andprofit
Land economics- concept, scope andobjectives
Levels of decisionmaking

MODULE II

Financial Analysis

Times values ofmoney
Financingmechanism
Concepts and factors governing cost ofcapital
Risk andreturn

MODULE III

Demand Analysis

Concept of Demand forecasting and its common methods-Delphi, Trend projection andExponential
Uncertainties of demandforecasting

MODULE IV

Analysis of Projects

Projectconstraints
Project analysis andRanking
Introduction to project appraisal and feasibilitystudy

MODULE V

Concept of Valuation and Measurement of Depreciation

Concept and purpose ofvaluation
Function of aValuer
Concepts of value and cost and its differenttypes
Characteristics of an idealinvestment
Annuity, Sinking fund and Year'spurchase
Appreciation, Depreciation, Obsolescence andAmortization
Process and types of depreciationcalculation

MODULE VI

Techniques of Valuation for Land and property

Rentalmethod,
direct comparisonmethod,
profit basedmethod,
developmentmethod,
land and buildingmethod

Recommended Books:

1. PrasannaChandra,—Projects:Planning,Analysis,Selection,ImplementationandReview||;TataMc-Graw Hill Publishing Company Limited;ISBN0-07-462049-5
2. Baumol,—LinearProgramming||;TataMc-GrawHillPublishingCompanyLimited;ISBN0-07-462049-5
3. HamdyH.Taha,—OperationsResearch:anIntroduction||;PrenticeHallofIndiaPrivateLimited4.ISBN81-203-1222-8
4. M.Chakraborty,—Estimating,Costing,SpecificationandValuationinCivilEngineering||;Publishedbythe author
5. BK Sengupta, Somnath Sen; ITPI Reading Journal; ||LandEconomics

ENERGY EFFICIENT ARCHITECTURE (TIU-UAR-T409)

L – S – P (2 – 0–0) Credits-2

CO	Course Outcomes	K-level
CO1	Understand the fundamentals of energy use and efficiency, global energy scenarios, and the importance of sustainable building design.	K2, K3
CO2	Analyze the factors affecting energy consumption in buildings and evaluate energy audit techniques to improve energy efficiency.	K4, K5
CO3	Evaluate the energy performance of buildings, considering thermal and visual performance, ventilation, and the use of renewable energy sources such as solar energy.	K5, K6
CO4	Apply passive solar techniques, including thermal comfort criteria, passive heating and cooling methods, and daylighting in building design.	K3, K4
CO5	Apply active solar technologies such as space heating, solar water heating, and energy storage systems to improve building energy efficiency.	K3, K4
CO6	Design energy-efficient landscapes that integrate with building design, considering climate, site conditions, sun, wind control, and water usage.	K5, K6

Course Objectives:

Apply technical knowledge to conserve energy in the building sector.

Understand the impact of global energy crisis and accordingly commit to professional responsibilities involved init.

Recognize the need for decreasing energy consumption in buildings and thus can incorporate specific measures for increasing energy conservation.

Provide design solutions for energy efficient buildings.

Create, select and apply appropriate resources and modern engineering tools to reduce waste, pollution and environmental degradation caused by buildings.

Conduct investigation to promote efficient use of energy, water and other resources related to the buildings.

Demonstrate knowledge related to sustainable development.

MODULE I

Background

Energy its use &EnergyEfficiency,Growth pattern of Energyuse,Energy Sources – renewable energy,Global EnergyScenario,EnergyCrisis,Energy Efficiency Aspects of BuildingDesign.

MODULE II

Energy and Building

Energy Consumption inBuilding,Factor Effecting EnergyConsumption,EnergyModel,Energy Audit,ConservingEnergy,Introducing GreenBuildings

MODULE III

Energy Performance of a Building

Thermal Performance of aBuilding,Visual Performance of aBuilding,Ventilation &AirMovement,Performance of BuildingMaterials,Solar Energy- the prime renewable energy source in BuildingSector.

MODULE IV

Energy Conservation: Passive Solar Techniques

Basic Architectural DesignStrategy,Thermal Comfort Criteria and Heat Flow within abuilding,Passive HeatingTechniques,Passive CoolingTechniques,Daylighting

MODULE V

Energy Conservation: Active Solar Techniques

Active Space HeatingTechniques,Active Solar WaterHeating,SolarCollectors,Storage of SolarEnergy, Active CoolingTechniques

MODULE VI

Energy Efficient Landscaping

Integrating Landscape with the buildingdesign,Climate, Site and DesignConsideration,Sun and Wind Control throughLandscaping,Water as Energy Efficient LandscapingElement,Urban Design and OutdoorSpaces

MODULE VII

Green Building Concept

Green Building – definition andattributes,Genesis of GreenBuilding,Reducing Environmental degeneration andwastage,Implementation and Application measures in GreenBuildings,Green Buildings inIndia

Recommended Books:

1. BruceAnderson;—SolarEnergy:FundamentalinBuildingDesign||
2. AnnaMain,S.Rangaranjan,||SolarradiationoverIndia.||
3. B.J.Brinkworth—solarenergyforMan||
4. H.P.Garg,—AdvancesinsolarenergyTech.||
5. Lunde;—SolarThermalEngg.||

VERNACULAR ARCHITECTURE (TIU-UAR-E401)

L – S – P (2 – 0–0) **Credits-1**

CO	Course Outcomes	K-level
CO1	Understand the scope and significance of vernacular architecture in the Indian context, including the factors influencing building materials and construction techniques.	K2, K3
CO2	Analyze and interpret the architectural characteristics and construction techniques of vernacular buildings in Rajasthan, including havelis, bhunga houses, and regional materials.	K4, K5
CO3	Examine the vernacular architectural styles and construction techniques of Gujarat, including tribal housing, woodwork, and rural settlement planning.	K4, K5
CO4	Evaluate the vernacular architecture of the Eastern Hills, focusing on the rural villages, houses, and settlement patterns of various tribes such as the Khasi, Bodo Kachari, and Naga.	K5, K6
CO5	Study the architectural forms and structures of Bengal, including the Eight Roof House and Four Roof House, as well as bungalow construction methods.	K2, K3
CO6	Compare and contrast the regional vernacular architecture of North and South India, with a focus on topography, climate, settlement patterns, and local materials.	K5, K6

Course Objectives

The subject looks at specific vernacular architectural communities ofIndia
Identifies and interprets specific local, regional, and national vernacular traditions fromIndia
Develops a broader sense of understanding of the relationship between architecture, environment and culture

MODULE I

Introduction to the field of Vernacular Architecture

Defining and differentiating vernacular architecture from contemporary architecture, Scope of Vernacular Architecture in Indian Context , Factors Influencing Vernacular Architecture, Building Material and Construction Techniques in Indian Vernacular Architecture, Vernacular Architecture in 21st Century

MODULE II

Vernacular Architecture of Rajasthan

Banni Community and their Bhunga House from Rajasthan, Brahmin Caste and their Havelis, Rajputs and their Havelis , Hindu Merchants and their Havelis from Rajasthan, Shekawati Haveli of Rajasthan, Construction techniques and materials of the region.

MODULE III

Vernacular Architecture of Gujarat

Rathva Tribe of Gujarat , Chodri Tribe, Sociology and Planning of North Gujarat Sciology and Planning of Rural South Gujarat , Sociology and Planning of Saurashtra , Sociology and Planning of Muslim Community in Gujarat,Woodwork Details of Gujarat

MODULE IV

Vernacular Architecture in the Eastern Hills

Rural Villages and Houses of Bengal, Khasi community of Meghalaya Bodo Kachari tribe, Adi Gallong folk of Sian district, Arunachal and their settlement pattern , Naga house ,Morung of Naga Community ,Thadou Kukis Community ofManipur

MODULE V

Vernacular Architecture of Bengal

Eight Roof House Structure of Bengal style, Four Roof House Structure of Bengal style, Bunglow Construction.

MODULE VI

Vernacular Architecture of the North

Regional topography, local climate, settlement pattern, TOQ construction, DhajjiDiwari Construction, local material.

MODULE VII

Vernacular Architecture of the South

Regional topography, local climate, variation in settlement pattern and architecture in different part of theregion.

