Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: HST110	**Course Name:** English
Credit: 3	**L-T-P:** 2-0-2
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objective:

Improvement of comprehension and expression and usage of language.
Stress to be laid on coherence of expression of contents in report.

Contents:

Direct and Reported Speech.
Active and Passive Voice.
Tenses, Proposition, Conditional Sentences.
Précis Writing.
Business and Professional Writing.
Technical Report Writing.

References:

- Grammar & Composition for Communication: Sagar Mal & Alpna Gupta
- English for Engineers : Nancy Tripathi
- English Grammar & Composition : Martin

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: MAT103	**Course Name:** Mathematics- I
Credit: 4	**L-T-P:** 3-1-0
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Differential calculus: Successive differentiation, Leibnitz, Taylor's and Maclaurian's expansions, curvature, concavity, convexity and points of inflexion (Cartesian form only), asymptotes (Cartesian coordinates), simple cases only, simple curve tracing, Partial Differentiation, Euler's Theorem on Homogenous functions.

Integral Calculus: Areas of simple curves (Cartesian form), lengths of curves, surfaces and volumes of solids of revolution, double integration, center of gravity and moment of inertia of symmetric bodies.

Vector Calculus: Differentiation and integration of vector functions, scalar and vector fields, gradient, divergence, curl and line integrals.

Refernces:

- Higher Engineering Mathematics : Dr. B.S.Greal
- Engineering Mathematics : Dr. K.C.Jain, Dr. M.C.rawat
- Engineering Mathematics : Y.N.Gaur & C.L.Koul

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART101	**Course Name: Introduction to Architecture and Basic Design**
Credit: 6	**L-T-P/S: 1-0-5**
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objective: To orient the student to study of Architecture as a design discipline and profession

Contents :

Introduction to Architecture:

Role of an architect in architectural projects and society in general. Skills and disciplines to be learnt by an architect. Old and new works of architecture and understandings of terms such as vernacular, traditional, tribal classical, Renaissance, Oriental, European, Modern etc.

Basic Design:

Design in everyday life, determinants of design forms, shapes, perception of Architecture and other forms of art. Elements of visual design lines, planes, texture, form, space, colors etc.

Principles of visual design: balance, rhythm, contrast, harmony, proportion & scale.

Objectives of design: aesthetics, order, efficiency and economy.

Exercises: Observation studies of works of Art and Architecture.

Two and three dimensional compositions to achieve objectives of visual Design, through principles of visual design.

References:

- Visual Dictionary of Architecture: Francis D. K Ching.
- Form Space & Order: Francis D. K Ching.
- Theory of Architecture: Ian Foster.
- Principles of Aesthetics : Parker, Dewitt H.

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART103	**Course Name:** Architectural Drawing
Credit: 4	**L-T-P:** 2-0-4
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objective:

To develop drawing skills as tools to thinking, visualization, and representation of design.

Contents:

Familiarisation with drawing materials and equipments.
Lettering and fonts.
Principles of plane geometry, scale and complex solids.
Development of surfaces of solids. Intersection of solids.
Isometric, axonometric of solids.
Sciography of simple geometric forms leading to sciography of Architectural forms.
Perspective- One point, two point and three point Exercises from simple geometrical forms leading to perspective of Building forms. Plotting of sciography on perspective drawings.
Graphical presentation and Rendering in Pen & Ink of architectural drawings and materials.

Exercises:

Studio assignments based on above topics.

References:

Engineering Drawing : N.D. Bhatt.
Rendering with Pen & Ink : Robert W. Gill.
Engineering Drawing: P.S. Gill.

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ARP105	**Course Name:** Architectural Presentation Techniques I
Credit: 2	**L-T-P:** 0-0-4
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objectives:

To learn the utility of pencil as a powerful tool of graphic communication and use of colours.
To develop photography skills

Contents:

Free hand pencil drawing, human figures, automobiles, vegetation, landscape etc.
Indoor and outdoor sketching in pencil, crayon, colours, charcoal and ink.
Colour wheel and study of primary, secondary, tertiary colours.
To provide technical know how about cameras, its accessories and their applications, including the following:
Definition, History, Types and Uses of cameras, Lenses, Film rolls, Flash& other accessories.
Camera setting, like view finder, shutter speed with respect to weather, place, colour, mood and purpose.

Exercises:

Free hand pencil drawing human figures, automobiles, hand driven carts, vegetation, landscape etc.
Study of texture, created with use of pencil and textures observed in everyday objects.
Colour wheel and study of Primary, Secondary, Tertiary colours.
2D &3D compositions in monochrome and polychrome.
Calligraphy and fonts.

References:

- Rendering with Pen & Ink: Robert W. Gill
- The Color Source Book for Graphic Designers: Sadao Nakamiva

DUGC Convener Curriculum Committee Convener SUGB Chairman
Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART102	**Course Name:** History of Architecture-I
Credit: 3	**L-T-P:** 2-1-0
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objective: To understand the role of various factors in the development of Architecture. Major emphasis shall be on development of various construction techniques with regard to material and space formation.

Content:

An introduction to pre- historic Architecture: Stone age, Qatal Hugok, Cyclopean walls, Sepulchral Structures, Egyptian Architecture: Mastbas of Memphis Age. Pyramids – Stepped pyramid of King Zosers, Pure pyramids of Khufu, Khafreand ,Mankure Middle Kingdom temples, tombs, New kingdom temple of Amon, Khons.

Greek Architecture: Orders-Doric, Ionic & Corinthian Optical Corrections in Greek Architecture Temples of Athena Nike, Acropolis: Temple of Artemis, Erectheum, Parthenon, Athens. Theatres: Theatre at Epidauras, Assembly Hall at Priene. City Planning & civic spaces of Greeks; Acropolis, Athens & city of Miletus, Priene; Hippodamus Planning Principles.

Roman Architecture: Special emphasis on understanding structural system and materials Aqua ducts & bridges: pont du Guard, Nimes& Aqua Claudia, Rome. Temple: Pantheon, Rome; Temple of Trojan, Rome; temple of Jupiter, Balbek. Amphitheatres & Circus: Rings of Maximus, Rome and Pompei. Theatres: Theatre of Marcelli, Romen Coloseum, Rome; Theatre of Pompei. Bath House: Bath of Carcalla&Dicoletian, Leptis Magna. Forum's Basilicas of Constantine, Rome; Forum of Augustus; Forum & Basilica of Trojan, Rome. Triumphal Arches: Arch of Titus, Rome. Villas & Palaces: Domus Aurea (Golden House) Rome Hadrian's Villa, Trivoli. City Planning of Rome.

References:

- Sir Banister Fletcher: A History of Architecture
- World Atlas of Architecture: Christine Flon
- Master Builder: Henry J. Cowan
- History of Architectural Styles: T. Roger Smith
- The World Atlas of Architecture : Published by Portland House

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART104	**Course Name:** Theory of Design-I
Credit: 2	**L-T-P:** 1-1-0
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objective:

To understand theory and principles of architecture.

Contents:

Determinants of architectural form; Climate, Construction techniques and Materials.
Interdependence of space, structure, circulation and function.
Scale and architecture.
Perception of architecture: Kinesthetic and Sensory
Qualities of architectural space: size, proportion, degree of enclosure, light and relationship with other spaces.
Architectural Programming.
Reciprocal relationship between form and space.

References:

- Form, Space & Order: Francis D.K. Ching,
- Elements of space making: Jatin Das
- Elements of Design – James Scott

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART106	**Course Name:** Building Construction and Materials –1
Credit: 4	**L-T-P:** 2-0-3
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objectives:

The understanding and application of basic building materials and techniques in conventional construction practices.

Contents:

Study of manufacturing process, structural, visual and textural properties, varieties and application of brick, stone and timber.
Construction principles and details in brick and stone.
Foundations - simple wall and column footings.
Masonry work – bonding details in walls and piers.
Openings – lintels, arches, sill and jamb details.
Doors and windows – joinery and fixing details of simple timber doors and windows.
Exterior and interior wall sections.

Exercises :

Identification of materials and study of relevant I.S. codes, visits of manufacturing units, field trips, preparation of study reports and presentation of seminars, preparation of detailed drawings on above topics.

References :

- Building construction W.B.McKay
- Building construction R Berry
- Building construction Chudley
- Building construction Francis D.K. Ching

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: CPT110	**Course Name:** Computer Systems and Programming- I
Credit: 3	**L-T-P:** 2-0-2
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Basic Computer organization: Processor & Memory Model.

Programming in 'C': Need of Programming Languages, Flowcharts and algorithm development, data types, constants, variables, declarations, operators and expressions, operator precedence and associativity, input and output operations, formatting, decision making, branching and looping, array and character strings, built-in and user-defined functions, the scope and lifetime of variables, structures and unions, pointers, pointer arithmetic / expressions, pointers and arrays, pointers and structures, dereferencing file handling, command line arguments, defining macros, preprocessor directives simple use of dynamic memory allocation: malloc and calloc functions.

Introduction to Networking Concepts and Internet usage, e-mail, FTP, TELNET, Search Tools, Browsers, HTML Programming using Visual Editors.

References:

- Programming with 'C': Balaguruswamy
- The 'C' programming language.: Kerninghan and Ritchie
- Computer Fundamentals and Programming in C: Govil, Agarwal, Mathur&Pathak
- Foundations of Computing: Sinha&Sinha .
- HTML SAMS NET :Lois Pettersion

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ARP108	**Course Name:** Architectural Presentation Techniques II
Credit: 3	**L-T-P:** 0-0-5
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objective:

Development of skills in graphic creation & presentation.

Development of comprehension of 3D forms and spaces.

Contents:

Rendering of architectural drawings in ink and color.

Graphic communication through signage, optical art, advertisement posters, etc.

Exercises:

Model making exercises using various materials e.g. Handmade sheets. Mount Board, MDF, Plaster of Pairs, Plastic Acrylic sheet, Metal, Natural wood etc.

References:

- Rendering with Pen & Ink: Robert W. Gill
- The Color Source Book for Graphic Designers: Sadao Nakamiva

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ARP110	**Course Name:** Architectural Design-I
Credit: 8	**L-T-P/S: 0-0-8**
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objective:

To understand the process of evolution of architectural form through analysis of simple activities, structural systems and geometry.

Exercises:

Mono functional structures, accommodating specific activities like kiosks, ticket booths, pavilions, etc. Layout of interiors; to examine due relationship between anthropometrics, furniture, movement, and space such as bedrooms, lobbies, toilets, classrooms, offices, etc.

References:

Neufert Architects' Data

Time Saver Standards for Building Types: Joseph De Chiara & John Hancock Callender

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART201	**Course Name:** History of Architecture-II
Credit: 3	**L-T-P:** 2-1-0
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objective: To understand the evolution of space and structure for the expression and space required in early Western Architecture.

Contents:

Early Christian Architecture: Laterno Basilica. Rome, Basillica of S. Peter. Rome S. Clement, Rome& S. Lorenzo, Rome.

Byzantine Architecture: Planning & structural system of S. Hagia Sophia, Constantipole S. Mark, Venice.

Romanesque Architecture in Italy and around Pisa Cathedral, Pisa: The Campanile, The Baptistery Abbey of St. Denis in France. Central Europe: Church of Apostees,Cologne, Worm's Cathedral, Military Buildings/forts, general Chateau de mer. Sidon.

Gothic Architecture: Structural System & play of lights France: Loan Cathredal: ChartesCathredal: Reims & Amiens Cathredal British Isles: Canterbury: King's College Chapel, Cambridge: Westminster Abbey Wells Cathredal. Italy: MilanCathredal: S. Maria Del Florence: S. Maria Novella, Florence.

Renaisssance Architecture (upto1800 A.D.): Forces governing and character of Early Renaissance. Fillipo Brunelleschi. Dome of FlorenceCathredal FoundlingHospital S. Lorenzo. Florence Michelozzo: MediciPalace (PallazoRicardi) Florence; PallazoPittiFlorence Leon BatisssaAlberti; S.Francesco, Rimini.PallazoRucellai, St. Andrea at Mantua, St. Maria Novella.

High Renaissance & Mannerism Bramante: Tampietto, Rome: S. Peter, Rome: Pallazo Farnese, Rome House of Raphael, Andrea Palladio: Basilica, Vicenza, Rotunda (Villa Capra), S. Georgia Maggiore, Venice:Palladian motiff Michelangelo: Laurentian Library, Florence: CapitolinePalaces, Rome: S. Peter, Rome: Pallazo Farnese, Rome Vilgnola's- IL- Gesu, Rome Raphael: Villa Madama, Rome.

Baroque And Rococco- Bernini: S. andrea at Quirnale, Rome; St. Susana Piazza of S.Peter, Rome Francesso Borromini: S. Carlo AlleQvattroFontane, Rome S. Goivoni in Caterno Rome GuarionoGuarini: S. Lorenzo Turin, Capelladella; S. Sindone, Turin *France*: Chateau de Chambord, Pierre Nepren FountainbleauPalais de Palace of Versailles: Church of Invalides.

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

England: Tudor, Elizabethan Jacobean Tour Houses &straut& restoration St. Paul's Cathedral, London Sir Christopher Wren S. Martine in Fields, London: Castle Howard Palladianism: Houghton Hall, Norfolk.

References:

- Sir Banister Fletcher- History of Architecture
- Christoff- History of Architecture
- World Architecture
- Encyclopaedia of Architecture & Architects

.

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART203	**Course Name:** Building Science-I (Climatology)
Credit: 3	**L-T-P:** 2-1-0
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objective:

Understanding of interrelationships of built environments with natural environment. Also issues of balance in traditional and contemporary built environments.

Contents:

Elements of Climate: Solar radiation Terrestrial Radiation, Temperature, Humidity, Wind, Cloud, Precipitation etc. Factors effecting climate at micro and macro level, measurements and quantification.

Effect of Climate on Man: Body Heat balances, Thermal Indices, Thermal Comfort, Psychometric chart and its application.

Analysis of climatic data: climatological site analysis and its application in site planning and design evolution.

Effect of climate on Building Envelope: Heat flow, Heat transfer, Heat storage and time lag of various building materials and elements.

Study of sun-path and design of shading devices.

Study of indigenous shelter and urban form as a response to climate.

References:

- Man, Climate & Architecture: V. Olgyay
- Manual to tropical Housing and Building : Koenigsberger
- Climatology : D.S.Lal
- Energy Efficient Building in India : MiliMajumdar

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: CET293	**Course Name:** Surveying
Credit: 2	**L-T-P:** 1-0-2
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Principles and classification of survey, Basic instruments in surveying, methods of surveying. Different types of survey.
Chain survey: instruments, types of chains and tapes, their usages and constructional details.
Different types of compass, Meridians, Bearing, Dip, Declinations, Local attraction, adjustments of angles, loose needle methods, compass traverse.
Leveling and Contouring: Basic definitions, types of levelling, and sources of errors, computations & permanent adjustment of levels, contouring.
Theodolite survey: basic definitions, constructional details, temporary adjustments, measurement of vertical and horizontal angle, minor instruments, tachometry, elements of plane table survey, plane table traversing.
Setting out of works for buildings, horizontal and vertical control, positioning of a structure.