Recommended Books:

1. Dawson Bary, Cooper Ilay : Traditional Buildings ofIndia,1998
2. Michell, G., Penguin Guide to the Monuments of India, Vol I, Viking, London1989.
3. Tadgell, The History of Indian Architecture, Design and Technology Press, London1990.
4. Paul Oliver, Encyclopedia of Vermacular Architecture of the World, Cambridge

University Press,1997.
5. V.S. Praman, Havali – Wooden Houses & Mansions of Gujarat, Mapin Publishing Pvt. Ltd., Ahmedabad,1989.
6. Kullrishan Jain & Minakshi Jain – Mud Architecture of the Indian Desert, Aadi Centre, Ahmedabad,1992.
7. G.H.R. Tillotsum ;The tradition of Indian Architecture Continuity, Controversy – Change since 1850, Oxford University Press, Delhi,1989.
8. Richardson,Vickey; New Vernacular Architecture: Laurance KingPublishing,2001

ARCHITECTURAL PSYCHOLOGY & SOCIOLOGY (TIU-UAR-E403)

L – S – P (2 –0–0) Credits-1

CO	Course Outcomes	K-level
CO1	Understand basic sociological concepts and their applications in human settlement studies, including social structures, culture, and socio-economic parameters.	K2, K3
CO2	Analyze the historical and social impacts on human living environments and understand how architecture responds to socio-cultural transformations.	K4, K5
CO3	Evaluate social demographic factors such as population size, growth, and migration and their impact on residential mobility and social development.	K5, K6
CO4	Examine how buildings function as consumer goods and express social identity, considering issues such as housing decisions, community, and vulnerability.	K4, K5
CO5	Investigate the impact of urbanization, economic class stratification, and socio-economic parameters on housing and urban environments, including slums and squatter settlements.	K5, K6
CO6	Apply techniques of data collection, socio-economic analysis, and space syntax analysis to assess and design-built environments that support social institutions.	K3, K4

Course Objectives:

Analyze how architectural sociology assists in perceiving the human use of space
Examine the social issues and changes and draw directions for designs.
Analyze determinants of social context and apply the in architectural design.
Synthesize on the dependency of economic parameters on social and built forms and appraise future solutions.
Develop and implement solutions for contemporary social issues
Design built environment integrated with social institutions.

MODULE I

Sociology - Basic Concepts

Sociology and its uses in human settlement studies; Social structure, concept of culture and differentiation of space; Socio-cultural processes: Socialization, competition, accommodation, culture change, Cultural-lag; Social stratification, class structure, family structure and human community development; Socio economic parameters of community planning; Sociology and its relationship withArchitecture**;**

MODULE II

Society and Architecture

Historical moorings of the world society and development of architecture; Social Impact on human living environment: examples from Industrial and French Revolution; Social diversity and choices on community settlements- impact of House-form and culture; Socio-cultural transformation

through the ages and impacts on built environment; Social identity and architectural relevance.; Contribution of society, social structure and culture on the development of Vernacular architecture; High rise and low rise structure – design approach with social perspective.

MODULE III

Social Demography

Population size, growth, composition, and distribution; Components of population growth- births, deaths and migration; Causes and consequences of population growth; Population and social development; population policy; Moving houses and residential mobility;

MODULE IV

Building as a Consumer Good

Social and built environment in an existing society; House form and the expression of social identity; Concept of vulnerability among the old; Housing decision and the community; Decision in home purchasing

MODULE V

Impact of Urbanization and Economic Class Stratification

Urbanization, rural-urban continuum, urban growth; Impact of urban growth on society and urban area; Social aspects of Housing; Territoriality and neighborhood; Impacts of socio- economic parameters on built form; Slum and Squatter settlements; Design for weaker sections.

MODULE VI

Techniques of Data Collection and Socio-Economic Analysis

Appreciating the contribution of social research; Data Collection: Participant and quasi participant observation; interview, questionnaire and sampling-size; Structuring the questioner; Analysis: scaling techniques-social distance; Interpreting results

MODULE VII

Environmental Psychology & Space Syntax Analysis

Introduction, processes, principles and issues related to environmental psychology; Human spatial behavior and environmental stressors; Environmental designs – Assessing and planning, architectural psychology; Nature deficit disorder and green prescriptions; Introduction to Space syntax analysis; Techniques of integrating space syntax in social space analysis.

Recommended Books:

1. D. R. Sachdeva ; An Introduction to Sociology - Vidya Bhushan,;KitabMahal.
2. James C. Snyder, Anthony J. Catanese; Introduction to Architecture-;McGraw-Hill.
3. G.H.R. Tillotson – The tradition of Indian Architecture Continuity, Controversy – Change since 1850, Oxford University Press, Delhi,1989.
4. Anthony D. King, Building and Society. Routledge Kegan & Paul,1980.
5. Oscar Newman, Defensible Space; MacmillanPublishing,1976.
6. Amos Rapoport,; House Form and Culture, Milawaukee: University of Wisconsin,1969.
7. Edwars T hall; The Hidden Dimension; Anchor BooksEditions;1990.
8. Bill Hillier, Julienne Hanson; SpaceSyntax;

EDUCATIONAL TOUR (TIU-UAR-L401)

L – S – P (0 – 0–0) Credits-2

CO	Course Outcomes	K-level
CO1	Understand the process of documenting historic buildings, landscapes, and interiors through mapping, hand-sketching, and detailed drawings.	K2, K3
CO2	Develop report-writing skills by compiling findings from the tour, including descriptions of monuments, architectural styles, and structural systems.	K5, K6
CO3	Analyze the social, cultural, and economic context of visited sites and assess their impact on architectural forms and urban landscapes.	K4, K5
CO4	Evaluate the environment, flora, fauna, and man-made interventions in the context of architectural design and urban scapes.	K5, K6
CO5	Present findings through drawings, sketches, photographs, and electronic media, demonstrating proficiency in architectural communication.	K5, K6
CO6	Conduct a seminar presentation and participate in a viva voce to verbally communicate architectural observations and critical analysis.	K5, K6

Overview:
Students will undertake a 7–10-day educational tour focusing on the study of historic precincts, buildings, landscapes, and interiors. The aim is to develop skills in architectural observation, documentation, and critical analysis.

On-Site Activities:
- Study of architectural heritage, built forms, and urban landscapes
- Documentation through mapping, hand sketching, photography, and measured drawings
- Observation of environmental, cultural, and social contexts

Post-Tour Submission:
Each student is required to prepare a comprehensive report supported by:
- Sheets, sketches, and hand-rendered drawings
- Photographic documentation
- Digital/electronic presentations

Report Content:
The report must include:
- Tour details: duration, itinerary, sites visited, and participant list
- Architectural documentation: monument descriptions, historical context, style, structure, condition, unique features, and objective critique
- Socio-cultural context: local demographics, traditions, economy, and community observations
- Environmental context: natural features, manmade interventions, urban characteristics, and local challenges
- Reflection: learnings, unanswered questions, and a concluding summary

Measured Drawing Presentation:
Students will present hand-drafted, well-rendered measured drawings, demonstrating accuracy and appropriate documentation methods.

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

ARCHITECTURAL DESIGN - VI (TIU-UAR-S401)

L – S – P (0 – 12–0) **Credits-10**

CO	Course Outcomes	K-level
CO1	Apply design theory and principles to create architectural solutions for low-rise, medium-rise, and high-rise buildings addressing complex functional, climatic, and social factors.	K3, K4
CO2	Integrate structural considerations and building services in the design process to ensure practical and efficient building solutions.	K3, K4
CO3	Interpret and apply relevant building bye-laws and the provisions of the National Building Code in architectural design and planning.	K4, K5
CO4	Estimate areas and approximate costs associated with the design of complex architectural projects.	K5, K6
CO5	Design architectural solutions for various types of buildings, such as hospitals, group housing, and multiplexes, considering functional requirements and user needs.	K5, K6
CO6	Demonstrate architectural ideas through time-bound design exercises and participate in a viva voce to communicate design concepts effectively.	K5, K6

Objectives:

Application of Design theory and principlesand

Design of Low rise / medium rise /high rise buildings with complex issues to be tackled coveringfunctional relationship, climatic condition, social aspects along with structural considerations andbuildingservices

Application and use of relevant building bye-laws and provisions of **National BuildingCode**

Estimation of areas and approximatecost

Main Design Exercise

General or SpecialistHospital

Group HousingProject

Multiplex

Design (Time) Exercise Duration

Nursinghome

Multiopurpose hall

Viva voce

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

INTERIOR DESIGN PRACTICE (TIU-UAR-S403)