References:

- Surveying,&Levelling, :S.K. Duggal
- Surveying: Dr. B.C. Punmia

DUGC Convener Curriculum Committee Convener SUGB Chairman
Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART205	**Course Name:** Building Construction and Materials –II
Credit: 4	**L-T-P:** 2-0-3
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objectives : The understanding and application of metals and their products in building

Contents: Study of manufacturing process, structural, visual and textural properties , varieties and application of steel, glass, metals and alloys.

Foundation : Grillage foundation.

Structure: Steel columns and space structure, steel trusses.

Roofing: Roof covering in G.I., Asbestos and fiber Sheets etc. ,North light roof truss , patent glazing details.

Flooring and finishes: Industrial flooring and metal cladding.

Openings: Section windows in aluminium and steel.

Staircases : Metal staircase.

Exercises: Identification of materials and study of relevent I.S. codes, market survey, field trips.

Preparation of study reports and presentation of seminars, preparation of detailed drawings on above topics.

References:

- Building construction: W.B.McKay
- Building construction: R Berry
- Building construction: Chudley
- Building construction: Francis D.K. Ching

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART207	**Course Name:** Architectural Presentation Techniques III
Credit: 3	**L-T-P:** 1-0-3
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objective: Introduction of Graphic software and related techniques.

Contents: Introduction to various Graphic software e.g. Coral Draw, Adobe Photoshop etc. Introduction to computer peripherals like printers, plotter, scanner etc.

Exercises: Documentation of art work, architectural projects/products through different techniques e.g. photography, movie making, animation or power point presentation.

References:

- Rendering with Pen & Ink: Robert W. Gill .
- The colour Source Book for Graphic Designers: Sadao Nakamiva.
- Colour in Sketching &Rendering : Guptil.

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART209	**Course Name:** Computer Application for Architects-I
Credit: 2	**L-T-P:** 1-0-2
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objective:

To apprise the students of the existing presentation related softwares

Contents:

Introduction to various softwares relevant to Architects viz. Excel, Corel draw, Adobe Photoshop, etc. and various computer peripherals like plotter, scanner and digitizer along with their usage.

Introduction to drawing and graphic softwares relevant for Architects.
Drawing and drafting of 2D drawing on AutoCAD, Revit, Cadian and Architectural Desktop.

Usage of printer and plotter for printing and plotting drawings..

Exercises:

- Drafting letters, reports on MS Word.
- Drawing basic geometrical objects and colouring them.
- Making simple presentations and animations in MS PowerPoint.
- Scanning images and modifying them in Photoshop and transferring them in different allied softwares.
- Drawing and drafting small objects, building plans etc.

References:

- Autodesk user manual

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ARP211	**Course Name:** Architectural Design-II (including measure drawing camp)
Credit: 8	**L-T-P:** 0-0-8
Version:	**Approved on:**
Pre-requisite course: ART101 Introduction to Architecture and Basic Design.	

Syllabus

Objective: Analysis of activities and spaces in a given predominant function. Its representation in graphic form.

Contents: Introduction to basic design methodologies involving study of single functions with due emphasise on development of form, study of mass, void skyline and materials used. Study of building having multiple functions of simple nature.

Measure drawing camp to include study of building/group of buildings/ settlements of architectural importance, involving detailed drawings, constructional details, material used giving due importance to the given context.

Exercises: Design exercises may include buildings of single functions such as ticket counters/reception offices, security offices, kiosks, booths, information cells etc. Multiple function such as primary health centres, convenient shopping etc. At least one design problem to concentrate on comprehensive graphic representation to form a prelude to measure drawing.

References:

- Time Savers Standards: Building Types.
- Neuferts Architectural Data.

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART202	**Course Name:** History of Architecture –III
Credit: 3	**L-T-P:** 2-1-0
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objectives: To understand characteristic features and genesis of "Architectural styles" with reference to causative forces such as climate, society, technology and geonatural factors and underlying design theories with reference to Indian architecture**.**

Contents: Architecture of Indus valley, Buddhist era, Temple architecture of South India, Hindu empires (Deccan style) and Nagara style of Orissa, Central and western parts of India in terms of design parameters, such as art, construction methods and Indian vastushastra.

Islamic architecture- Sultanate architecture characteristic features of various provincial styles such as Malwa, Bengal, Gujrat, Deccan and Central India, Rajput Architecture, Mughal Architecture.

Exercises: Students seminar on works of prominent architects. Assignments on above topics.

References:

- A History of Architecture : Percy Brown
- History of Architecture : Satish Grover.
- IndianTemple Architecture: Adam Hardy.

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART204	**Course Name:** Building Services- I
Credit: 2	**L-T-P:** 1-1-0
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objectives: To give the student a basic overview and understanding of water supply and distribution at the city level and also within the premises.

To enable the student to work out waste management of the premises and to effectively connect it into the city sewer system or other alternatives.

Contents: -

Water Supply:

Terminology, sources of water, fundamentals of treatment of water and types of water distribution system at city level.

Requirements and calculations of water consumption for various building types and occupancies, storage and distribution of water within building premises.

Hot water supply installations, solar water heating installations and supply, study of fittings and appliances and their layout within the building with references of different materials used where necessary.

Drainage and Sanitation:

Terminology.

Rain and storm water drainage with introduction to concepts of ground water recharging and harvesting.

Systems of waste and soil collection for different building types.

Collection and disposal of garbage in high-rise buildings with hazardous wastes.

Types and preliminary design considerations of sewage disposal systems at local level.

Exercises:-

To detect plumbing of simple buildings.

To make layouts connecting sanitary fittings within buildings to septic tank / main sewer lines.

References:

- Building Construction :W.B. McKay
- Building Services :(Barry Vol.5
- National Building Code

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: CET242	**Course Name:** Architectural Structures-I
Credit: 3	**L-T-P:** 2-0-2/2
Version:	**Approved on:**
Pre-requisite course:	

Syllabus:

Centroid of an area, moment of inertia, radius of gyration, polar moment of inertia, product of inertia, parallel and perpendicular axes theorems, perpendicular axes.

Concept of stress and strain, stress-strain curve, moduli of elasticity, Poisson's ratio

Shear force and bending moment diagrams for simply supported cantilever and over hanging beams.

Theory of simple bending, distribution of bending stresses.

Shear stress distribution in beams of rectangular, circular I and T sections.

Analysis of pin jointed plane frame- method of joints and method of section.

The long and short columns, slenderness ratio, buckling load for various end conditions.

References:

- Strength of Materials & mechanic of Structure : B.C.Punmia
- Structural Mechanics & Analysis, : V.S.Prasad
- Basic Structural Analysis : C.S.Reddy

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART206	**Course Name:** Building Construction and Materials –III
Credit: 4	**L-T-P:** 2-0-3
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objective: The understanding and application of lime, cement and R.C.C. construction.

Contents: Study of manufacturing process structural visual and textural properties varieties and application.

Lime, Cement and Cement concrete: Preparation, tests and application techniques of lime and cement mortar and concrete, varieties of concrete, concreting under special conditions.

Foundation: R.C.C. footings, isolated, strip and combined footings along with D.P.C.

Structure: R.C.C. columns and beam structure, simple, R.C.C. *roof* with water proofing details, study of different R.C.C. roof form sand its connection with structure.

Flooring and finishing: IPS flooring, mosaic flooring and cement tile flooring interlocking paving blocks.

Openings: Sliding doors, sliding and folding doors in wood, aluminium and steel

Staircases: R.C.C. staircase.

Exercises: Identification and study of relevant I.S. codes, field trips. Preparation of study reports and presentation of seminars, preparation of detailed drawings on above topics.

References:

- Building construction: W.B. McKay
- Building construction: R Berry

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART208	**Course Name:** Computer Application for Architects-II
Credit: 2	**L-T-P:** 1-0-2
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objective:

To introduce the students to 3D-drawing, software and presentation.

Contents:

Introduction to surface & solid model of built form using Auto-Cad, Revit, etc.

Rendering of solid models using 3ds Max, Photoshop and Corel Draw etc.

Exercises:

Architectural presentation views and presentation drawings.

References:

- Autodesk user manual

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

UG/PG: UG	Department: Architecture & Planning
Course Code: ART-212	Course Name: Architectural Model Making
Credit: 3	L-T-P: 1-0-3

Objective:

Physical models are a uniquely revealing and compelling tool for the architect. More forcefully than any other way of visualizing a building, models represent ideas, as opposed to images. The sensory impact of a physical model, its materiality, is an important step in the design process. A model not only allows the designer to explore freely while testing out specific ideas but also to advance and communicate their ideas effectively to others.

Contents:

Module I. Introduction to Model Making - Purpose and Utility, 3d space visualization and decision making

Module II. Tools and Materials - ivory sheets, triplex sheets, plexi sheets, metal sheets; Mount boards, sun board; softwood - balsa, lime wood; metal wires, wire mesh, plaster of Paris, adhesives

Module III. Materiality

Module IV. Model making methods and techniques - Paper modeling, Surface development, Cutting Techniques eg Hot wire cutting,

Module V. Planning an Architectural Model

Module VI. Model Scale

Module VII. Model Prototypes - Product models, Architectural Exterior Models, Interior/Openable models, Layout/wire-mesh models, Landscape Models, City-scape/Urban scale models, Engineering/ Structural Load bearing models, Working construction models

Module VIII. Modern Tools and Techniques - 3D Printers, Laser cutters, CNC Model making.

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ARP210	**Course Name:** Architectural Design-III
Credit: 8	**L-T-P:** 0-0-8
Version:	**Approved on:**
Pre-requisite course: ARP110 Architectural Design-I	

Syllabus

Objective: To understand varied space usage and their application in multifunctional buildings.

Content: Introduction to basic design methodologies including emphasis on case-studies, time activities studies, anthropometrics and their presentation as a prelude to design solution. Due emphasis is to be given on concurrent subjects like Climatology, construction techniques etc. Incorporation of building materials in design solution to be emphasised.

Exercises:

Design exercise may include buildings with multiple use such as clubs, clinics, banks, post-offices, motels, secondary schools, and community centre.

References:

- Design for living : Bawa.
- Design Fundamentals in Architecture,: Pramer.
- Time Savers Standards: Building Types

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART301	**Course Name:** History of Architecture – IV
Credit: 3	**L-T-P:** 2-1-0
Version:	**Approved on:**
Pre-requisite course:	

Objective: To understand characteristic features and "Architectural movements" with reference to causative forces, such as society, technology and geonatural factors and underlying design theories of post Renaissances and Modern architecture from Nineteenth century onwards.

Contents: Post Renaissance European Architecture. Art and craft movement, Universal, Eclecticism, Interaction of art and architecture in pre-modern architecture. Art Novaeau, Art deco, Bahausschool, structural rationalism and birth of modern movement, modern architecture in first half of 20^{th} century, works and philosophy of F. L. Wright, Louis Sullivan, Mies van de Rohe, Le Corbusier and other masters.

Late modern Architecture, works of Michael Graves, Frank Gehry, Peter Eisenman etc. Post modernism, Deconstructivist Architecture, Futuristic and contemporary trends in architecture.

British Colonial Architecture in India, Colonial Architecture in Bombay, Calcutta. New Delhi etc., Post-independence architecture in India.

Works of Le Corbusier, Louis Kahn, A.P. Kanvinde, B.V. Doshi, Charles Correa, Raj – Rewal etc. Contemporary trends in Indian architecture.

Exercises: Students seminar and presentation. Assignment on above topics.

References:

- History of Architecture – Sir Banister Fletcher
- A history of Modern Architecture - Kenneth Frampton
- Modern Architecture since 1900 – W.J. Curtis**.**

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART303	**Course Name:** Quantity Survey & Specifications
Credit: 4	**L-T-P:** 1-1-0
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objective: Basic understanding of preparing estimates and tender documents for Design of building.

Contents :

- Introduction to procedure of estimating, data required for framing an estimate, types of estimates. Approximate and detailed estimate. Abstract of Estimates, bills of quantities, Contingencies, Taking off quantities for Principal civil works, electrical works, Analysis of Rate for Principal Civil works, items rate considering current market rate for building materials and labour wages as well as P.W.D. scheduled of rates. Composition of rate

- Percentage-distribution for materials, labour, tools plant and Contractor's Profit.
- Preparation of tender document, notice inviting tender and advising the Client regarding selection of contractor. Mode of measurement.
- Significance of specifications in building construction. General and detailed Specifications for all kind of principal building works and building materials.

Exercises : Preparing estimate and tender document for a building.

Studying tender document of Government projects and private projects.

References :

- Estimation and Costing – Rangwala
- Estimation and Costing- B.C.Punmia

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: CET343	**Course Name:** Architecture structures-II
Credit: 3	**L-T-P:** 2-1-0
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objectives:

Slopes and deflections in statically determinate beams using double integrations method, moment area method and conjugate beam method.

Equilibrium and stability of structures, static and kinematic indeterminacies of beams and plane frames.

Analysis of continuous beams and simple portal frame using slope deflection method and M.D. method.

Approximate method of analysis for lateral loads- portal and cantilever method.

Arches: Geometrical properties, basic mechanics, arch action; three hinged arch, and two hinged arches.

References:

- Strength of Materials & Mechanics of Structure : B.C.Punmia
- Structural Mechanics & Analysis : V.S.Prasad
- Basic Structural Analysis : C.S.Reddy

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART305	**Course Name:** Building Construction and Materials –IV
Credit: 4	**L-T-P:** 2-0-3
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objective: The understanding and application of decorative and protective finishes in building

Contents : Study, visual and textural properties, varieties and application of paints And varnishes, cladding materials. Building chemicals for damp proofing termite proofing, concrete admixtures etc .Plastics in buildings.

Decorative and protective finishes, cladding in stone metal, glass, ceramic tiles etc., curtain walling.

Partitions, paneling and false ceiling in timber and other materials; such as gypsum board, different kind of timber derivatives.

Protective finishes for basement, toilets and terrace.

Timber floors, stairs and roofs, parquet flooring.

Exercises : Identification of materials and study of relevant I.S. codes, market survey, field trips.

Preparation of study reports and presentation of seminar, preparation of detailed drawings on above topics.

References :

- Building construction : W.B.McKay
- Building construction : R Berry
- Building construction : Chudley
- Building construction : Francis D.K. Ching

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART315	**Course Name:** Department Elective –I (Interior Design)
Credit: 3	**L-T-P:** 1-0-3
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Contents:

History of interiors and traditional trends, Study of interiors of different nature like homes, restaurants, offices, hotels etc. covering aspects like furniture, lighting, flooring, ceiling etc.