L – S – P (0 – 6–0) **Credits-4**

CO	Course Outcomes	K-level
CO1	Understand the scope, necessity, and parameters of interior design, including qualitative aspects of space and the transformation of design elements.	K2, K3
CO2	Analyze the impact of interior design elements such as texture, pattern, color, light, and sculptures on the psychological effects and ambiance of a space.	K4, K5
CO3	Apply knowledge of various materials, surface treatments, and technological applications in interior design, from traditional to modern materials.	K3, K4

CO4	Design functional and meaningful interior spaces by considering services, acoustics, lighting, and ergonomics, and understand the relationship between these elements.	K5, K6
CO5	Apply principles of furniture design, modular systems, and interior landscaping in the creation of cohesive and aesthetically pleasing spaces.	K3, K4
CO6	Present and detail interior design schemes with specifications for materials, technologies, furnishings, lighting, and services in different types of spaces.	K5, K6

Course Objectives

To know the definition, scope and necessity of Interiordesign
Understanding the parameters related to qualitative aspects ofspace.
To study Space organization and alteration of interiorspace.
Study of devices used for manipulation of the interior space as texture, pattern, colour, light, paintings, sculptures and their psychological effects ininterior
To know different surface treatments in interiors, e.g. on walls, floors, ceilingsetc.
Understanding of various materials used in Interiors (from traditional to latest) along with its technology of application andspecification
Awareness will be given regarding various technical aspects, practical difficulties, onsite decisions which will strengthen the knowledge for handling and executing a project of interior design.
Assimilation of various aspects of space interior such as advanced services, acoustics, illuminations and developing the skills to design functional and meaningful interior space to meet the expectedambience.

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Theoretical Input:

Elements of Interior Design. Transformation of design elements. Optical illusion. Study of geometricpatterns.
Enveloping space, contained space and residual spaces, Spaces withinspace.
Principles of lines; wall compositionguidelines.
Colour for interiors: hue, chroma and tonal values, Effect of light on colour, various colour schemes like analogues, complementary, triadic etc. Colour symbolism. Colour planningprocess.
Interior lighting: direct and indirect lighting, location and light grid systems, luminaire types, quality of lighting. Ambient, task and accentlighting.
Various systems of AirConditioning.
Furniture design. Modular approach in system furnishings. Selection and design of accessories.
Principles of interior landscaping, texture, height grouping and layout. Plant species specifications.
Open office system, Industrial interiors and specialized interior space design. Styles of Interiors: Italian, English, French, Japanese stylesetc.
Exposure to eminent interior designersworks.
Presentation of interior design schemes with detail specification for the materials and technologyused.

Sessional Input:

Interior Design of Minimum two projects must be undertaken: Interior designs for homes, offices, factories, library, hospitals, hotels, shopping malls, showrooms, Hotel lobbies, Banquet halls, cinema and exhibitionhalls.
Exercises to be taken todemonstrate:

1. multiple interrelated activity spaces designed for functional and ergonomic efficiency and ambienceand
2. role of building materials, furnishings, furniture, illumination, services, fixtures, hardware, plants and the cost of the proposed design work etc in Interiordesign;

Site visits and workshops, guest-lectures, seminars to be organized including professionals, consultants, and skilled artisans etc. from various coordination fields from interiordesign.
The student shall submit the reports on various lectures, site visitsetc

Recommended Books:

1. Interior Design in the 20th Century by Allen Tate,C.Ray
2. Interior Graphic & Design Standards byS.C.Reznikoff.
3. Beginnings of Interior Environment by Phyllis Sloan, Allen & Miriam F. Stimpson (10th edition).
4. Interior Design, John F. Harry AbramsInc.
5. Interior Design Course, Mary Gilliat Coyran, Octopus Ltd.London
6. Interior Design, Francis D. K. Ching, John Wiley &Sons, NewYork
7. Time Savers Standard for Interior Design, Joseph De Chiara, McGraw Hill NewYork
8. Archi World.Interior Best Collection: Residence, Commerce, Office, Restaurant Asia I-IV.Archi World Co., Korea,2003.
9. Friedmann, Arnold and Others. Interior Design: An Int. to Architectural Interiors. Elsevier,New York, 1979.
10. Miller, E. William.Basic Drafting for Interior Designers. Van Nostrand Reinhold,NewYork, 1981.
11. Kurtich, John and Eakin, Garret. Interior Architecture, Van Nostrand Reinhold, NewYork, 1993.
12. Rao, M. Pratap. Interior Design: Principles and Practice, 3rd ed. Standard Pub.,2004.
13. Magazines and Journals to be referred pertaining to thesubject

COURSE PLANNING

8TH SEMESTER (OLD SYLLABUS)

Subject Code	Course Title	Contact Hrs./ Week			Credit	Marks
		L	S	P		
LECTURE						
TIU-UAR-T402	Professional Practice and Entrepreneurial Development	**3**	0	0	**3**	**100**
TIU-UAR-T404	Urban Planning	**3**	0	0	**3**	**100**
TIU-UAR-T406	Industrial Architecture	**3**	0	0	**3**	**100**
TIU-UAR-T408	Professional Ethics	**2**	0	0	**2**	**100**
TIU-UAR-T410	Research Methodology	**2**	0	0	**2**	**100**
TIU-UAR-E402	Cost Effective Technology In Building Construction (Elective IV)	**2**	0	0	**1**	**100**
TIU-UAR-E404	Transportation Planning (Elective IV)	**2**	0	0	**1**	**100**
SESSIONAL						
TIU-UAR-S402	Architectural Design - VII	0	16	0	**12**	**400**
PRACTICAL						
TOTAL					**26**	**1000**

Note: The Sessional and theory subject load would not allow any space for Institute Programme since 7th Semester

PROFESSIONAL PRACTICE AND ENTREPRENEURIAL DEVELOPMENT
(TIU-UAR-T402)

L – S – P (3 – 0–0) **Credits-3**

CO	Course Outcomes	K-level
CO1	Understand the legal framework governing the architectural profession, including the Architects Act 1972 and the role of the Council of Architecture.	K2, K3
CO2	Analyze the ethical responsibilities, professional conduct, and scope of services of architects in relation to clients, contractors, consultants, and public authorities.	K4, K5
CO3	Apply knowledge of office management, partnership practices, and entrepreneurial principles in setting up and operating an architectural firm.	K3, K4
CO4	Evaluate different types of tenders and contracts, their processes, merits and demerits, and their applicability to various project scenarios.	K5, K6
CO5	Understand the guidelines and purpose of architectural competitions and the procedures for participation and assessment.	K2, K3
CO6	Examine the principles of arbitration, easements, insurance, and legal liabilities relevant to architectural practice, including property transfer and workmen compensation.	K4, K5

Course Objective:

To introduce to the professional, vocational and legal aspects of architecturalpractice.
To inform about the professional services and ethics to be shown towards society, clients, fellow architects andco-workers.
To inform about the scope of services to be provided and project responsibilities during design andconstruction.
To inform about the scale of charges for the different architectural services to berendered
To give a know-how about the establishment and management of a private architectural office and familiarize the students with project and office managementaspects.
To familiarize with various kinds of building regulations and codes to followed to control and promote the ordered growth of acity/town.
To inform about the different types of tenders and contracts, its merits and demerits, tendering process and suitability w.r.t to different types of architecturalprojects.
To inform about the method of seeking municipal approval and submissionplans.
To explain about the significance, purpose and types of architecturalcompetitions

MODULE I

Architects Act 1972

Detailed study of the act, its provisions and recent amendments, Role and responsibilities of Council of Architecture, role of its electorate, procedure of membership.

MODULE II

Role of Professional body - Indian Institute of Architects

Its working, constitution and bye laws, categories of membership, election procedures, Code of conduct, Role of its conventions, its publications, etc.

MODULE III

Role of an Architect in Society

Architectural profession as compared to other professions; Architects approach to works; ways of getting works; types of works, works partly executed by other architect; conditions of engagement between the architect and client; Architects (Professional Conduct) Regulations, 1989; Architects' Professional Liability; Professional Misconduct; Scope of work; Copy rights; Scale of charges; Variation of charges; Mode of payment; Schedule of payment; Termination of services; Specialized

building services; Professional service tax; Architects relation with other parties connected with works such as client, contractor, sub- contractors, consultants, municipal and publicauthorities.

MODULE IV

Architectural Competitions

Its purpose, types of Architectural competitions, its guidelines for participation, prizes, assessment, etc.

MODULE V

Architects in practice

Private practice - Partnership office management, methods of organization, filing, documentation and working. Tax-liability

Salaried appointment - Public sector, Private sector jobs, procedure of operation in governmentorganization.