Market survey of different materials used in interiors like wood, veneers, laminates, metals, lighting fixtures etc.

Construction details of furniture, wood joinery, metal fabrication, false ceiling, flooring etc.

Designing for human comfort and ergonomics.

Design exercises will consist of designing of interiors of residences, offices, hotels etc.

References:

- Interior Design : John F.Pile
- Time Saver Standards for Interior Design

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART307	**Course Name:** Departmental Elective-I (Vernacular Architecture)
Credit: 3	**L-T-P:** 1-0-3
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Contents:

Sources of vernacular architecture, settlement forms architectural types, building materials and techniques, symbolism and decoration environmental consciousness.
North West India – Gujrat and Rajasthan, Bikaner, Bishnoi, Bohras, Dang Bhils, Gujrati and Rajasthani rural & urban.
Goa, Daman, Portugese
Kashmir Valley, Gujjar, Pandit, Ladakhi and Garhwalis.
South India – Tamilnadu- Irula, Kota, Kuromba, Toda, Kerla- Nair, Maharashtra- Konkani, Karnataka- Tuluvas, Andhra Pradesh – Gond.
East and North-East India
Bengali Rural, Bankura, Assam, Mishing, Nagaland, Arunachal,-Monpa, Khampati, Adi, Manipur, Orrisa- Khond.
Andmanese, Nicobaris

Exercise:

Class work based on above, detailed study of one community with reference to architecture, settlement pattern, techniques, materials, symbolism and rituals.

References:

- Sustainable facilities-green Design ,Construction and Operation : Keith Moskow
- Tropical Sustainable Architecture Social and Environmental Dimensions: Joo- Hwa Bay & Boon Lay Ong

DUGC Convener Curriculum Committee Convener SUGB Chairman
Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ARP309	**Course Name:** Architectural Design-IV
Credit: 8	**L-T-P:** 0-0-8
Version:	**Approved on:**
Pre-requisite course: **ARP211** Architectural Design-II	

Syllabus

Objectives:

To understand multi functional multi level buildings at community level.

Contents:

Design of institutional, public buildings or recreational building at community scale. Understanding basic architectural character of such buildings. Influence of land, climate and technology on the building design. Part detail of the project to understand design.

Exercises:

Community hall, School, Bank building, Institutional buildings, Shopping plaza, Nursing home, Resort.

References:

- Time Saver Standards
- Neufert's Architect's Data
- Architecture- Form, Space & order, Francis : D.K. Ching
- IS Codes

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART302	**Course Name:** Building Services II (Electrical)
Credit: 3	**L-T-P/S:** 2-1-0
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objective: To give the student a basic understanding of electrical services in building design.

Contents:

Terminology Typology and systems of wiring and cabling, planning and layout of electrical installations within a building complex Fittings and accessories and their installations, earthing and lightening protection in buildings.

Domestic electrical appliances, their usage and load calculations for simple building types

Fundamentals of specialized electrical installations such as lifts, escalators, pumps, motors, air conditioning systems etc.

Installations and wiring for standby systems like generators, inverters etc.

Exercises: To work out electrical loads, and detail the electrical layout of simple building types

References:

- National Building Code, 2005
- BIS Code IS4648 – 1968
- Electric wiring and Estimation – S. L. Uppal

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: CET344	**Course Name:** Architectural Structures –III
Credit: 3	**L-T-P:** 2-0-2
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Contents:

Properties of cement, coarse aggregate and fine aggregates, properties of concrete in fresh and hardened state. Durability of concrete and introduction to concrete mix design procedures.

Introduction to working stress method of design.

Limit State method of Design, difference between limit state and working stress method.

Design of beams, singly and doubly reinforced rectangular beams and T- Beams subjected to flexure, shear and torsion.

Design of slabs, one-way slab, and two-way slab with corners free to lift and held down condition using B.I.S. codes; Design of doglegged staircase.

Design of Column; short column and long columns with lateral ties and helical reinforcement.

Design of footing. Isolated column footings, concept of combined footing, raft and pile foundation.

Pre-stressing: Methods and losses in pre-stressing

References:

- Design of RCC Structure (Limit State) Dayaratnam
- Design of RCC Structure (Limit State) Dr.A.K. Jain
- IS Codes

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART312	**Course Name:** Departmental Elective-II (Construction Management)
Credit: 3	**L-T-P:** 1-2-0
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Contents:

Role of Architect in Construction Management.
CPM, PERT
Scheduling of construction.
Planning of construction site.
Inventory, liasoning with different authority, Arbitration, payment, legal implications, etc.

References:

- Construction planning and management : P.S. Gehlot
- Construction management : Trefor Williams
- Advance construction technology : Roy Chudley Roger Green

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART304	**Course Name:** Departmental Elective-II (Barrier Free Architecture)
Credit: 3	**L-T-P:** 1-2-0
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Contents:

Barrier Free Environment is one which enables people with disabilities to move about safely and freely and to use the facilities within the built environment. The goal of barrier free design is to provide an environment that supports the independent functioning of individuals so that they can get to, and participate without assistance, in everyday activities such as procurement of goods and services, community living, employment, and leisure.

The Main objective of the course is to develop and understand the fundamental principles for designing Barrier free built environment. To learn and apply the Guidelines and space standards for Barrier Free Built Environment for Disabled and Elderly Person in various buildings such as institutes, hospitals, public spaces, shopping complexes and office buildings etc.

To learn about the act and provision of act laid in the Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995 enacted by the Government of India on January 1, 1996 and bye-laws which would be applicable to all buildings and facilities used by the public.

To understand different type of disabilities, mobility devices, controls, maintenance and operation standards, space standards, signages, materials, hardware and different products, construction details etc.

References:

- Barrier free designs :James Holmes- Seidle
- Barrier free design : Oliver Heiss,

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART306	**Course Name:** Building Construction and Materials –V
Credit: 4	**L-T-P:** 2-0-3
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objective : To familiarize students with alternative and special/advanced construction materials and techniques.

Contents : Study of preparation, structural, visual and textural properties , varieties and application of mud, precast building components, fiber reinforced concrete

Materials for temporary construction.

Pre stressing and post tensioning :principles and techniques , application of precast building components in buildings .

Pile and raft foundations.

Temporary constructions,: Shoring, underpinning, strutting, formwork, scaffolding etc. in timber and steel.

Exhibition pavelions, portable structures etc.

Construction of lifts and escalators.

Exercises : study of relevant I.S. codes, , field trips. preparation of study reports and presentation of seminars, preparation of detailed drawings on above topics.

References:

- Construction journals, CBRI publications and leaflets of various organizations involved in construction research.

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART308	**Course Name:** Site Planning and Landscape
Credit: 3	**L-T-P:** 1-0-3
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objective: To develop understanding of principles of landscape design.

Introduction to landscape architecture.
Elements of landscape design and their relation to built environment.
Plant characteristics – the structure, colour , form and foliage of various trees, shrubs , climbers and ground covers. Study and identification of Indian plants and trees etc.
Site analysis and development. Designing and presentation of landscape schemes for building projects, gardens/ parks, Historical monuments and places of tourist interest.
Principal and elements of garden design – study in history, Mughal, Japanese, Chinese, Italian, French and English gardens.

Modern gardens – issues, trends and levels, city level, district level, community level and household level and indoor gardens.

Construction details for landscaping art of garden furniture, lighting and signage.

Exercise:

Exercise covering about content in the form of seminars, research/tech. papers, or/and design exercise

References:

- Timesaver Standards: Landscape Architecture
- Landscape Construction & Detailing : Alan Blanc
- The Landscape of Man : Geoffery and Susan Jellicoe
- Designing the new Landscape: Sutherland Lyall

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ARP310	**Course Name:** Architectural Design- V
Credit: 8	**L-T-P:** 0-0-8
Version:	**Approved on:**
Pre-requisite course: ARP210 Architectural Design- III	

Syllabus

Objective:

To understand the Architectural heritage, its status, measures to restore and possibility of adaptive reuse. To understand the concepts required to design for the disabled.

Contents:

Identification of a building/building complexes/precinct of heritage value, (having potential of contemporary use/s) which can be taken up for adaptive rescue/ restoration/ conservation project. To design a public building and make it completely Barrier free. Inputs from concurrent related subjects may be incorporated in the scope of design problems.

Exercises:

Projects on specific buildings suitable for adaptive reuse, restoration, conservation. Projects for heritage hotels and sites of interest, old havelis, royal buildings, cenotaphs. Baori's. The Barrier free design can be of a small Hotel, Public Library, commercial complex, Institute, nursing home etc.

References:

- Surveying Historic Buildings : David Watt
- Development and Design of Heritage Sensitive Site, Kenneth Williamson

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART401	**Course Name:** Building Science II (Acoustics and Illumination)
Credit: 3	**L-T-P/S:** 2-1-0
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objective: To make the student aware of general design approach with reference to acoustics in a building.

Contents:

Acoustics

Basic terminology and definitions, Physics of sound.
Behaviour of sound in an enclosed space. Requisites for acoustic environment
Acoustic design approaches for different building types, with reference to applicable standards. Selection of acoustic materials, construction details and fixing.
Noise and its control, control of structure borne sound and noise from different mechanical equipment.

Illumination

Basic terminology and definitions, laws of illumination.
Design for lighting with reference to applicable standards
Classification of lighting systems: direct, indirect, diffused etc.
Use of artificial lighting as an element in different building types such as exhibitions, theatres, offices and stores

Exercises:

Acoustical design in medium size buildings supported with calculations. Qualitative and Quantitative understanding of lighting in buildings through site study and exercises.

References:

- Architectural Acoustics (Applications of Modern Acoustics) - Marshall Long
- Room Acoustics – Heinrich Kuttruff
- Auditorium Acoustics and Architectural Design – Michael Barron
- Detailing for Acoustics – Peter Lord, Duncan Templeton
- Architectural Acoustics – M. David Egan
- Lighting Design Basics – Mark Karlen, Benya
- Electrical Engineering – B. L. Thareja

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: CET445	**Course Name:** Arch. Structures- IV
Credit: 3	**L-T-P/S:** 2-1-0
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objective: To study the design of steel structures in buildings.

Contents:

Connection: riveted and bolted joints; design of fillet, butt, plug and slot welds; design of riveted, bolted and welded joints for axially loaded member, eccentric connection Design of tension member Design of compression member; built up column, design of lacing and battering. Column base; introduction to grillage foundation. Design of laterally restrained beams; simple and built up sections. Roof trusses; generally arrangement of trusses, spacing of trusses, design loads, design of purlin and simple roof trusses.

Exercises:

Analytical and illustrative exercises based on above

References:

- IS Codes
- Design of steel structure – S. K. Duggal
- Design of steel structure – R. Chandra

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART403	**Course Name:** Introduction to Planning
Credit: 3	**L-T-P/S:** 1-0-4
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objective: To make the student aware of basic principles and concepts of town planning.

Contents:

Planning as an architectural expression & form of developing a human settlement. Current theories of city planning, new towns & cities. Survey techniques, zoning & land use, neighbourhood planning, site planning, urban traffic, urban renewal & redevelopment, present day planning in India.

Exercises: Survey of existing neighbourhood, community, Study of existing development plans at city level, Planning of small units like neighbourhood, townships, etc.

References:

- The Urban Pattern-City Planning & Design – Arthur B. Gallion & Simon Eisner
- Urban Architecture (City Planning) – Arco Colour series
- Ancient Cities-Sacred Skies – Malville & Gujaral
- Town Planning – Rangwala

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART405	**Course Name:** Departmental Elective-III (Design for Health Facilities)
Credit: 3	**L-T-P/S:** 1-0-3
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objective: To understand various issues related to design of healthcare buildings.

Contents:

Identification of various levels and type of health facilities.
Norms and standards for the various health facilities.
Introduction to terminology related to facilities and equipments.
Design approaches & consideration for health facilities.
Planning of Engineering & Technical services in health facilities.
Introduction to Management of health facilities, such as waste management.

Exercises:

Conceptual design for health facilities with focus on movement pattern, parking, functional requirements and understanding of services required. Emphasis on detailing of areas like OT Complex, wards, diagnostic facilities etc.

References :

- Hospitals and Healthcare Facility Design – Miller & Swensson.

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART405	**Course Name:** Departmental Elective-III (Product Design)
Credit: 3	**L-T-P/S:** 1-0-3
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objective: To sensitize the students about the design and detailing of industrial products and to improve upon them with respect to usage and aesthetics.

Contents:

Introduction to product design, history of product design, design concepts and methodologies, design process, current trends and case studies of various products. Economics, introduction to various manufacturing processes and materials. Design of various products in general use.

Exercises: Study of various products in market. Design of small hand held products like mobiles, watches, cameras, etc, Design of home appliances.

References:

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART405	**Course Name:** Departmental Elective-III Energy Efficient Architecture
Credit: 3	**L-T-P/S:** 1-0-3
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objective: To make the student aware of design and detailing of energy efficient buildings and components.

Contents: Energy crunch, a global scenario. Problem of energy shortage with reference to buildings and settlement Energy demand of a building, during construction and operation, Principles and application of energy conscious architecture, Alternative energy systems for buildings: passive solar techniques for heating and cooling of buildings Solar water heating. Traditional settlement pattern and Vernacular construction techniques for energy efficiency. Energy from waste: Bio gas technology and its application, Energy from urban sanitary landfills etc.

Exercises:

Design of buildings utilizing energy efficient concepts and understanding their application at layout level.

References:

- The Environmental Brief Pathways for Green Design- Hyde R., Wodson S., Chehire W. and Thowson M.
- Greening Existing Buildings- Yudelson J.
- Energy and Environment in Architecture: A Technical Design Guide - Baker, N. and Steemers, K.
- Energy-efficient Architecture: Basics for Planning and Construction- Gonzalo R. and Habermann K.J.
- Retrofitting for Energy Conservation - Clark W.H.
- ECBC Guidelines
- Energy Conservation building Directives for Rajasthan
- Energy Efficient Buildings in India – Milli Majumdar
- Representative designs of energy-efficient buildings in India - TERI

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ARP407	**Course Name:** Working drawing
Credit: 2	**L-T-P/S:** 0-0-3
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objective: To develop understanding of architectural detailing and working drawings.

Contents:

Understanding of scale, dimensioning, texture and symbols for making constructions drawings.

Preparation of working drawings – plan, elevations, section, foundation layout and section, shuttering plan, electrical and sanitary details, detailed drawings of toilets, kitchen & staircase.

Preparation of drawings for municipal approval showing area statement, FAR calculations using local Bye-laws.

Exercises:

Preparation of detailed working drawings of various buildings designed by the students in the previous semesters.