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MODULE VI

Tendering process

Preparation of tender documents, method of writing tenders, opening of tenders. Tender valuation process, Contracts; types of contracts such as item rate, labour, lump-sum, cost plus percentage etc; their merits and demerits. General principles of Indian contract Act; Building contracts, conditions and forms of contract, study of standard contract of the Indian Institute of Architects. Preparation of contract documents, general conditions of contract, Administration of contract; Interim certificates, defect liability periods, retention amount, security deposits, mobilization money and virtual completion

MODULE VII

Principle of Arbitration, Indian Arbitration Act 1940, Powers and duties of arbitrators, revoking authority; umpire, award etc.

Easement: definition; various types of easements; document and servant owners; essential conditions for enjoyment of easement; Fire insurance's definition, cover note; insurance for new work and additions; insurable value of property, claim for damage due to fire **Preliminary knowledge of transfer of property Act**; registration, stamp duty under Registration process. Tax Liability, wealth, land acquisition Acts; general information about land acquisition procedures. Accidents during progress of work and after completion, damage to persons and properties affected; workmen's compensation Act with regards to the affected persons and properties. Consumer protection Act and related acts onArchitects.

Recommended Books:

1. Roshan Namavati; Professionalpractice.
2. Code of Professional Practice : I. I.A.
3. Architect Act1972.
4. Handbook of Professional Documents- 2005, by Council ofArchitecture.

URBAN PLANNING (TIU-UAR-T404)

L – S – P (3 – 0–0) **Credits-3**

CO	Course Outcomes	K-level
CO1	Understand the components and classification of human settlements based on location, resources, population, and occupational structure.	K2, K3
CO2	Analyze the structure and form of human settlements and assess the influencing factors, advantages, and limitations through case studies.	K4, K5
CO3	Examine the relevance of classical planning theories and concepts such as Garden City, Neighborhood Unit, and Conservative Surgery in the Indian context.	K4, K5
CO4	Apply planning tools and regulatory mechanisms such as master plans, land use zoning, and planned unit development in urban contexts.	K3, K4
CO5	Evaluate the concepts of urban renewal, redevelopment, rehabilitation, and conservation within the framework of Indian urban policy programs like JNNURM.	K5, K6
CO6	Assess the impact of globalization, urbanization, and new forms of development such as SEZs, integrated townships, and transit-oriented development on Indian cities.	K5, K6

Objectives:

To have an overview on the vocabulary of Human settlements To understand the various elements of Human Settlements and the classification of HumanSettlements

To familiarize the students with Planning concepts and process in Urban and Regional Planning.

MODULE I

Introduction

Elements of Human Settlements – human beings and settlements – nature shells& Net work – their functions and Linkages – Anatomy & classification of Human settlements – Locational, Resource based Population size &Occupationalstructure.

MODULE II

Forms of Human Settlements

Structure and form of Human settlements – Linear, non-linear and circular – Combinations – reasons for development – advantages and disadvantages – case studies – factors influencing the growth and decay of human settlements.

MODULE III

Planning Concepts

Planning concepts and their relevance to Indian Planning practice in respect of Ebenezer Howard – Garden city concepts and contents – Patrick Geddes – Conservative surgery – case study – C.A. Perry – Neighborhood concept Le Corbusier – concept and case studies.

MODULE IV

Urban Planning and Urban Renewal

Scope and Content of Master plan – planning area, land use plan and Zoning regulations – zonal plan – need, linkage to master plan and land use plan – planned unit development (PUD) –need, applicability and development regulations - Urban Renewal Plan – Meaning, Redevelopment, Rehabilitation and Conservation – JNNURM – case studies.

MODULE V

Issues in contemporary urban planning in India

Globalization and its impact on cities – Urbanisation, emergence of new forms of developments – self sustained communities – SEZ – transit development – integrated townships – case studies.

Recommended Books:

1. C.L.Doxiadis,Ekistics,—An Introduction totheScienceofHumanSettlements||,Hutchinson, London,1968.
2. AndrewD.Thomas,—HousingandUrbanRenewal||,GeorgeAllenandUnwin,Sydney,1986.
3. —MinistryofUrbanAffairsandEmployment||,GovernmentofIndia,NewDelhi,1999.
4. —UrbanDevelopmentPlans:Formulation&Implementation||,Guidelines,1996.
5. MadrasMetropolitanDevelopmentAuthority,.MasterPlanforMadrasMetropolitanArea, Second Master Plan,2007.
6. GovernmentofIndia,—ReportoftheNationalCommissiononUrbanisation||,1988.
7. HansenN.,—RegionalPolicyandRegionalIntegration||,EdwardElgar,UK,1996.
8. Sandhu.R.S.,—SustainableHumanSettlements||,AsianExperience,Rawatpublications, 2001.
9. Gastek.P.,—LivingPlans:Newconceptsforadvancedhousing||,Brikhauserpublications,2005.

INDUSTRIAL ARCHITECTURE (TIU-UAR-T406)

L – S – P (3 – 0–0) **Credits-3**

CO	Course Outcomes	K-level
CO1	Understand the classification of industrial buildings, planning principles, design codes, and functional requirements of different industries.	K2, K3
CO2	Apply functional planning strategies for factory buildings, ensuring spatial efficiency, flexibility, and provisions for future expansion.	K3, K4
CO3	Analyze the use and application of industrial structural systems, including steel and concrete, in the design of industrial facilities.	K4, K5
CO4	Evaluate the requirements and specifications for industrial finishes in relation to different functional and material needs.	K5, K6
CO5	Design industrial environments by addressing external environmental factors such as noise, pollution control, hygiene, and landscape integration.	K5, K6
CO6	Examine the layout and planning of industrial townships considering worker housing, infrastructure, and socio-environmental needs.	K4, K5

MODULE I

Industrial Estates – requirements of factory and codes – classification of industrial occupancy – patterns of industrial estates – integrated aspects of design – general requirements of different types ofindustries

MODULE II

History of factory buildings – functional planning of spaces – plan layout – flexibility of design and future expansion

MODULE III

Industrial Structures – steel structures and concrete structures – requirements of various finishing works

MODULE IV

Environmental Design for Industries – aspects of external environments such as noise control regulations, pollution levels, sewage disposal and hygiene – factory andlandscape

MODULE V

Layout and organization of Industrial Townships

Recommended Books:

1. Gurcharan Singh – Building Planning Designing AndScheduli
2. Jolyon Drury and Peter Falconer – Buildings for Industrial Storage andDistribution
3. Allison Arieff, Joseph Tanney, Robert Luntz – Modern Modular: The Prefab Houses of Resolution: 4Architecture

PROFESSIONAL ETHICS (TIU-UAR-T408)

L – S – P (2 – 0–0) Credits-2

CO	Course Outcomes	K-level
CO1	Understand the foundational concepts of the architectural profession, the role of statutory bodies, and the importance of ethics and professional conduct.	K2, K3
CO2	Apply knowledge of architect's scope of services, scale of fees, and procedures for professional engagement including architectural competitions.	K3, K4
CO3	Analyze tendering procedures, types of contracts, and emerging project execution models like BOT, BOO, DBOT, etc.	K4, K5
CO4	Evaluate the legal responsibilities of architects under laws such as the Arbitration Act, Copyright Act, and Consumer Protection Act.	K5, K6
CO5	Examine national and local building regulations (e.g., Second Master Plan, CRZ, Heritage Act) and their impact on architectural practice.	K4, K5
CO6	Assess the implications of globalization, technology, and emerging trends like architectural journalism and project management on the future of the profession.	K5, K6

Objectives:

To give an introduction to the students about the architectural profession and the role of professional bodies and statutory bodies.

To teach the students about the importance of code of conduct and ethics in professional practice and the mandatory provisions as per Architect's Act1972.

To expose the students to some of the important legal aspects and legislations which have a bearing on the practice of architectural profession.

To enable the students to grasp the advanced issues concerning professional practice such as tendering, contracting including alternative practices in project execution and project management.

To expose the students to the implications of globalisation on professional practice with particular reference to WTO and GATS and equip them for international practice.

MODULE I

Introduction to architectural profession code of conduct and ethics

Importance of Architectural Profession – Role of Architects in Society – Registration of Architects– Architect's office and its management – Location, organisational structure – Infrastructure requirement, skills required, elementary accounts – Tax liabilities. Role of Indian Institute of

Architects – Architects Act 1972 (intent, objectives, provisions with regard to architectural practice) – Council of Architecture (role and functions) – Importance of ethics in professional practice – Code of conduct for architects, punitive action for professional misconduct of an architect.