References:

- Building Construction Drafting and Design – John Molnar, P.E.
- Building Construction Illustrated – D. K. Ching
- Handbook of Architectural details for Commercial buildings – Joseph De Chiara
- Working Drawing Handbook – Keith Styles
- National Building Code, 2005

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ARP409	**Course Name:** Architectural Design-VI
Credit: 8	**L-T-P/S:** 0-0-8
Version:	**Approved on:**
Pre-requisite course: ARP309 Architectural design-IV	

Syllabus

Objective: To orient the student to study various design problems with understanding functions, structure and services in buildings.

Contents : Design problems at urban or metropolitan scales of environment such as industrial buildings, commercial complexes, transportation terminals etc., The emphasis should be on structure, services, site planning and landscape in relation to traffic and planning controls**.**

Exercises: Design exercises such as shopping malls, multiplexes, hotel, interstate bus terminals, metro stations, railway stations, hospitals should be undertaken.

References:

- Handbook of Architectural details for Commercial Buildings - Dechiara
- Hospitals and Healthcare Facility Design – Miller & Swensson
- Architecture of Tall Buildings – Council of Tall buildings and Urban Habitat
- The best in Industrial Architecture – Alan Philips
- The best in Trade & Exhibition Trade Design – Stafford Cliff

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART501	**Course Name:** Building Services-III (Mechanical Services)
Credit: 2	**L-T-P/S:** 1-1-0
Version:	**Approved on:**

Syllabus

Objective: To develop an understanding of different mechanical services used in buildings

Contents:

Terminology & general requirements. Basic principles of refrigeration, refrigeration cycle & system components.
Air cooling & air conditioning, planning & design considerations, psychometric chart & its use.
Mechanical equipment. & Installation, Lifts and Escalators & Acoustical insulation for these systems.
Introduction to basics of fire detection, Fire fighting measures and fire fighting systems.

Exercises:

Preparation of reports, visits to construction sites and documentation. Paper presentation based on above.

References:

- Building services- mechanical, electrical, firefighting and protection, vertical transportation, HVAC, BAS and parking; Codes for these services
- Construction Technology for Tall Buildings -Lin, C.F.
- High Rise Security & Fire Life Safety- Craighead G.
- Handbook of Designing and Installation of services in Building complex, Highrise Buildings – V.K.Jain
- National Building Code, 2005

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART503	**Course Name:** Housing
Credit: 3	**L-T-P/S:** 1-0-4
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objective: To impart comprehensive knowledge about housing design and planning.

Contents:

Housing situation: Impact of industrialization and urbanization; slums and squatters; Case studies from India and abroad; Housing for poor; Sites and Services, Self –help housing. Housing for new communities- Norms and standards for living, shopping, education, health facilities, leisure and cultural activities. Neighborhood-concept- Densities and their optimization. Cost Reduction in housing, Techniques and related issues. Residential environment – Users' satisfaction and behavioral aspects; evaluation of housing developments.

Exercises:

Exercises based on understanding of norms through case studies. Design areas related to residential neighborhood or community. Site visits of housing areas.

References:

- Housing Sector in India; Issues, Opportunities and Challenges - Balaji V. & Rajmanohar.
- High Density Housing; Concepts, Planning, Construction - Christian Schittich.
- Introduction to Social Housing - Reeves P.
- Key Urban Housing of the Twentieth Century - French H.
- The Architecture of Affordable Housing - Davis S.

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART505	**Course Name:** Department Elective- IV (Urban Design)
Credit: 3	**L-T-P/S:** 2-0-1
Version:	**Approved on:**

Syllabus

Objective: To introduce the student to the various concepts and principles of urban design.

Contents:

Introduction to the role and scope of urban Design. Comparison with architecture and Town Planning. Determinants of urban forms such as landform, climate, symbolism, activity patterns, socio-cultural factors, materials and techniques and other contextual references. Case examples from various periods in history and different parts of the world. Vocabulary of Urban Design, urban Patterns, Grain, texture, Density etc,

Concepts of image ability. Elements of the city's image, Paths, nodes, landmarks, edges and districts – their characteristics, role and interrelationship.

Designing parts of the city: Systems of communication and utility, visual expression, accent and contrast, urban character, landscape features and city extension areas.

Types of urban spaces – streets, square, precinct, piazza, mall etc.

Various elements of urban spaces through history. Role of public places in the contemporary city.

Design principles – scale and Enclosure

Case studies of well known urban spaces from various periods of history to illustrate their design and performance aspects.

Exercises: Urban 'Space Activity' studies and seminars/reports on seminars Studio Work.

References:

- People Places – Design guidelines for urban open spaces – Marcus & Francis
- Urban Design – Green Dimensions – Moughtin
- Urban Architecture, City Planning – Arco colour collection
- The Heritage of Urban design – P. Sperigan
- Image of a City – Kevin Lynch Beautiful I
- The Urban Pattern-City Planning & Design – Arthur B. Gallion & Simon Eisner
- Building drawing with an integrated approach to Built environment – Shah, Patki & Kale
- Architects Handbook Ready Reckoner – Charanjit S.Shah

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART505	**Course Name:** Departmental Elective- IV (Architectural & Development Legislation)
Credit: 3	**L-T-P/S:** 2-0-1
Version:	**Approved on:**

Syllabus

Objective: To make the student understand the importance of law and byelaws and their relationship to the profession of Architecture.

Contents:

Significance of law and its relationship to the profession of Architecture & allied fields, Sources of law constitution, Acts of Central/state legislature, procedures, Law jurisprudence & Sources of law.

An overview of laws related to the profession of Architecture and Physical Development.

The Architects Act 1972, The Law of Contract, The Partnership Act, The Law of Easements, The Arbitration Law and law related to different building types.

Introduction to Land Acquisition Acts. Municipal Corporation Law & Law related to legislation monuments & Architectural Sites.

Study of Building Bye-Laws and related provisions for National Building Code (NBC).

Exercises:

Paper presentation, understanding the application of regulation in spatial context through case studies.

Books:

- Development Controls/ Building Byelaws of various Development Authorities of Indian cities.
- Bureau of Indian Standards, National Building Code (NBC).
- Compendium of Delhi Building Bye-laws and Development regulations as per Master Plan of Delhi 2021- Puri V.K.
- UDPFI Guidelines.
- Model Building Byelaws.

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART505	**Course Name:** Departmental Elective- IV (Earthquake Resistant Architecture)
Credit: 3	**L-T-P/S:** 2-0-1
Version:	**Approved on:**

Syllabus

Objectives: To let the students understand the terminology used in Earthquake and its effects on structural and non-structural elements.

Contents:

Comprehension of technical term, related to seismic design. Seismic zones in India.

Seismic forces, behavior of structure under seismic forces, failure patterns.

Design Considerations: form, materials, and structural system and construction techniques.

Study of IS codes and local building by laws related to seismic design.

Exercise: A studio based design exercise incorporating all the relevant seismic resistant details.

References:-

- IS codes related to earthquake engineering
- Seismic Design of Reinforced Concrete and Masonry Buildings - Pauley, T. and Priestley.
- Masonry Structure: Behaviour and Design Drysdale, R.G. Hamid, A. H. and Baker, L.R.
- Reinforced Masonry Design - Schneider, R.R. and Dickey, W.L.
- Concrete Structure in earthquake regions – Design & Analysis - Edmund Booth.
- Earthquake Resistant Concrete Structures - Penelis, George G., and Kappos, Andreas J., E & F. N., Spon.