MODULE II

Architect's services, scale of fees & competitions

Mode of engaging an architect – Comprehensive services, partial services and specialized services – Scope of work of an architect – Schedule of services – Scale of fees (Council of Architecture norms) – Mode of payment – Terms and conditions of engagement – Letter of appointment. Importance of Architectural competitions – Types of competitions (open, limited, ideas competition) – Single and two stage competitions – Council of Architecture guidelines for conducting Architectural competitions – National and International Competitions – Casestudies.

MODULE III

Tender & Contract

Tender - Definition - Types of Tenders - Open and closed tenders - Conditions of tender– Tender Notice - Tender documents - Concept of EMD - Submission of tender - Tender scrutiny - Tender analysis – Recommendations – Work order - E-tendering (advantages, procedure, conditions). Contract – Definition - Contract agreement - its necessity – Contents (Articles of Agreement, Terms and Conditions, Bills of Quantities and specifications, Appendix) – Certification of Contractors Bills at various stages. New trends in project formulation and different types of execution (BOT, DBOT, BOLT, BOO, etc.) - Execution of projects – The process (Expression of interest, Request for Proposal, Mode of Evaluation of Bids, Award of work)

MODULE IV

Legal aspects

Arbitration (Definition, Advantages of arbitration, Sole and joint arbitrators, Role of umpires, Award, Conduct of arbitration proceedings) – Arbitration clause in contract agreement (role of architect, excepted matters) Easement – (meaning, types of easements, acquisition, extinction and protection) Copy rights and patenting – (provisions of copy right acts in India and abroad, copy right in architectural profession) Consumer Protection Act (Intent, Architects responsibility towards hisclients)

MODULE V

Important legislations and current trends

Development Regulations in Second Master Plan for CMA, Chennai Corporation Building Rules 1972 - Factories Act – Persons with Disabilities Act – Barrier Free Environment - Costal Regulation Zone – Heritage Act. Globalisation and its impact on architectural profession – Preparedness for International practice – Entry of Foreign architects in India – Information Technology and its impact on architectural practice. Emerging specialisations in the field of Architecture – Architect as construction / Project manager – Architectural journalism – Architectural photography.

Recommended Books:

1. Architects Act1972.
2. Publications of Handbook on Professional practice byIIA.
3. Publications of Council of Architecture-Architects (Professional conduct)Regulations
4. 1989, Architectural Competitionguidelines
5. RoshanNamavati,—Professionalpractice‖,LakhaniBookDepot,Mumbai1984.
6. Ar.V.S.Apte,—ArchitecturalPracticeandProcedure‖,Mrs.PadmajaBhide,2008
7. Development Regulations of Second Master Plan for Chennai Metropolitan Area-2026.
8. J.J.Scott,—Architect'sPractice‖,Butterworth,London,1985

9. Second Master Plan – Development Regulations – CMDA,2008
10.T.N.D.M. Buildings rules,1972.
11.Consumer Protection Act,2011
12.Arbitration Act,2005
13.Persons with Disabilities Act,1995

RESEARCH METHODOLOGY(TIU-UAR-T410)

L – S – P (2 – 0–0) **Credits-2**

CO	Course Outcomes	K-level
CO1	Understand research aims, paradigms, and the structure of literature reviews to develop research proposals in architectural contexts.	K2, K3
CO2	Apply statistical tools and methods to test hypotheses and interpret research data using descriptive and inferential techniques.	K3, K4
CO3	Develop skills in scientific writing including structuring research reports and academic papers suitable for publication.	K5, K6
CO4	Differentiate between physical and behavioural research methods and apply tools such as surveys, interviews, and field measurements.	K4, K5
CO5	Conduct independent architectural research, gather relevant data, and synthesize findings for minor dissertation work.	K3, K4
CO6	Present the outcomes of a research study in written and oral formats using appropriate referencing, structure, and visual communication techniques.	K5, K6

MODULE I

Research Aims & Literature Search

Research Aims and Philosophy, research paradigms. Literature search and review, the use of libraries and data bases, aim and structure of a literature review, Developing research proposals.

MODULE II

Statistics for Research

Statistics for research – statistical concepts, probability, the hypothesis and testing it, descriptive statistics, central tendency and dispersion. Inferential statistics. Introduction to parametric and non-parametric methods.

MODULE III

Scientific Writing

Introduction to scholarly technical writing and publishing a paper, writing a research report, presentation of scientific research, structure of a research report.

MODULE IV

Physical and Behavioural research

Introduction to behavioural research and physical research. Behavioural research, obtain data, questionnaires, interviews, un-obstructive and obstructive measures, scales such as a semantic differentials, physical research, laboratory, resources available, equipment for laboratory and site measurement. Field survey and its relevance

MINOR DISSERTATION:

Each student shall prepare a a minor research / dissertation on any topic in architecture relevant to

any chosen objective or any aspect of the Thesis Project. The minor dissertation shall be a research–based **conceptual study** directly associated with the thesis topic. It shall be submitted in the form of a report with appropriate referencing, bibliography etc. and the highlights shall be also presented as a seminar.

Recommended Books:

1. GiereR.N.—UnderstandingScientificReasoning||,HoltRinehart&Winston,U.K.,1991.
2. MoroneyM.J.,—FactsfromFigures||,Penguin,1990.
3. DayR.A.,—HowtoWriteandPublishaScientificPaper||,CambridgeUniversityPress,R.K. 1991.
4. SeigelS.&CastellanN.J.,—NonparametricStatisticsfortheBehaviouralSciences||,McGraw Hill Book Company, New York,1988.

COST EFFECTIVE TECHNOLOGY IN BUILDING CONSTRUCTION (TIU-UAR-E402)

L – S – P (2–0–0)Credits-1

CO	Course Outcomes	K-level
CO1	Understand the need for cost-effective construction techniques and evaluate planning, construction, and maintenance aspects influencing building affordability.	K2, K3
CO2	Identify and apply region-specific and alternative building materials including indigenous, recycled, and waste-based resources.	K3, K4
CO3	Examine the development and applications of cost-effective construction materials as documented by institutions like CBRI and SERC.	K4, K5
CO4	Analyze traditional construction methods and assess the relevance of adopting improved or innovative building technologies.	K4, K5
CO5	Evaluate construction practices and technologies based on initial investment, durability, and maintenance in various regional contexts.	K5, K6
CO6	Conduct critical assessments of real-world implementations of cost-effective construction methods used by local and national agencies.	K5, K6

MODULE I

Cost effective techniques: Need, Planning aspects, construction aspects, maintenance and longevity aspects

MODULE II

Choice of materials in Indian/Kerala conditions, indigenous building materials, organic and inorganic building materials, alternative building materials, use of industrial and agricultural wastes - Survey of such materials development by research organizations like CBRI, SERC etc**.**

MODULE III

Significance of construction technology: Relevance of improving of traditional technology, relevance of innovative technology/alternate technology, survey of such technologies by various research institutes.

MODULE IV

Critical analysis (in terms of initial investment, maintenance cost and longevity of buildings) of the local adaptation of the innovative technologies by variousagencies.

Recommended Books:

1. Hand book of low costhousing
2. G.C.Mathew,_Lowcosthousing in developmentcountries‘
3. Publication of CBRI, SERC, RRL, NBO,COSTFORD.

TRANSPORTATION PLANNING (TIU-UAR-E404)

L – S – P (2 – 0–0) CREDITS-1

CO	Course Outcomes	K-level
CO1	Understand the scope of transportation planning, traffic issues in urban areas, and the relationship between land use and transportation systems.	K2, K3
CO2	Analyze traffic-related environmental concerns such as pollution, noise, vibration, and visual intrusion in Indian urban contexts.	K4, K5
CO3	Apply systems thinking to integrate transportation strategies with land use and city planning controls.	K3, K4
CO4	Understand the objectives and methods of transportation surveys including origin-destination studies and OD matrix preparation.	K2, K3
CO5	Evaluate the effectiveness of traffic control elements such as signals, signs, street furniture, and parking management techniques.	K5, K6
CO6	Propose planning solutions involving traffic signage, parking design, and avenue landscaping with a focus on safety and aesthetics.	K5, K6

MODULE I

Scope of the subject - Nature of traffic problems in cities and measures to meet the problems - Landuse and city planning controls – Interdependence of land use and traffic. Systems approach to transport planning

MODULE II

Traffic and the environment - Detrimental effects of traffic on the environment – Noise, air pollution, vibration, visual intrusion and degrading the aesthetics, severance and land consumption – situation in India.

MODULE III

Transportation survey - Type of surveys – origin destination survey, need and uses of OD surveys, survey methods. O.D matrix.

MODULE IV

Traffic signs – importance – Need for international standardization - General principles and type of traffic sign - Traffic signals. Parking – Parking problems and ill effects – Parking space requirement standards. Traffic control aids and street furniture - Avenue planting and landscape – Qualities of trees in avenueplanting

Recommended Books:

1. L.R.Kadiyali– _TrafficEngineeringandtransportPlanning‘
2. Pual.H.Wright, Norman J.Ashfod– _TransportationEngineering– _Planning and design‘
3. Vukan R.Vuchic–_Urban publictransportation‘
4. Donald FWood-_ContemporaryTransportation‘.

ARCHITECTURAL DESIGN-VII (TIU-UAR-S402)

L – S – P (0 – 16–0) **Credits-12**

CO	DESCRIPTION	K-level
CO1	Apply design theory, spatial principles, and contextual understanding to develop architectural solutions for large public and institutional buildings.	K3, K4
CO2	Design complex low-rise to high-rise structures addressing functional relationships, climate responsiveness, and social needs.	K5, K6
CO3	Integrate structural systems, building services, and sustainability principles into the overall architectural design.	K3, K4
CO4	Interpret and implement relevant building bye-laws and National Building Code provisions in the design process.	K4, K5
CO5	Estimate areas and approximate costs as part of the design proposal for large-scale public and infrastructural facilities.	K5, K6
CO6	Demonstrate architectural ideas effectively through design presentation, time-bound exercises, and viva voce.	K5, K6

Objectives:

Application of Design theory and principlesand

Design of Low rise / medium rise /high rise buildings with complex issues to be tackledcoveringfunctionalrelationship,climaticcondition,socialaspectsalongwith structural considerations and buildingservices

Application and use of relevant building bye-laws and provisions of **National BuildingCode**

Estimation of areas and approximatecost

Main Design Exercise Duration (approx.)

Terminal facilities for Bus or Modal interchange forRailways

Campus Planning for InstitutionalProject

Public buildings likeMall

Design (Time) Exercise Duration

Bank/ PostOffice

Departmentalstore

Viva voce

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

COURSE PLANNING

9TH SEMESTER (OLD SYLLABUS)

Subject Code	Course Title	Contact Hrs./ Week			Credit	Marks
		L	S	P		
PRACTICAL						
TIU-UAR-L501	**Architectural Apprentice And report submission with Grand Viva**			**30**	**30**	**1000**
TOTAL					**30**	**1000**

Note: The Sessional and theory subject load would not allow any space for Institute Programme since 7th Semester

ARCHITECTURAL APPRENTICE AND REPORT SUBMISSION WITH GRAND VIVA (TIU-UAR-L501)

L – S – P (0 – 0 –30) **Credits-30**

CO	Course Outcomes	K-level
CO1	Understand the apprenticeship process, objectives, and goals, and learn about the role and responsibilities of an apprentice in a professional architectural environment.	K2, K3
CO2	Apply knowledge of architectural practice by engaging in live architectural projects, client meetings, site visits, and documentation processes.	K3, K4
CO3	Document weekly activities and reflect on architectural projects by maintaining a detailed logbook that tracks learnings, sketches, observations, and contributions.	K3, K4
CO4	Compile a comprehensive final apprenticeship report that integrates theoretical knowledge with practical experiences, reflecting on professional growth and challenges faced.	K5, K6
CO5	Synthesize architectural knowledge and professional experiences during the Grand Viva, presenting the apprenticeship work and defending the final report.	K5, K6
CO6	Evaluate and demonstrate professional preparedness, communication skills, and ethical conduct as an architect, as well as understanding the responsibilities involved in architectural practice.	K4, K5

Course Objective:

To provide students with hands-on experience in a professional architectural environment through apprenticeship.To develop a strong understanding of the responsibilities, tasks, and processes involved in the architecture industry.To enhance the ability to document and reflect on architectural projects.To prepare students for professional practice with a final report and a Grand Viva.

MODULE I

Orientation & Placement

Introduction to the apprenticeship process, objectives, and goals, firm placement and selection criteria, role and responsibilities of the student during training, setting learning goals and expectations for the apprenticeship.

MODULE II

Professional Practice Exposure

Exposure to live architectural projects and the day-to-day operations of an architectural firm, engagement in client meetings, site visits, and project documentation, learning about construction detailing, working drawings, and municipal submissions, understanding office management practices, teamwork dynamics, and communication protocols, emphasis on professional ethics, conduct, and adherence to industry

standards.

MODULE III

Weekly Logbook & Documentation

Maintaining a detailed logbook to track activities, tasks, and learnings, recording sketches, observations, and project contributions, collecting supporting materials like drawings, photographs, and certificates for reference.

MODULE IV

Report Compilation

Structuring the final apprenticeship report based on the experiences and insights gained, integrating theoretical knowledge with practical learnings, reflecting on professional growth, challenges faced, and achievements during the apprenticeship, preparing the report as per the institute's guidelines for submission.

MODULE V

Grand Viva & Evaluation

Presentation of the apprenticeship work to a faculty panel, defense of the apprenticeship report and practical exposure, receiving feedback on the clarity, understanding, and professional preparedness shown during the Grand Viva.

COURSE PLANNING

10TH SEMESTER

(OLD SYLLABUS)

Subject Code	Course Title	Contact Hrs./ Week			Credit	Marks
		L	S	P		
LECTURE						
TIU-UAR-E502	Elective not taken in **7th** semester	2	0	0	2	100
TIU-UAR-E504	Elective not taken in **8th** semester	2	0	0	2	100
SESSIONAL						
TIU-UAR-S502	Thesis Project - Final	0	10	0	20	800
PRACTICAL						
TIU-UAR-L502	Thesis Project - Research	0	0	10	6	200
TOTAL					30	1200

Note: The Sessional and theory subject load would not allow any space for Institute Programme since 7th Semester

ELECTIVE NOT TAKEN IN 7TH SEMESTER (TIU-UAR-E502)

L – S – P (2 – 0 – 0) **Credits-2**

CO	Course Outcomes	K-level
CO1	Understand the scope and significance of vernacular architecture in the Indian context, including the factors influencing building materials and construction techniques.	K2, K3
CO2	Analyze and interpret the architectural characteristics and construction techniques of vernacular buildings in Rajasthan, including havelis, bhunga houses, and regional materials.	K4, K5
CO3	Examine the vernacular architectural styles and construction techniques of Gujarat, including tribal housing, woodwork, and rural settlement planning.	K4, K5
CO4	Evaluate the vernacular architecture of the Eastern Hills, focusing on the rural villages, houses, and settlement patterns of various tribes such as the Khasi, Bodo Kachari, and Naga.	K5, K6
CO5	Study the architectural forms and structures of Bengal, including the Eight Roof House and Four Roof House, as well as bungalow construction methods.	K2, K3
CO6	Compare and contrast the regional vernacular architecture of North and South India, with a focus on topography, climate, settlement patterns, and local materials.	K5, K6

Need to take one subject as elective, which was not taken in 7th semester by the student.
This elective course is for students who didn't have the chance to take a specific elective during their 7th semester.
It gives them the opportunity to explore specialized topics in architecture that they may have missed earlier in their studies, helping to expand their knowledge and fill in any gaps.

VERNACULAR ARCHITECTURE (TIU-UAR-E502A)

Course Objectives

The subject looks at specific vernacular architectural communities ofIndia
Identifies and interprets specific local, regional, and national vernacular traditions fromIndia
Develops a broader sense of understanding of the relationship between architecture, environment and culture

MODULE I

Introduction to the field of Vernacular Architecture

Defining and differentiating vernacular architecture from contemporary architecture, Scope of Vernacular Architecture in Indian Context , Factors Influencing Vernacular Architecture, Building Material and Construction Techniques in Indian Vernacular Architecture, Vernacular Architecture in 21st Century

MODULE II

Vernacular Architecture of Rajasthan

Banni Community and their Bhunga House from Rajasthan, Brahmin Caste and their Havelis, Rajputs and their Havelis , Hindu Merchants and their Havelis from Rajasthan, Shekawati Haveli of

Rajasthan, Construction techniques and materials of the region.

MODULE III

Vernacular Architecture of Gujarat

Rathva Tribe of Gujarat , Chodri Tribe, Sociology and Planning of North Gujarat Sciology and Planning of Rural South Gujarat , Sociology and Planning of Saurashtra , Sociology and Planning of Muslim Community in Gujarat,Woodwork Details of Gujarat

MODULE IV

Vernacular Architecture in the Eastern Hills

Rural Villages and Houses of Bengal, Khasi community of Meghalaya Bodo Kachari tribe, Adi Gallong folk of Sian district, Arunachal and their settlement pattern , Naga house ,Morung of Naga Community ,Thadou Kukis Community ofManipur

MODULE V

Vernacular Architecture of Bengal

Eight Roof House Structure of Bengal style, Four Roof House Structure of Bengal style, Bunglow Construction.

MODULE VI

Vernacular Architecture of the North

Regional topography, local climate, settlement pattern, TOQ construction, DhajjiDiwari Construction, local material.

MODULE VII

Vernacular Architecture of the South

Regional topography, local climate, variation in settlement pattern and architecture in different part of theregion.

Recommended Books:

1. Dawson Bary, Cooper Ilay : Traditional Buildings ofIndia,1998
2. Michell, G., Penguin Guide to the Monuments of India, Vol I, Viking, London1989.
3. Tadgell, The History of Indian Architecture, Design and Technology Press, London1990.
4. Paul Oliver, Encyclopedia of Vermacular Architecture of the World, Cambridge University Press,1997.
5. V.S. Praman, Havali – Wooden Houses & Mansions of Gujarat, Mapin Publishing Pvt. Ltd., Ahmedabad,1989.
6. Kullrishan Jain & Minakshi Jain – Mud Architecture of the Indian Desert, Aadi Centre, Ahmedabad,1992.
7. G.H.R. Tillotsum ;The tradition of Indian Architecture Continuity, Controversy – Change since 1850, Oxford University Press, Delhi,1989.
8. Richardson,Vickey; New Vernacular Architecture: Laurance KingPublishing,2001

ARCHITECTURAL PSYCHOLOGY & SOCIOLOGY (TIU-UAR-E502B)

CO	Course Outcomes	K-level
CO1	Understand basic sociological concepts and their applications in human settlement studies, including social structures, culture, and socio-economic parameters.	K2, K3
CO2	Analyze the historical and social impacts on human living environments and understand how architecture responds to socio-cultural transformations.	K4, K5
CO3	Evaluate social demographic factors such as population size, growth, and migration and their impact on residential mobility and social development.	K5, K6
CO4	Examine how buildings function as consumer goods and express social identity, considering issues such as housing decisions, community, and vulnerability.	K4, K5
CO5	Investigate the impact of urbanization, economic class stratification, and socio-economic parameters on housing and urban environments, including slums and squatter settlements.	K5, K6
CO6	Apply techniques of data collection, socio-economic analysis, and space syntax analysis to assess and design built environments that support social institutions.	K3, K4

Course Objectives:

Analyze how architectural sociology assists in perceiving the human use of space
Examine the social issues and changes and draw directions fordesigns.
Analyze determinants of social context and apply the in architectural design.
Synthesize on the dependency of economic parameters on social and built forms and appraise future solutions.
Develop and implement solutions for contemporary social issues
Design built environment integrated with social institutions.

MODULE I

Sociology - Basic Concepts

Sociology and its uses in human settlement studies; Social structure, concept of culture and differentiation of space; Socio-cultural processes: Socialization, competition, accommodation, culture change, Cultural-lag; Social stratification, class structure, family structure and human community development; Socio economic parameters of community planning; Sociology and its relationship withArchitecture**;**

MODULE II

Society and Architecture

Historical moorings of the world society and development of architecture; Social Impact on human living environment: examples from Industrial and French Revolution; Social diversity and choices on community settlements- impact of House-form and culture; Socio-cultural transformation through the ages and impacts on built environment; Social identity and architectural relevance.; Contribution of society, social structure and culture on the development of Vernacular architecture; High rise and low rise structure – design approach with social perspective.

MODULE III

Social Demography
Population size, growth, composition, and distribution; Components of population growth- births, deaths and migration; Causes and consequences of population growth; Population and social development; population policy; Moving houses and residential mobility;

MODULE IV

Building as a Consumer Good
Social and built environment in an existing society; House form and the expression of social identity; Concept of vulnerability among the old; Housing decision and the community; Decision in home purchasing

MODULE V

Impact of Urbanisation and Economic Class Stratification
Urbanization, rural-urban continuum, urban growth; Impact of urban growth on society and urban area; Social aspects of Housing; Territoriality and neighborhood; Impacts of socio- economic parameters on built form; Slum and Squatter settlements; Design for weaker sections.

MODULE VI

Techniques of Data Collection and Socio-Economic Analysis

Appreciating the contribution of social research; Data Collection: Participant and quasi participant observation; interview, questionnaire and sampling-size; Structuring the questioner; Analysis: scaling techniques-social distance; Interpreting results

MODULE VII

Environmental Psychology & Space Syntax Analysis
Introduction, processes, principles and issues related to environmental psychology; Human spatial behavior and environmental stressors; Environmental designs – Assessing and planning, architectural psychology; Nature deficit disorder and green prescriptions; Introduction to Space syntax analysis; Techniques of integrating space syntax in social space analysis.

Recommended Books:

1. D. R. Sachdeva ; An Introduction to Sociology - Vidya Bhushan,;KitabMahal.
2. James C. Snyder, Anthony J. Catanese; Introduction to Architecture-;McGraw-Hill.
3. G.H.R. Tillotson – The tradition of Indian Architecture Continuity, Controversy – Change since 1850, Oxford University Press, Delhi,1989.
4. Anthony D. King, Building and Society. Routledge Kegan & Paul,1980.
5. Oscar Newman, Defensible Space; MacmillanPublishing,1976.
6. Amos Rapoport,; House Form and Culture, Milawaukee: University of Wisconsin,1969.
7. Edwars T hall; The Hidden Dimension; Anchor BooksEditions;1990.
8. Bill Hillier, Julienne Hanson; SpaceSyntax;

ELECTIVE NOT TAKEN IN 8TH SEMESTER (TIU-UAR-E504)

L – S – P (2 – 0 – 0) **Credits-2**

Need to take one subject as elective, which was not taken in 7th semester by the student.
This elective course is for students who didn't have the chance to take a specific elective during their 7th semester.
It gives them the opportunity to explore specialized topics in architecture that they may have missed earlier in their studies, helping to expand their knowledge and fill in any gaps.

COST EFFECTIVE TECHNOLOGY IN BUILDING CONSTRUCTION (TIU-UAR-E504A)

CO	Course Outcomes	K-level
CO1	Understand the need for cost-effective construction techniques and evaluate planning, construction, and maintenance aspects influencing building affordability.	K2, K3
CO2	Identify and apply region-specific and alternative building materials including indigenous, recycled, and waste-based resources.	K3, K4
CO3	Examine the development and applications of cost-effective construction materials as documented by institutions like CBRI and SERC.	K4, K5
CO4	Analyze traditional construction methods and assess the relevance of adopting improved or innovative building technologies.	K4, K5
CO5	Evaluate construction practices and technologies based on initial investment, durability, and maintenance in various regional contexts.	K5, K6
CO6	Conduct critical assessments of real-world implementations of cost-effective construction methods used by local and national agencies.	K5, K6

MODULE I

Cost effective techniques: Need, Planning aspects, construction aspects, maintenance and longevity aspects

MODULE II

Choice of materials in Indian/Kerala conditions, indigenous building materials, organic and inorganic building materials, alternative building materials, use of industrial and agricultural wastes - Survey of such materials development by research organizations like CBRI, SERC etc**.**

MODULE III

Significance of construction technology: Relevance of improving of traditional technology, relevance of innovative technology/alternate technology, survey of such technologies by various research institutes.

MODULE IV

Critical analysis (in terms of initial investment, maintenance cost and longevity of buildings) of the local adaptation of the innovative technologies by various agencies.

Recommended Books:

1. Hand book of low cost housing
2. G.C.Mathew, Low Cost Housing in developing countries'
3. Publication of CBRI, SERC, RRL, NBO,COSTFORD.

TRANSPORTATION PLANNING (TIU-UAR-E504B)

L – S – P (2 – 0–0) CREDITS-1

CO	Course Outcomes	K-level
CO1	Understand the scope of transportation planning, traffic issues in urban areas, and the relationship between land use and transportation systems.	K2, K3
CO2	Analyze traffic-related environmental concerns such as pollution, noise, vibration, and visual intrusion in Indian urban contexts.	K4, K5
CO3	Apply systems thinking to integrate transportation strategies with land use and city planning controls.	K3, K4

CO4	Understand the objectives and methods of transportation surveys including origin-destination studies and OD matrix preparation.	K2, K3
CO5	Evaluate the effectiveness of traffic control elements such as signals, signs, street furniture, and parking management techniques.	K5, K6
CO6	Propose planning solutions involving traffic signage, parking design, and avenue landscaping with a focus on safety and aesthetics.	K5, K6

MODULE I

Scope of the subject - Nature of traffic problems in cities and measures to meet the problems - Landuse and city planning controls – Interdependence of land use and traffic. Systems approach to transport planning

MODULE II

Traffic and the environment - Detrimental effects of traffic on the environment – Noise, air pollution, vibration, visual intrusion and degrading the aesthetics, severance and land consumption – situation in India.

MODULE III

Transportation survey - Type of surveys – origin destination survey, need and uses of OD surveys, survey methods. O.D matrix.

MODULE IV

Traffic signs – importance – Need for international standardization - General principles and type of traffic sign - Traffic signals. Parking – Parking problems and ill effects – Parking space requirement standards. Traffic control aids and street furniture - Avenue planting and landscape – Qualities of trees in avenue planting

Recommended Books:

1. L.R.Kadiyali– ‗TrafficEngineeringandtransportPlanning‘
2. Pual.H.Wright, Norman J.Ashfod– ‗TransportationEngineering– ‗Planning and design‘
3. Vukan R.Vuchic–‗Urban publictransportation‘
4. Donald FWood-‗ContemporaryTransportation‘

THESIS RESEARCH-II (TIU-UAR-L502)

L – S – P (0 – 0–10) **Credits-6**

Course description:
Thesis Research-II is an advanced course designed to guide students through the detailed development and completion of their thesis project. The course focuses on detailed design, analysis, and documentation of the thesis project, culminating in the final presentation and defense. Students will engage in iterative design development, detailed technical analysis, and professional-level documentation, culminating in a formal presentation and defense of their thesis.

Course objectives:
1. To develop and refine the detailed design of the thesis project.
2. To conduct in-depth technical analysis and validation of design solutions.
3. To prepare comprehensive technical documentation and drawings.
4. To present and defend the final thesis project in a formal seminar setting.
5. To enhance professional presentation and communication skills.

Preliminary tasks:
1. **Project Brief Refinement:**
   - Revise and refine the project brief based on feedback from Thesis Research-I.
   - Include detailed project goals, requirements, and constraints.

2. **Design Development:**
   - Develop preliminary design concepts and sketches.
   - Conduct design iterations and refinements based on feedback and analysis.
   - Prepare detailed architectural drawings and models (plans, sections, elevations, and 3D models).

3. **Technical Analysis:**
   - Conduct structural, mechanical, electrical, and plumbing (SMEP) analyses.
   - Evaluate building systems and materials for sustainability and efficiency.
   - Prepare detailed technical reports on the analysis and findings.

4. **Detailed Design and Documentation:**
   - Develop detailed construction drawings and specifications.
   - Prepare comprehensive design documentation, including material selections and construction details.
   - Ensure compliance with applicable codes, standards, and regulations.

5. **Cost Estimation and Budgeting:**
   - Conduct a detailed cost estimation of the project.
   - Prepare a project budget and financial analysis.
   - Consider life-cycle costs and economic feasibility.

6. **Environmental and Sustainability Analysis:**
   - Evaluate the environmental impact of the project.
   - Incorporate sustainable design principles and practices.
   - Prepare an environmental impact assessment report.

7. **Presentation Preparation:**
   - Prepare presentation boards, models, and multimedia presentations.
   - Develop a clear and compelling narrative for the final presentation.
   - Practice presentation delivery and refine based on feedback.

8. **Final Seminar and Defense:**
   - Present the final thesis project in a formal seminar setting.
   - Defend the design solutions and technical analyses.
   - Respond to questions and feedback from the review panel.

9. **Final Report Submission:**

- Compile all research, analyses, design documentation, and findings into a comprehensive final report.
- Include the following components:
- Finalized Project Brief
- Detailed Architectural Drawings and Models
- Technical Analysis Reports
- Environmental and Sustainability Analysis
- Cost Estimation and Budget
- Comprehensive Design Documentation
- Presentation Materials

Recommended resources:
- Access to advanced software tools for design and analysis (e.g., AutoCAD, Revit, Rhino, SAP2000).
- Access to academic journals, books, and online databases for technical research.
- Collaboration with industry professionals and consultants for technical validation.
- Access to fabrication labs and model-making facilities for physical model development.

Additional notes:
- Students are encouraged to engage with industry professionals for insights and validation of their design solutions.
- Site visits and hands-on workshops are recommended to enhance practical understanding.
- Regular feedback sessions with advisors and peers are essential for iterative improvement.

This detailed syllabus and curriculum for Thesis Research-II ensure a comprehensive and structured approach to completing the thesis project, focusing on professional-level design development, analysis, and presentation.

THESIS PROJECT FINAL (TIU-UAR-S502)

L – S – P (0 – 10–0) Credits-20

Course description:
The Final Thesis Dissertation course is the culmination of the thesis research process. It is designed to guide students through the completion, documentation, and defense of their thesis project. This course focuses on the integration and synthesis of research findings, comprehensive design development, and the preparation of a formal dissertation document. Students will finalize their designs, conduct thorough analyses, and compile their work into a professional thesis dissertation.

Course objectives:
1. To integrate and synthesize all aspects of the thesis research and design.
2. To finalize detailed design solutions and technical analyses.
3. To prepare a comprehensive thesis dissertation document.
4. To present and defend the thesis project in a formal setting.
5. To demonstrate professional-level communication and presentation skills.
6. To incorporate feedback from multiple external reviews to refine the thesis project.

Preliminary tasks:

1. **Integration of Research Findings:**
   - Consolidate research from previous courses.
   - Integrate literature review, case studies, and site analysis into the final project.

2. **Final Design Development:**
   - Finalize architectural and technical designs.
   - Prepare detailed construction drawings, models, and visualizations.
   - Incorporate feedback from advisors and critiques.

3. **Technical Analysis and Validation:**
   - Conduct final structural, mechanical, electrical, and plumbing (SMEP) analyses.
   - Validate design solutions through simulations and expert consultations.
   - Prepare detailed technical reports and documentation.

4. **Sustainability and Environmental Impact:**
   - Finalize sustainability strategies and environmental impact assessments.
   - Incorporate sustainable design principles and technologies.

5. **Comprehensive Cost Analysis:**
   - Finalize cost estimation and budget analysis.
   - Prepare detailed financial documentation, including lifecycle cost analysis.

6. **Final Presentation Preparation:**
   - Develop high-quality presentation boards, digital models, and multimedia presentations.
   - Refine presentation narrative and delivery.
   - Conduct practice presentations and receive feedback.

7. **Thesis Dissertation Document Preparation:**
   - Compile all research, design, and analysis into a formal dissertation document.
   - Ensure thorough documentation of all aspects of the project.
   - Adhere to academic formatting and citation standards.

8. **External Reviews:**
   - Submit the thesis project for review by external experts at multiple stages.
   - Incorporate feedback from each review into the project.
   - Document responses to feedback and adjustments made.

9. **Formal Presentation and Defense:**

- Present the final thesis project to a panel of reviewers.
- Defend the design solutions, research findings, and technical analyses.
- Address questions and critique from the panel.

10. **Final Submission:**
- Submit the completed thesis dissertation document.
- Include all components: research, design, analysis, documentation, and presentation materials.

Recommended resources:
- Access to advanced software for design, modeling, and analysis (e.g., AutoCAD, Revit, Rhino, SAP2000).
- Academic journals, books, and online databases for in-depth research.
- Collaboration with industry experts and consultants for validation.
- Access to fabrication labs and printing facilities for model making and presentation boards.

Additional notes:
- Active engagement with advisors and industry experts is crucial for validation and feedback.
- Regular review sessions and critiques will help in iterative improvement.
- Emphasis on professional-level documentation and presentation skills to prepare students for real-world scenarios.

This detailed syllabus and curriculum for the Final Thesis Dissertation course provide a comprehensive and structured approach to completing and defending a thesis project, incorporating multiple external reviews to ensure the quality and rigor of the work, and including the submission of a physical model as part of the final review.