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ARS507	**Course Name:** Thesis Preparatory Seminar and Group Discussion
Credit: 3	**L-T-P:** 1-0-3
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objective:

Research study of Architectural project leading to design problem to be taken up as Thesis Project

Contents :

Detailed study of non-design topic related to architectural and urban context is to be chosen by the student individually in the area of interest and approved by Department. The work will be carried out under the guidance of faculty member and ultimately help the student in deciding Thesis Project.

Exercises: Presentation through case studies and report submission.

References: Not Applicable

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ARS509	**Course Name: Assessment of Practical Training**
Credit: 5	**L-T-P: 0-0-2**
Version:	**Approved on:**
Pre-requisite course:	

Syllabus

Objective: To expose student to Architectural practice and profession of Architecture.

Contents :

Student shall undertake practical training for the period of 140 days in an office of Architect of repute registered with Council of Architecture and approved by department. Documentation of the architectural details and projects on which he/she has worked in architect's office, critical appraisal of built projects and site visits of built project shall form the part of training report.

Exercises: Presentation of the projects involved during training report submission based on above.

References: Not Applicable

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ARP511	**Course Name:** Architectural Design-VII
Credit: 8	**L-T-P/S:** 0-0-8
Version:	**Approved on:**
Pre-requisite course: ARP409 Architectural Design-VI	

Syllabus

Objective: To orient the student to study various design problems of building complexes at urban level.

Contents:

Students may choose a group project for layout design and follows up with design of individual buildings. Group projects will include Commercial complexes, community facilities, urban housing, high rise/low rise high-density slum clearance & urban design schemes. Field trip may be organized for design related case studies.

Exercises:

Design exercises such as recreation centres, high rise buildings, group housing, hospitals, slum upgradation, urban redevelopment schemes, should be undertaken.

References:

- "Mane" A New Initiative in Public Housing – Hudco publication
- Housing and Urbanization – Charles Correa
- Time saver standards for Housing and Residential development – De Chiara, Panero & Zelnik
- Commercial Building Design – Burt Kosar Rittelmann
- Handbook of Architectural Details for Commercial Buildings – Dechiara
- Hospitals and Healthcare Facility Design – Miller & Swensson
- Public Municipal and Community buildings – Charles K. Hoyt
- Commercial Spaces - Cerver Franscisco Asensio

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART502	**Course Name:** Professional Practice & Management
Credit: 2	**L-T-P/S:** 1-1-0
Version:	**Approved on:**

Syllabus

Objective: To make the students aware of professional, vocational and legal aspects of architectural practice.

Contents:

The architect & his office, relationship with clients, consultants, contractors.
Legal responsibilities of architects, code of professional practice, fees, architectural competition & architect registration act 1972.
Control of constructional operations. Introduction to Principles of business management, project programming & monitoring. PERT & CPM network & their analysis. Human relation & personnel management.
Brief idea about accounting & book keeping, business correspondence, information storage & retrieval systems.

Exercises:

Paper presentation on above topics. Analytical application of PERT or CPM in buildings through case studies.

References:

- Handbook on Professional Practice. The Indian Institute of Architects.
- Professional Practice – Roshan Namavati
- Directory of Architects, List of Architects and Professional documents – Council of Architecture
- Architects Handbook, A Ready Reckoner – Charanjit S.Shah
- Handbook of Professional Documents – Council of Architecture
- PERT and CPM – Dr. P. N. Todi

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART504	**Course Name:** Department Elective- V (Urban Conservation)
Credit:3	**L-T-P/S:** 1-0-3
Version:	**Approved on:**

Syllabus

Objective: To make students sensitive to Heritage and Architectural Conservation and introduce to theories of conservation.

Contents:

Values, Ethics and Theories of Conservation, preparatory procedures for consolidation, Restoration, Rehabilitation, Reproduction, Reconstruction etc. Role of Conservation Architects. Introduction to various charters like: Venice Charter, Burra Charter, COMOS Charter. Urban Conservation: Planning & Management.

Exercises: Case studies of Buildings, Sites, Precincts, Stretches etc. of Historic and Cultural Significance. Report on Heritage/Conservation area

References:

- Emerging Concepts of Urban Space Design -Broadbent, G
- Urban Design Guidance by UD Group- Cowan, R.
- The Design Dimension of Planning-Theory, Content and Best Practices for Design Policies-Punter, J. and Carnoma, M.
- Urban Design; Architecture of Towns & Cities-Spreiregen, P. D.
- Time Saver Standard for Urban Design- Watson D. et. al (ed)

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART504	**Course Name:** Departmental Elective- V(Campus Planning)
Credit: 3	**L-T-P/S:**1-0-3
Version:	**Approved on:**

Syllabus

Objective: To develop an approach to the problems of Campus Planning

Contents:

Principles of a Campus Design, Organic Order, Participation Incremental growth, Patterns Diagnosis, Campuses in India and Abroad, Planning Process, Site Analysis, The Building Program, Campus Master Plan, Landscape Design, Road Networking, Parking, Design of Open Spaces etc. related to campus design.

Exercises:

Paper presentation, understanding through case studies and documentation of campuses.

References:

- Oregeon Experiments – Christopher Alexander
- Campus Designs in India: an experience of developing nations – A.P. Kanvinde
- Timeless way of building – Christopher Alexander
- A Pattern Language – Christopher Alexander
- Campus Planning – Dober

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ART504	**Course Name:** Departmental Elective- V (Building Economics & Estate Management)
Credit: 3	**L-T-P/S:** 1-0-3
Version:	**Approved on:**

Syllabus

Objective: To develop the economic base for Architecture.

Contents:

Building economics in general as relevant to architects. Creative economics as relevant to creative design and creative building. Emerging concepts in building economics e.g. Life Cycle Costing (LCC), Net Benefit (NB), Net Saving (NS), Benefit-to-Cost Ratio (BCR), Saving-to Investment Ratio (SIR), Internal Rate of Return (IRR), Overall Rate of Return (ORR), Payback (PB), Using interest and discounting tables. Formulating Projects, Estimating Costs and Benefits, Selecting a discount rate of Minimum Acceptable Rate of Return (MARR).

Exercises:

Paper presentation and understanding of these concepts through building examples.

References:

- Modern Economic theory - K.K. Dewett
- Economic for Engineers – M.L. Gupta
- Micro – economic theory - Samuelson
- Rural Sociology in India – A.R.Desai
- The Urban World – J. John Palen
- Model of Urban and Regional systems in Developing Countries – George Chadwick

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date:

Template for Course Details

UG/PG: UG	**Department: Architecture & Planning**
Course Code: ARD506	**Course Name: Thesis Project**
Credit: 16	**L-T-P: 0-0-16**
Version:	**Approved on:**
Pre-requisite course: ARP310 Architectural Design V	

Syllabus

Objective: To study in detail architectural project individually as Thesis Project

Contents :

Large scale project having dimensions of urban and architectural context. The study will reflect the individual's understanding of architectural theory, philosophy and skills acquired of architecture.

The student will undertake the study of approved architectural project of his choice under the guidance of the faculty member as guide. Program formulation, site analysis, case studies and development of architectural design from conceptualization to final design will form the scope of work for thesis project. The advance objective based on thrust area and nature of project undertaken should be clearly addressed.

Exercises: Project selected by student and approved by department submission in the form of report, drawing and model.

References:

Time saver standards : Building Types
Time saver standards : Landscape Architecture
Neufert Architect's data
Journals of Architecture

DUGC Convener Curriculum Committee Convener SUGB Chairman

Date: