

Courses of Study

(Detailed Course Contents)

**Under-graduate, Post-graduate & Integrated Programmes
(2023-2024)**



Shri Mata Vaishno Devi University

Kakryal, Katra 182320 Jammu & Kashmir

VISION

Establishment of a Scientific & Technical University of Excellence to nurture young and talented human resources for the service of Indian Society & world at large and preserving the integrity and sanctity of human values.

MISSION

The mission of the University is the pursuit of Education, Scholarship and Research at the highest International level of excellence.

OBJECTIVES

- Provide education and training of excellent quality, both at undergraduate and postgraduate level.
- Ensure that the University achieves and maintains an international standing in both teaching and research
- Promote study and research in new and emerging areas and encourage academic interaction of the faculty and the students at national and international levels.
- Encourage close collaboration with industry and facilitate the application of research for commercial use and for the benefit of society.

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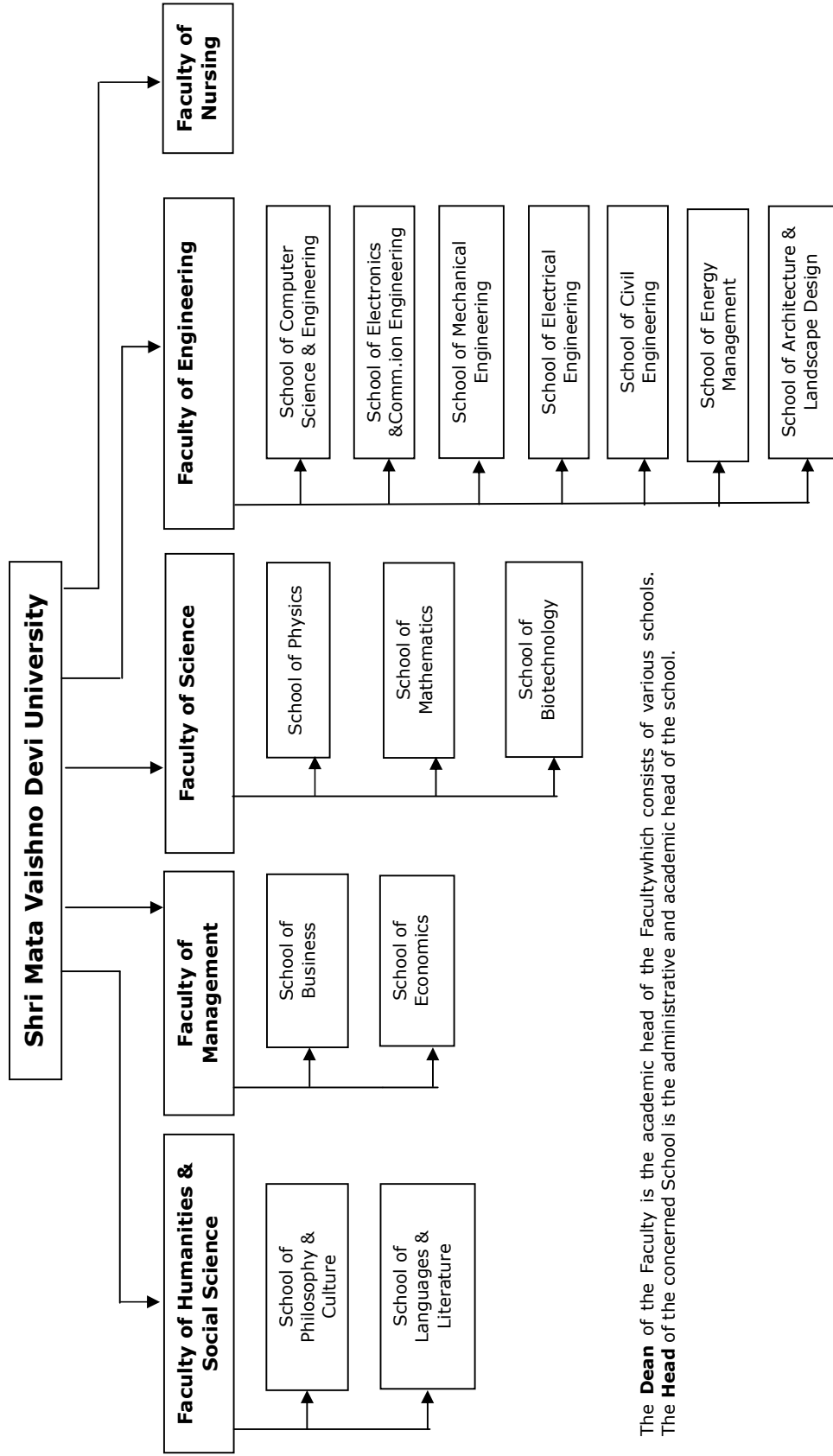
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4.0 Complete list of Ability Enhancement Courses, General Elective Courses, Skill Enhancement Courses, Value Addition Courses, Vocational Courses, Mandatory courses	

Academic Structure of the University



The **Dean** of the Faculty is the academic head of the Faculty which consists of various schools.
The **Head** of the concerned School is the administrative and academic head of the school.

1.0 Introduction

Shri Mata Vaishno Devi University (SMVDU) has adopted the Indian Institutes of Technology (IIT) pattern of teaching and examination system in its endeavor to attain academic excellence. The University is offering graduate and postgraduate programs since 2004. The university also offers programs leading to award of PhD degree. The programs being offered from the academic session 2013-14 are mentioned below.

2.0 Programs of study

The following programs of study are being offered by the university in the academic session 2013-14.

Undergraduate Programs

1. Bachelor of Technology in Computer Science & Engineering
2. Bachelor of Technology in Electronics & Communication Engineering
3. Bachelor of Technology in Mechanical Engineering
4. Bachelor of Technology in Industrial Biotechnology
5. Bachelor of Architecture

Post-graduate Programs

1. Master of Business Administration
2. Master of Technology (Manufacturing & Automation)
3. Master of Technology (Computer Science & Engineering)
4. Master of Technology (Electronics & Communication Engineering)
5. Master of Technology (Energy Management) (Part-Time Program)
6. Master of Arts (Philosophy)
7. Master of Arts (English)
8. Master of Sciences (Mathematics)
9. Master of Sciences (Physics)
10. Master of Sciences (Biotechnology)

PhD Programmes

3.0 Academic System, Rules & Regulations

**Details of
Programme of Study
&
Syllabus of Courses**

Offered by

School of Architecture and Landscape Design

Vision of the School

To Become a Center of Excellence Imparting Architectural Education Assimilating Human, Social and Environmental Values.

An idea to start a School of Architecture came up in the year 2005-06 keeping in view that:

The state is blessed with three distinct regions. Overall Development activity is on the increase. The development in hills is not organized and landscape is getting mutilated. The number of architects in totality is not much in relation to population. The areas of the state are prone to earthquake as the state falls in seismic zone IV. Elements of heritage are getting diluted. Any school of Architecture can be a catalyst in promoting architectural order. The aim of the school would be to create consciousness regarding Architecture, Environment, Built-up form, proper utilization of materials, and resources retaining heritage elements and lastly promoting sustainable development in hills.

The Bachelor of Architecture course has been designed to infuse confidence in the would-be-architect. In nutshell the Architect from the institute has to be made aware of the changing scene put forth by racing progress with its tools. Decadence in built-up-environment is a major concern. To feel concerned for the up gradation of the built-up-environment is the need of the hour. The basic mission of providing architectural education is to create environment friendly architecture through inputs from traditional skills, materials and geographical conditions. Expressing regional diversity through architecture and promoting research on materials, energy, depletion of resources, conservation of heritage have been in view while framing the syllabus.

- The course content shall be defined in advance with reference materials so that student comes prepared to some extent and the teacher assumes the role of a catalyst.
- Architectural Design shall be of prime importance with inputs from other related subjects.
- Timing and importance of the subjects has been kept in view.
- Working drawings shall be a part of both Architectural Design & building construction.
- Seminars on topics of professional concern to be part of studies with issues regarding environment, energy, heritage, landscape etc.
- To be concerned about the subject with an open mind keeping in view the space and services and dilution of natural values (fitting buildings in natural settings) and heritage elements.

Mission of the School

Pursuit of Architectural Education, Research and Consultancy in Conformity with Established Global Standards and Practices.

Details of Programs Offered

- B. Arch.

Program Objectives

By combining the subjects of the course in a natural flow, the architect- to be shall have confidence in planning, architectural design, drafting details and shall be ready for discussion. In other words it will make architecture truly a language of heart than a language of becoming an architect. Form-Function, both in the interiors and exteriors and the relationship of structure with the site and location (HARMONY) in truthfulness shall be the theme of the course. With this approach in mind the architects from the institute shall be ready to face challenges in the field of Architecture. Programs in the Preamble are realized through practical approaches like field studies and special lectures.

- Field studies help students to understand human activities, behavior and the value of space inside and outside and the details to be incorporated in Design.
- Students are made to prepare measured drawings in first year for particular functions to give the realistic understanding of anthropometry, scale and dimension.
- To create interest and awareness special lectures are conducted on the works of famous architects and their philosophies and other related topics in tune with times like Green Architecture.
- Topics are made tangible through slide shows and power point presentations.

- Outdoor study and sketching not only helps to understand Art and Aesthetics but side by side by decadence brought by human hands is made clear.
- Hand on training on latest architecture computer softwares like AutoCAD, ArchiCAD and Revit put the programme of teaching on latest lines.
- Talks and lectures are conducted by various companies dealing with interior hardware and students are made conscious of constant changes in building industry regarding wastage, pollution and conservation by explaining the ever changing trends in products.
- Students are made aware of the various facets of the state having three regions of varied climate, customs and architecture to establish differences in approach to design and along with it the understanding of Hill Architecture and Energy Conscious buildings.
- To keep students well informed about Architecture and widen their horizon and allow healthy competition, students attend NASA (National Association of Students Architects) meets in January every year.
- Students also attend programmed study tours and joint workshops with other schools.
- Lectures and Workshops by Visiting Professors render extra help to students in their understanding about the subject.
 - Students take part in Art Culture and Sports activities regularly.

Details of Minor & Interdisciplinary Specialization Offered (if any)

Pedagogy

Infrastructure

Course Structure of B. Architecture programme

Semester I

First Year

Sl. No.	Category	Course Code	Course Title	L	T	S/ P	C
1	DCC	ALM DC 101	Architectural Design-I	2	0	6	5
2	DCC	ALM DC 103	Building Materials & Construction -I	2	0	4	4
3	DCC	ALL DC 105	Building Structures-I	2	1	0	3
4	DCC	ALL DC 107	History of Architecture-I	2	1	0	3
5	DCC	ALM DC 109	Architectural Drawings - I	2	0	4	4
6	DCC	ALL DC 111	Basic Design & Visual Arts	0	2	0	2
7	DCC	ALP DC 113	Model Workshop	0	0	4	2
8			NSS				
Total Credits							23

Semester II

First Year

Sl. No	Category	Course Code	Course Title	L	T	S/ P	C
1	DCC	ALM DC 102	Architectural Design-II	2	0	6	5
2	DCC	ALM DC104	Building Materials & Construction -II	2	0	4	4
3	DCC	ALL DC 106	Building Structures-II	2	1	0	3
4	DCC	ALL DC 108	History of Architecture-II	2	1	0	3
5	DCC	ALM DC 110	Architectural Drawings - II	2	0	4	4
6	DCC	ALL DC 112	Arts & Graphics	0	2	0	2
7	DCC	ALM DC 114	Surveying & Leveling	1	0	2	2
8	AEC	LNP AE 116	Language Lab - I	0	0	2	1
Total Credits							24

Semester III

Second Year

Sl. No	Category	Course Code	Course Title	L	T	S/ P	C
1	DCC	ALM DC 201	Architectural Design-III	2	0	6	5
2	DCC	ALM DC 203	Building Materials & Construction -III	2	0	4	4
3	DCC	ALL DC 205	Building Structures-III	2	1	0	3
4	DCC	ALL DC 207	History of Architecture-III	2	1	0	3
5	SEC	ALM SE 201	Computer Applications in Architecture - I	2	0	4	4
6	BSC	ALL BS 201	Climatology	2	1	0	3
7	ESC	ALM ES 201	Building Services-I	2	0	2	3
Total Credits							25

Semester IV

Second Year

Sl. No	Category	Course Code	Course Title	L	T	S/ P	C
1	DCC	ALM DC 202	Architectural Design-IV	2	0	6	5
2	DCC	ALM DC 204	Building Materials & Construction -IV	2	0	4	4
3	DCC	ALL DC 206	Building Structures-IV	2	1	0	3
4	DCC	ALL DC 208	History of Architecture-IV	2	1	0	3
5	SEC	ALM SE 202	Computer Applications in Architecture - II	2	0	4	4
6	DCC	ALL DC 210	Theory of Design	2	1	0	3
7	ESC	ALM ES 202	Building Services-II	2	0	2	3
Total Credits							25

Semester V

Third Year

Sl. No	Category	Course Code	Course Title	L	T	S/ P	C
1	DCC	ALM DC 301	Architectural Design-V	2	0	6	5
2	DCC	ALM DC 303	Building Materials & Construction -V	2	0	4	4
3	DCC	ALL DC 305	Building Structures-V	2	1	0	3
4	AEC	ALL AE 301	Principles of Management	3	0	0	3
5	SEC	ALM SE 301	Computer Applications in Architecture - III	2	0	4	4
6	BSC	ALL BS 301	Acoustics & Lighting	2	1	0	3
7	VAC	ALL VA 301	Sociology & Economics	3	0	0	3
Total Credits							25

Semester VI

Third Year

Sl. No	Category	Course Code	Course Title	L	T	S/ P	C
1	DCC	ALM DC 302	Architectural Design-VI	2	0	6	5
2	DCC	ALM DC 304	Building Materials & Construction -VI	2	0	4	4
3	DCC	ALL DC 306	Building Structures-VI	2	1	0	3
4	BSC	ALL BS 302	Environmental Studies	3	0	0	3
5	AEC	ALM AE 302	Working Drawings	2	0	4	4
6			Discourse on Human Virtues	3	0	0	3
7	DCC	ALL DC 308	Specification & Estimation	2	1	0	3
Total Credits							25

Semester VII

Fourth Year

Sl. No	Category	Course Code	Course Title	L	T	S/ P	C
1	PR	ALI PR 401	Professional Training	18 week			20
Total Credits							20

Semester VIII

Fourth Year

Sl. No	Category	Course Code	Course Title	L	T	S/ P	C
1	DCC	ALM DC 402	Architectural Design-VIII	2	0	6	5
2	DCC	ALM DC 404	Advanced Building Construction Technology	2	0	4	4
3	DCC	ALM DC 406	Urban Design	2	0	2	3
4	DCC	ALM DC 408	Landscape Design	2	0	2	3
5	DCC	ALM DC 410	Town Planning & Building Bye-Laws	2	0	2	3
6	VAC	XXX XX XXX	open elective	3	0	0	3
Total Credits							21

Semester IX

Fifth Year

Sl. No	Category	Course Code	Course Title	L	T	S/ P	C
1	DCC	ALM DC 501	Architectural Design - VIII	2	0	6	5
2	AEC	ALL AE 501	Professional Practice	2	0	0	2
3	DCC	ALL DC 503	Green Buildings	3	0	0	3
4	AEC	ALD AE 503	Dissertation	0	4	0	4
5	DEC	ALL DE 50x	Elective-I (Theory based)	2	1	0	3
6	DEC	ALM DE 50y	Elective-II (Studio/Lab based)	2	0	2	3
Total Credits							20

Semester X

Fifth Year

Sl. No	Category	Course Code	Course Title	L	T	S/ P	C
1	PR	ALD PR 502	Architectural Design Thesis	0	0	30	15
Total Credits							15

List of Departmental/School Core Courses (DCC)

S. No	CourseCode	CourseTitle	L	T	S/P	Credit
1	ALM DC 101	Architectural Design-I	2	0	6	5
2	ALM DC 103	Building Materials & Construction -I	2	0	4	4
3	ALL DC 105	Building Structures-I	2	1	0	3
4	ALL DC 107	History of Architecture-I	2	1	0	3
5	ALM DC 109	Architectural Drawings - I	2	0	4	4
6	ALL DC 111	Basic Design & Visual Arts	0	2	0	2
7	ALP DC 113	Model Workshop	0	0	4	2
8	ALM DC 102	Architectural Design-II	2	0	6	5
9	ALM DC104	Building Materials & Construction -II	2	0	4	4
10	ALL DC 106	Building Structures-II	2	1	0	3
11	ALL DC 108	History of Architecture-II	2	1	0	3
12	ALM DC 110	Architectural Drawings - II	2	0	4	4
13	ALLDC 112	Arts & Graphics	0	2	0	2
14	ALM DC 114	Surveying & Leveling	1	0	2	2
15	ALM DC 201	Architectural Design-III	2	0	6	5
16	ALM DC 203	Building Materials & Construction -III	2	0	4	4
17	ALL DC 205	Building Structures-III	2	1	0	3
18	ALL DC 207	History of Architecture-III	2	1	0	3
19	ALM DC 202	Architectural Design-IV	2	0	6	5
20	ALM DC 204	Building Materials & Construction -IV	2	0	4	4
21	ALL DC 206	Building Structures-IV	2	1	0	3
22	ALL DC 208	History of Architecture-IV	2	1	0	3
23	ALL DC 210	Theory of Design	2	1	0	3
24	ALM DC 301	Architectural Design-V	2	0	6	5
25	ALM DC 303	Building Materials & Construction -V	2	0	4	4
25	ALL DC 305	Building Structures-V	2	1	0	3
26	ALM DC 302	Architectural Design-VI	2	0	6	5
27	ALM DC 304	Building Materials & Construction -VI	2	0	4	4
28	ALL DC 306	Building Structures-VI	2	1	0	3
29	ALL DC 308	Specification & Estimation	2	1	0	3
30	ALM DC 402	Architectural Design-VIII	2	0	6	5
31	ALM DC 404	Advanced Building Construction Technology	2	0	4	4
32	ALM DC 406	Urban Design	2	0	2	3
33	ALM DC 408	Landscape Design	2	0	2	3
34	ALM DC 410	Town Planning & Building Bye-Laws	2	0	2	3
35	ALM DC 501	Architectural Design - VIII	2	0	6	5
36	ALL DC 503	Green Buildings	3	0	0	3

List of Departmental/School Core Electives (DEC)

S. No	CourseCode	CourseTitle	L	T	S/P	Credit
1	ALL DE 501	Architectural Journalism	2	1	0	3
2	ALL DE 502	Art in Architecture	2	1	0	3
3	ALL DE 503	Building Automation	2	1	0	3
4	ALL DE 504	Building Diseases & Treatment	2	1	0	3
5	ALL DE 505	Construction Planning & Management	2	1	0	3
6	ALL DE 506	Housing	2	1	0	3
7	ALL DE 507	Disaster Mitigation & Management	2	1	0	3
8	ALL DE 508	Energy Footprint of Built Environment	2	1	0	3
9	ALL DE 509	Environmental Management	2	1	0	3

10	ALL DE 510	Research Methodology	2	1	0	3
11	ALL DE 511	Infrastructure Planning	2	1	0	3
12	ALL DE 512	Human Settlements & Town Planning	2	1	0	3
13	ALM DE 501	Architectural Conservation	2	0	2	3
14	ALM DE 502	Building Simulation	2	0	2	3
15	ALM DE 503	Building Information Management	2	0	2	3
16	ALM DE 504	Product Design	2	0	2	3
17	ALM DE 505	Graphic Design	2	0	2	3
18	ALM DE 506	Interior Design	2	0	2	3
19	ALM DE 507	Landscape Architecture	2	0	2	3
20	ALM DE 508	Geographic Information System	2	0	2	3
21	ALM DE 509	Structural Design with STADD	2	0	2	3
22	ALM DE 510	Transportation & Traffic Design	2	0	2	3
23	ALM DE 511	Alternate Building Construction & Designs	2	0	2	3
24	ALM DE 512	Smart City Planning	2	0	2	3

List of Basic Science Courses Offered by School (BSC)

S. No	CourseCode	CourseTitle	L	T	S/P	Credit
1	ALL BS 201	Climatology	2	1	0	3
2	ALL BS 301	Acoustics & Lighting	2	1	0	3
3	ALL BS 302	Environmental Studies	3	0	0	3

List of Engineering Science Courses Offered by School (ESC)

S. No	CourseCode	CourseTitle	L	T	S/P	Credit
1	ALM ES 201	Building Services-I	2	0	2	3
2	ALM ES 202	Building Services-II	2	0	2	3

List of Ability Enhancement Courses Offered by School (AEC)

S. No	CourseCode	CourseTitle	L	T	S/P	Credit
1	ALL AE 301	Principles of Management	3	0	0	3
2	ALM AE3 02	Working Drawings	2	0	4	4
3	ALL AE 501	Professional Practice	2	0	0	2
4	ALD AE 503	Dissertation	0	4	0	4

List of Skill Enhancement Courses Offered by School (SEC)

S. No	CourseCode	CourseTitle	L	T	S/P	Credit
1	ALM SE 201	Computer Applications inArchitecture - I	2	0	4	4
2	ALM SE 202	Computer Applications inArchitecture - II	2	0	4	4
3	ALM SE 301	Computer Applications inArchitecture - III	2	0	4	4

List of Value Addition Courses Offered by School (VAC)

S. No	CourseCode	CourseTitle	L	T	S/P	Credit
1	ALL VA 301	Sociology & Economics	3	0	0	3
2	XXXXXXX	Open Elective	3	0	0	0

Course Code : **ALM DC101**
Course Title : **Architectural Design - I**
L-T-P/S=Credits : **2-0-6 =5**
Course Category : **DCC**
Pre-requisite Courses (if any) : **NIL**
Equal Course Code (if any) : **ALU1511**
Equivalent Course Code (if any) :

Detailed Syllabus

Introduction to Architecture

Introduction to Architecture Profession, Roles, Responsibilities and Liabilities of an Architect and other professionals in the building and construction field. Architects Act-CoA, I.I.A, NASA.

A brief summary of Architecture; its various definitions, associated aspects/dimensions, approaches through different ages and factors affecting architecture of a region. Relationship between basic design and architectural design, understanding of space, form, order and design.

Architectural Design Aspects

Basic anthropometrics, human functions and their implications for space requirements. Minimum and optimum areas for mono functions. User's data, Movement and circulation diagrams. Standards / minimum dimensions for habitable areas and other activities as per NBC.

Spatial interpretations – various activities and their relationship with spaces.

Floor Space Layout

Dimensions of furniture and fixtures, functional furniture layout, circulation, lighting and ventilation for spaces such as living/dining, kitchen, bedrooms, Architect's office, Doctor's clinic, Food parlor etc.,

Preliminary Architectural Design

Design of simple building elements such as Entrance Gate, Welcome Arch, Memorial edifice, Bus shelter and layout of park, Design of single user units like hostel room and integration of form and function.

Note: The requirements pertaining to the handicapped and elderly people are to be addressed in design and detailing. Students should carry out One Major, One Minor and Two Time Bound Architectural Design exercises.

Suggested Books:

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1	Architecture: Form, Space and Order by Francis D. K. Ching	2007
2	Time Saver Standards for Architectural Design Data by John Hanock	
3	Space, Time and Architecture by Gideon	
Reference Books		
1	Principles of three Dimensional Design by Wucius Wong	
2	Architectural Graphic Standards" by Ramsay and Sleeper	

Course Outcome

Sr	Course Outcome	CO
1	Understand dimensions of architecture and role and responsibilities of an architect.	CO1
2	Understand anthropometric data and its use in architectural design/floor space layout.	CO2
3	Apply basic design principles of using elements of architecture.	CO3
4	Develop the ability to translate abstract principles of design into architectural solutions for simple problems / nonfunctional units.	CO4

Course Code : ALM DC103
Course Title : Building Materials & Construction-I
L-T-P/S=Credits : 2-0-4 =4
Course Category : DCC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALU1512
Equivalent Course Code (if any) :

Detailed Syllabus

Introduction to Building Materials & Components

Introduction to commonly used building materials and *elements of a building from foundation to roof* (Stepped footing & strip foundations, Plinth, DPC, Flooring, Walls, Door, Window, Sill, Lintel, Column, Beam, Slab, Parapet, Terracing etc.)

Brick and Clay Products

BRICKS: Manufacturing, Composition, Sizes, Properties and Classification of bricks, Tests for bricks. Introduction of Brickworks: *Types of Bricks & Quoins*, masonry bonding & ornamental bonding, which will focus on *types of Brick bonds: English, Flemish & Stretcher bond for both 230 mm & 115 mm brick wall, detail brick layout at corners, junctions and brick columns*. Applicable IS Codes for Bricks.

Rocks & Stones as Building Materials

Geological, Physical and Chemical classification of rocks/stones. Common building stones used in India and their various uses in building. Characteristic properties, identification of stones, dressing of stones. Introduction of Stonework; *Rubble and Ashlars masonry*. Applicable IS Codes for Stones.

Lime and Cement

LIME: Classification of lime, fat and hydraulic lime; properties and use.
 CEMENT: Composition and manufacturing of cement. Function of cement ingredients; setting, hydration and hardening of cement. Properties of cement – Fineness, Soundness, Setting time, etc Grades of cement and different types of cement used in construction. Storage of cement on site. Applicable IS Codes for Lime & Cement.

Teaching Methodology: Faculty shall impart teaching by lecture/presentations; students shall prepare sheets (on topics made *italics*) with applicable construction details in studio. Market survey of building materials shall be carried out as a group exercise.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1	Building Construction & Materials, S.C Rangwala	
2	A text book of Building Construction, B.C. Punmia	
3	Building Materials & Construction, Shushil Kumar	
Reference Books		
1	Building Construction, Mackay WB Vol. 1	
2	Construction Technology, Chudley Vol. 1	

Course Outcome

Sr	Course Outcome	CO
1	Understand primary building materials (Brick, Stone, Cement & Lime) used in building construction, their properties, classification & types available.	CO1
2	Gather knowledge of manufacturing and judicial usage of building materials.	CO2
3	Understand and apply building materials as per procedures recommended by IS Codes.	CO3
4	Work Out / Apply appropriate details for building construction.	CO4

Course Code : ALL DC105
Course Title : Building Structures-I
L-T-P/S=Credits : 2-1-0 =3
Course Category : DCC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALL1513
Equivalent Course Code (if any) :

Detailed Syllabus

Introduction to Mechanics & Equilibrium of Forces

Fundamental Principles - Vectorial Representation of Forces and Moments - Coplanar forces - Resolution and Composition of forces and equilibrium of particles – introduction of Forces on a particle in space - Equivalent system of forces - Principle of transmissibility - Single equivalent force - Free body diagram - Equilibrium of rigid bodies in two dimensions and Introduction to Friction - Laws of Coulomb Friction - Equilibrium of Bodies involving Dry friction. Application

Properties of Surfaces and Solids

Centroid - First moment of area - Second moment of area - moment and Product of inertia of plane areas - Transfer Theorems - Polar moment of inertia - Principle axes

Bending Moments & Shear Forces

Types of beams, supports and loadings. Bending Moment & shear force diagrams for simple beams with simple loading.

Analysis of Perfect Frames

Trusses - Introduction - Simple Truss and Solution of Simple truss - Method of Joints - Method of Sections - Method of Tension Coefficient.

Stresses and Strains

Simple Stress and Strain: Introduction - Normal and Shear stresses - Stress - Strain Diagrams, Solution of simple problems –One Dimensional Loading of members of varying cross-section – Concepts of Elastic Constants.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1	Engineering Mechanics – Statics and Dynamics by Tayal. A. K.	2009
2	Mechanics of Materials by Punamia B. C.	2010
3	Engineering Mechanics – Statics and Dynamics by Shames I. H.	2006
Reference Books		
1	Engineering Mechanics – RK Bansal and Sanjay Bansal	
2	SOM by Khurmi	

Course Outcome

Sr	Course Outcome	CO
1	Understand distribution & calculation of force for analysis of the structures.	CO1
2	Understand the geometric properties of the different shapes.	CO2
3	Analyzing various force systems, work on problems relating to the resultant, equilibrium etc.	CO3
4	Analyzing the Beams & Trusses with different types of load conditions & different types of support conditions.	CO4

Course Code	: ALL DC107
Course Title	: History of Architecture-I
L-T-P/S=Credits	: 2-1-0 =3
Course Category	: DCC
Pre-requisite Courses (if any)	:NIL
Equal Course Code (if any)	:ALL1514
Equivalent Course Code (if any)	:

Detailed Syllabus

Indus Valley Civilization and Vedic Period

Characteristic features of town planning and architecture of Indus Valley Civilization; City of Harappa, Mohanjodaro and Lothal, layout of domestic units & public facilities, building materials and construction technologies used.

The Vedic civilization; Layouts of Aryan Village, type of dwellings and building materials.

Jain & Buddhist Architecture

Evolution of Jain & Buddhist Architecture; Development by Ashoka, Hinayan & Mahayan styles of Buddhist architecture, Architectural features of Stupas, Monolithic Pillars, Rock cut architecture (Chaityas & Viharas), Monestries, Rock edicts. Gandhar style of art and architecture.

Evolution of Temple Architecture

Beginning of Hindu Temple Architecture under the Guptas and Chalukyas.

Architectural features of buildings/temples, construction technology, building materials of Chalukyan style; Early Chalukyan Architecture, Later Chalukyan Architecture. Evolution at Badami, Aihole and Pattadakal, examples like Ladh Khan, Durga, Maleguti, Papanath Temple.

Developments in Temple Architecture

Architectural features of buildings/temples, construction technology, building materials of Indo Aryan Style; Orissa Style – Kalinga Style, Khajuraho Style, Gujrat & Rajasthan Style. Dravidian Style; Pallava Style, Chola Style, Pandya Style, Vijayanagar Style, Late Pandya Style or Madura Style.

Teaching Methodology: Faculty shall impart teaching by lecture & presentations (with focus on free hand sketches); students shall prepare poster/reports/presentation illustrating various architectural styles as an individual or group exercise.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1	"The History of Architecture" by Sir Bannister Fletcher, CBS (2002), ISBN: 978-8123906416	
2	"Buddhist and Hindu Architecture" in India by Satish Grover	
3	"Indian Architecture, Buddhist & Hindu Period" by Percy Brown, ISBN: 978-8123924571	
Reference Books		
1	"History of Architecture in India" by Christopher	
	"Ancient Indian Architecture (from Blossom to Bloom)" by Maheshwari & Garg	
2	"Concepts of space in Traditional Indian Architecture" by Yatin Pandya	

Course Outcome

Sr	Course Outcome	CO
1	Understand architectural elements, forms, development trends, construction techniques, materials and technologies used in built environment through the times.	CO1
2	Understand transformation patterns in architecture during various kingdoms / time periods and analyse the contributing factors for the design development of different styles.	CO2
3	Familiarize themselves with the socio-economic, historical and political influences of time period in architectural development	CO3

Course Code : ALL DC107
Course Title : Architectural Drawings - I
L-T-P/S=Credits : 2-0-4 =4
Course Category : DCC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALU1515
Equivalent Course Code (if any) :

Detailed Syllabus

Basic Technical Drawing and Lettering

Introduction to basics- introduction to subject and drawing equipments, Drafting and quality of lines with pencil, Basic Geometry- Construction of planes, curves, circles tangent and regular polygons, Free hand and mechanical lettering- Free hand drawing and lettering for titles, line work with the use of Drawing Instruments.

Scale and Dimensioning

Types and uses of scales: Plain, diagonal, comparative, and scale of chords, Scales used in architecture, Reducing and enlarging scales, Representative fraction, Dimensioning of lines and plane figures, Measuring and drawing to scale the following: furniture items, rooms, doors and windows, etc.

Orthographic Projections

Introduction to orthographic projections - isometric and axonometric projections, Planes of Projections, First angle projections, Drawing of lines, basic geometrical shapes in different positions, Projection of regular rectilinear and circular solids (prisms, pyramids, cones, cylinders, spheres etc.) in different positions, construction of plan, elevation and section of 3D objects and projections in various positions.

Surface Development

Surface development of solids and sectional solids- Study of development of surfaces, drawing of unfolded surfaces of right solids like Cubes, Prisms, Cylinders; drawing the development of the lateral surface of a pyramid & Cone.

Teaching Methodology: Faculty shall impart teaching by lecture/demonstrations; students shall undertake exercises and prepare sheets in studio.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1	Bhatt, N.D., "Engineering Drawing: Plane and Solid Geometry", Charotar Publishing House, 2006.	
2	Ching, Francis D. K., "Architectural Graphics", Van Nostrand Reinhold, 2003.	
3	Leslie, Martin C., "Architectural Graphics", Macmillan Pub Co, 1970.	
Reference Books		
1	Parkinson, A.C., "A First Year Engg. Drawing", Sir Issac Pitman and Sons.	
2	Black, Earl D., "Engineering and Technical Drawing", Van Nostrand Reinhold Co., 1972	

Course Outcome

Sr	Course Outcome	CO
1	Understand and apply various drawing tools and accessories used in drafting and lettering techniques to produce any geometrical composition and form.	CO1
2	Gather understanding about the scale measurement; plane geometry, solid geometry and projections used as drawing technique.	CO2
3	Demonstrate basic understanding and handling techniques of orthographic projection.	CO3
4	Represent three dimensional forms in design projects using graphical presentation skills.	CO4

Course Code : ALL DC111
Course Title : Basic Design & Visual Arts
L-T-P/S=Credits : 0-2-0 =2
Course Category : DCC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) : ALU1516
Equivalent Course Code (if any) :

Detailed Syllabus

Elements of Design

Introduction to elements of Design like point, line, shape, form, texture, colour; their definitions and expression quality. Application of elements in architectural design through the use of line, plane, solid and voids and application of texture, colour, etc. Exercises like logo, cover page, greeting card, mural design etc to be considered.

Colour Fundamentals

Colour fundamentals; perception of colour and light, related definitions like hue, value, intensity, colour wheel, colour theory, colour schemes. Effect of colour in architecture, colour symbolism.

Principles of Design

Introduction of Design principles like Balance, Harmony, Rhythm, Contrast, Symmetry, Scale, Proportions etc. leading to unity in design. Application of design principles in 2D and 3D compositions. Exercises of 3D compositions to be introduced.

Aesthetics & Appreciation of Art

Introduction to aesthetics and interpretation of its meaning, aesthetics (rasa) in artworks, appreciation of art, definition of beauty, three basic parameters of judgment of art works (skill, originality & aesthetic quality), relation between art and life, application of aesthetic theories in visual arts.

Teaching Methodology: Faculty shall impart teaching by lecture, presentation & demonstrations; students shall undertake 2D & 3D composition exercises in studio.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1	Foundations in Architecture: An Annotated Anthology of Beginning Design Project, Van Nostrand Reinhold NY, 1993.	
2	Basic Visual Concepts and Principles for Artists, Architects and Designers by Charles Wallschlacgerm & Cynthia Busic-Snyder, McGraw Hill, New York 1992.	
3	Design fundamentals in Architecture by V. S. Parmar, Somaiya PubliMinorions Pvt. Ltd., New Delhi, 1973.	
Reference Books		
1	Logic and Design in Art, Science and Mathematics by Krome Barratt, Globe Pequot Press, 2005.	
2	Architecture: Form, Space and Order by Francis D. K. Ching, John Wiley & Sons, 2007.	

Course Outcome

Sr	Course Outcome	CO
1	Understand and apply elements, principles and theories of arts and architectural composition.	CO1
2	Understand the conceptual, visual and perceptual issues involved in the design process.	CO2
3	Understand aesthetics and art appreciation from the perspective of theory and application.	CO3
4	Use various rendering techniques and types of rendering methods for presentations	CO4

Course Code : ALP DC113
Course Title : Model Workshop
L-T-P/S=Credits : 0-0-4 =2
Course Category : DCC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALP1517
Equivalent Course Code (if any) :

Detailed Syllabus

Introduction to Model Making

Introduction to workshop tools.

Simple exercises in cutting and joining in thick paper, thermocol, mountboards, acrylic sheets and wooden veneers. Preparing simple geometrical forms like cube, prism, cone and pyramid of various sizes with different materials.

Art Forms & Art Work

Working with soft and / or flexible materials like clay, soap, PoP etc.

Exercises in casting / carving and molding in order to create art forms.

Building Forms

Preparing contours to model undulating / contoured sites.

Making presentation models of simple rooms, design units illustrating furniture, doors, windows.

Preparing small models of trees, shrubs, cars using different materials like therocol, foam, chalk.

Carpentry Works

Introduction to carpentry tools and instruments. Tips and precautions for working with wood.

Exercises in cutting, leveling and joint making with wood.

Teaching Methodology: Faculty / Instructor shall impart teaching by demonstrations; students shall undertake exercises in workshop. Preferably, exercises should be related to architectural and basic design topics introduced during the semester.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1	Architectural Model Building: Tools, Techniques, & Materials, Roark T. Congdon.	
2	Model Making: A Basic Guide, Martha Sutherland.	
3	Architectural Model Building: Tools, Techniques, & Materials, Roark T. Congdon.	
Reference Books		
1	Designing With Models: A Studio Guide To Making And Using Architectural Design Models	
2	Model Building for Architects and Engineers	
3	Architectural Models, Rolf Janke	

Course Outcome

Sr	Course Outcome	CO
1	Inculcate skills of cutting and joining in using simple materials like thick paper, thermocol, mountboard, wooden veneers etc.	CO1
2	Prepare models of 3D geometrical forms and other abstract forms.	CO2
3	Develop skills in creating art forms using various soft and flexible materials	CO3

Course Code : ALM DC102
Course Title : Architectural Design - II
L-T-P/S=Credits : 2-0-6 =5
Course Category : DCC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALU1521
Equivalent Course Code (if any) :

Detailed Syllabus

Creating Architectural Space and Form considering variables like light, movement, transformation, scale, structure and skin in the formation and evolution of architectural form.

Space Standards and NBC guidelines for building typologies.

In the earlier part of the studio, multi user based design exercise to be developed to introduce the various complexities in design. Small scale exercises shall be restricted to understanding and representation of walls, floors, roof planes, openings and structural elements. Projects shall be attempted with the help of models and sketches. Space making projects may be tied to the context, but objective shall be to illustrate the variables like colour, material, texture and scale in evoking the necessary conditions for the prescribed activity.

Medium scale project shall be formulated as a process of integrating the various elements of space making learnt earlier in the semester. Small scale design exercises to be introduced on topics like

Architect's Office, Residence, College Canteen, Doctor's Clinic, Guest House etc.

Note:

The requirements pertaining to the handicapped and elderly people are to be addressed in design and detailing. Students should carry out One Major, One Minor and Two Time Bound Architectural Design exercises. The portfolio covering the above topics shall be presented for evaluation by external examiners.

NOTE:	End Term Evaluation (Major Exam) of Architectural Design shall be carried out in two stages. Jury of Internal and/or External Examiners and Design exercise for exam (50 Marks for Portfolio Evaluation + 50 Marks for Exam Answer Sheets Evaluation).
	S / P Internal Marks shall be awarded on students' work in the form of Case Study / Design Sheets / Reports / Models / Presentations / Seminars, which shall be evaluated by the concerned faculty.

Suggested Books:

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1	Architecture: Form, Space and Order by Francis D. K. Ching	2007
2	Time Saver Standards for Architectural Design Data by John Hanock	
3	Space, Time and Architecture by Gideon	
Reference Books		
1	Principles of three Dimensional Design by Wucius Wong	
2	Architectural Graphic Standards" by Ramsay and Sleeper	

Course Outcome

Sr	Course Outcome	CO
1	Understand the grammar of creating architectural space and form.	CO1
2	Understand and apply individual variables like light, movement, transformation, scale, structure and skin in the formation and evolution of architectural form.	CO2
3	Explore the relationship between human feelings and architectural form.	CO3
4	Develop the ability to translate principles of design with project requirements into architectural solutions for simple units.	CO4

Course Code : ALM DC104
Course Title : Building Materials & Construction-II
L-T-P/S=Credits : 2-0-4 =4
Course Category : DCC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALU1522
Equivalent Course Code (if any) :

Detailed Syllabus

Timber and Wooden Products

Timber: Definition, obtaining timber from nature (Selection, Felling and Transportation), Conversion of timber, Seasoning, Storage, Defects in timber and its preservation. Use of different types of wood in various parts of building. Industrial timber: veneers, plywood, fibreboard, etc.

Bamboo: Basic concepts to use it as a building material. Applicable IS Codes for Timber.

Timber Joinery and Woodwork

Timber Joinery; types of joints, lengthening and widening joints, common joints for various building and furniture works.

Types, Classification, Usage & the application of various tools & machinery used in the process.

Wooden Doors and Windows

DOORS: Details of doors which will include Basic Doors (Battened /ledged/Braced door), Flush Doors (both solid & hollow core flush doors) & Panelled Door (both single & double shutter panel doors – in timber, wire mesh & glazed panel door.)

WINDOWS: Types of window which will include Casement window, fully glazed window, Ventilator Simple & pivoted, Fixed Glass window, louvered window, corner and Bay window.

Hardware related to wooden doors & windows. Design & Details of Casement window.

Roof types & construction

Terms associated with roofs and its types, roof construction comprising of King Post/ Queen Post trusses, purlins, and gable end.

Teaching Methodology: Faculty shall impart teaching by lecture/presentations; students shall prepare sheets (on topics made *italics*) with applicable construction details in studio. Market survey of building materials shall be carried out as a group exercise.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1	Building Construction & Materials, S.C Rangwala	
2	A text book of Building Construction, B.C. Punmia	
3	Building Materials & Construction, Shushil Kumar	
Reference Books		
1	Building Construction, Mackay WB Vol. 1-4	
2	Construction Technology, Chudley Vol. 1-6	

Course Outcome

Sr	Course Outcome	CO
1	Understand primary building materials (Brick, Stone, Cement & Lime) used in building construction, their properties, classification & types available.	CO1
2	Gather knowledge of manufacturing and judicious usage of building materials.	CO2
3	Understand and apply building materials as per procedures recommended by IS Codes.	CO3
4	Work Out / Apply appropriate details for building construction.	CO4

Course Code : ALL DC106
Course Title : Building Structures-II
L-T-P/S=Credits : 2-1-0 =3
Course Category : DCC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALL1523
Equivalent Course Code (if any) :

Detailed Syllabus

Principle Stresses, Strains and Torsion

Principle stresses and strains - Mohr's circle – Introduction to torsion - Torsion of shafts of circular section - torque and twist - shear stress due to torque

Shear Stresses and Bending Stresses

Bending stresses and shear stresses in beams. Direct and bending stresses in compression members.

Deflection of Beams

Introduction - Theory of bending - deflection of beams by Integration method.

Indeterminate Structures

Concept of statically indeterminate structures, degree of indeterminacy, propped cantilevers for simple loads.

Theory of Columns

Theory of Columns - long column and short column - Euler's formula - Rankine's formula - Secant formula - beam column.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1	Engineering Mechanics – Statics and Dynamics by Shames I. H. (2006), 4th Edition, Prentice-Hall of India Private limited, ISBN- 9780133569247.	2006
2	Mechanics of Materials by Punamia B. C. (2010), 15th Edition, Laxmi publiMinorions (P) Ltd, ISBN: 9788131806463.	2010
3	Engineering Mechanics – Statics and Dynamics by Shames I. H. A. K. (2009), 12th Edition, Umesh PubliMinorions, ISBN: 9788188114016.	2006
Reference Books		
1	Strength of Materials by R. K. Bansal, Laxmi PubliMinorions, New Delhi.	
2	Mechanics of Materials, 8th Edition by Gere J. M. and Thimoshenko S. P. (2008), CBS Publishers & Distributors, ISBN: 9780534417932.	2008

Course Outcome

Sr	Course Outcome	CO
1	Know the concept of stresses and strains and apply / analyze through exercises.	CO1
2	Understand the concept of shear force and bending moment and analyze for beams.	CO2
3	Calculate deflection in beams and trusses.	CO3
4	Understand and apply theory of columns for given cases.	CO4

Course Code	: ALL DC108
Course Title	: History of Architecture-II
L-T-P/S=Credits	: 2-1-0 =3
Course Category	: DCC
Pre-requisite Courses (if any)	:NIL
Equal Course Code (if any)	:ALL1524
Equivalent Course Code (if any)	:

Detailed Syllabus

Introduction to Islamic Architecture

Introduction and understanding of "Islam's" philosophy and its interpretation in building types – Mosque, Tomb, Fort and their elements like dome, arches, minarets etc. Typical Layout of Mosque, its features and related nomenclature.

The Imperial Style

With reference to the Slave, Khalji, Tughlaq, Sayyid & Lodi Dynasties. Explanation with examples of the buildings, construction technology, building materials used, evolution of form and development with significant changes over the time period.

The Provincial Style

Architecture at Punjab & Bengal, Gujrat, Bijapur, Jaunpur, Malwa, Deccan and Avadh. Explain with examples of the buildings, construction technology, building materials used, evolution of form and development with significant changes over the time period.

Mughal Architecture

Concepts of city planning of various Islamic towns like Shahajahanabad and Fhatehpur Sikri. The Architecture developed under the rein of Babur, Humanyu, Akbar, Shahajan Period and later Mughal period and its implication on Indian traditional architecture.

Explain with examples of the buildings, construction technology, building materials used, evolution of form and development with significant changes over the time period.

Teaching Methodology: Faculty shall impart teaching by lecture/presentations; students shall prepare posters/sheets/presentations illustrating various architectural styles as an individual exercise.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1	"The History of Architecture" by Sir Bannister Fletcher, CBS (2002), ISBN: 978-8123906416	
2	"Islamic Architecture in India" by Brown, Percy.	
3	"Islamic Architecture in India" by Brown, Percy.	
Reference Books		
1	Architecture of Mughal India" by Catherine B Asher.	
2	"Islamic Architecture of the Indian Subcontinent" by Bianca Maria Alferia.	
3	"Indian architecture: Islamic period (1192-1857)" by Dr. Surinder Sahai.	

Course Outcome

Sr	Course Outcome	CO
1	Understand architectural elements, forms, development trends, construction techniques, materials and technologies used in built environment during Islamic Period.	CO1
2	Understand transformation patterns in architecture during various kingdoms / time periods and analyse the contributing factors for the design development of different styles.	CO2
3	Familiarize themselves with the socio-economic, historical and political influences of time period in architectural development.	CO3

Course Code : ALL DC110
Course Title : Architectural Drawings - II
L-T-P/S=Credits : 2-0-4 =4
Course Category : DCC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALU1525
Equivalent Course Code (if any) :

Detailed Syllabus

Metric Drawings

Types, uses and advantages, Isometric, Axonometric and Oblique views, Metric Drawing and projection and their Dimensioning, Metric of plane figures composed of straight lines, Metric drawing of simple and complex block.

One Point Perspective

Purpose and use of perspectives, Anatomy of a perspective-cone of vision, station points, picture plane, eye level horizon line, ground line, vanishing point, etc, One point perspective of simple objects, combination of geometrical forms, One point perspective of Interiors, Perspective of simple household furniture items. Building exterior and interior perspectives.

Two Point Perspective

Introduction to two point perspective, perspective of simple blocks. Preparation of Perspective by innovative methods like approximate method, Diagonal Method, Grid Method etc. Other innovative methods of perspective presentation. Introduction to shortcut methods in perspective drawing. Freehand perspective drawing.

Sciography

Principles of drawing shade and shadow with point source of light and light from Sun. Drawing exercises of sciography of simple objects on ground, simple building element (projections like sunshade) on walls. Sciography of complex and curvilinear elements on ground and on walls.

Teaching Methodology: Faculty shall impart teaching by lecture/demonstrations; students shall undertake drawing exercises and prepare sheets in studio.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1	Bhatt, N.D., "Engineering Drawing: Plane and Solid Geometry", Charotar Publishing House, 2006.	
2	Ching, Francis D. K., "Architectural Graphics", Van Nostrand Reinhold, 2003.	
3	Leslie, Martin C., "Architectural Graphics", Macmillan Pub Co, 1970.	
Reference Books		
1	Parkinson, A.C., "A First Year Engg. Drawing", Sir Issac Pitman and Sons.	
2	Black, Earl D., "Engineering and Technical Drawing", Van Nostrand Reinhold Co., 1972	

Course Outcome

Sr	Course Outcome	CO
1	Familiarize themselves with the relevant terminology and different types of 3D views.	CO1
2	Understand significance and prepare perspective views of building interior and exterior.	CO2
3	3. Identify the importance & need of presentation skills, economy of time, for effective communication in design.	CO3
4	Identify a type of line, intensity, thickness, text to draw a shape to implement a scale, dimension for a layout of sheet or drawing.	
5	Understand basic principles of sciography and its application to the field of architecture.	CO4

Course Code : ALL DC112
Course Title : Arts & Graphics
L-T-P/S=Credits : 0-2-0 =2
Course Category : DCC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALU1526
Equivalent Course Code (if any) :

Detailed Syllabus

Freehand Drawings

Freehand drawing – Eye-Mind-Hand synchronization and its significance for the architects. Use of various drawing and sketching tools like pencils, ink pens, charcoal pencils etc. for freehand sketching. Exercises in free hand drawing of domestic furniture, street furniture, human beings, cars, trees, nature and still life etc incorporating various rendering skills and techniques to represent texture, material and finishing.

Collage, Murals & Sculptures

Collage with paper and various waste materials with theme and presentation. Mural with different materials on live scale. Sculpture with different materials like P.O.P, Clay etc. Study of Solids and voids to evolve sculptural forms and spaces and explore the play of light and shade and application of color. Analytical appraisal of building form in terms of visual character, play of light and shade, solids and voids etc.

Teaching Methodology: Faculty shall impart teaching by lecture, presentation & demonstrations; students shall undertake exercises in art studio as well as in outdoor.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1	Foundations in Architecture: An Annotated Anthology of Beginning Design Project, VanNostrand Reinhold NY, 1993.	
2	Basic Visual Concepts and Principles for Artists, Architects and Designers by CharlesWallschlaggerm & Cynthia Busic-Snyder, McGraw Hill, New York 1992.	
3	Design fundamentals in Architecture by V. S. Parmar, Somaiya PubliMinorions Pvt. Ltd., New Delhi, 1973.	
Reference Books		
1	Logic and Design in Art, Science and Mathematics by Krome Barratt, Globe Pequot Press, 2005.	
2	Architecture: Form, Space and Order by Francis D. K. Ching, John Wiley & Sons, 2007.	

Course Outcome

Sr	Course Outcome	CO
1	Develop sensitivity towards freehand drawings and various artistic expressions.	CO1
2	Understand architectural elements as determining factor to perceive and articulate space.	CO2
3	Stimulate form space relation and to understand the principles of composition in the organization of space, shape, form, colour and texture.	CO3
4	Develop eye-mind-hand synchronization and perpetual skills.	CO4

Course Code : ALP DC114
Course Title : Surveying & Leveling
L-T-P/S=Credits : 1-0-2 =2
Course Category : DCC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALP1527
Equivalent Course Code (if any) :

Detailed Syllabus

Plane Surveying & Theodolite

Introduction to plane surveying, conventional tape measurement, electronic distance measurement – Meridians, Azimuths and bearings. Plane Table and Chain Surveying.
 Theodolites – Temporary and permanent adjustment – Horizontal and Vertical angle measurements – Electronic total station.

Levelling & Contouring

Differential leveling, Longitudinal & cross section leveling, Refraction & curvature correction, Reciprocal leveling -Tachometry – Stadia tachometry, tangential tachometry & substance tachometry- Contouring.

Calculation of Earthwork & GPS

Area, volume calculation of earth work – Introduction to Global positioning system – GPS surveying methods.

Curve Surveying

Definitions, designation of curve, elements of simple curve - Settings of simple circular curve, Compound and reverse curve- Transition curve – Introduction to vertical curves.

Geodetic Surveying

Introduction to geodetic surveying, Triangulation surveying – Base line measurement & correction, Satellite station. Surveying adjustments – Principle of least square and adjustment of triangulation network.

Teaching Methodology: Faculty shall impart teaching by lecture, presentation & demonstrations; students shall undertake field exercises in surveying and leveling.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1	Surveying, Volume 1 & 2 by B. C. Punmia, Laxmi Publications.	
2	GPS Principles and Applications by Satheesh Gopi, Tata Mc Graw Hill publishing company Ltd.	
3	Surveying and Levelling by Subramaniyan R., Oxford University Press	
Reference Books		
1	Surveying and Levelling by Kanetkar T.P., Vol I & II, Pune.	
2	Model Building for Architects and Engineers	
3	Architectural Models, Rolf Janke	

Course Outcome

Sr	Course Outcome	CO
1	Understand the terminology, basics and different techniques of surveying.	CO1
2	Learn the field applicability and characteristics of the different survey tools, instruments and methods.	CO2
3	Understand types of errors encountered in different types of surveying and preventive measures.	CO3
4	Prepare a contour plan and mark geometrical shapes on ground.	CO4

Course Code : ALM DC 201
Course Title : Architectural Design-III
L-T-P/S=Credits : 2-0-6 =5
Course Category : DCC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALU2511
Equivalent Course Code (if any) :

Detailed Syllabus

Architectural design and representation of staircase in drawings. Space standards applicable to cases as per scope of syllabus.

Introduction of exercises interconnecting basic design and architectural design, understanding the arrangement of solids for aesthetic consideration to foster basic architectural qualities in design like composition, vertical circulation and other human considerations like, privacy, convenience, comfort, etc.; understanding the significance of the factors in creating ideal built environment; learning the architectural design process.

Appraisal & architectural design of spaces like Crèche / Play School, Post Office or Primary Health Center. Medium scale project should be on design of Bank Branch, Canteen / Restaurant etc.

Note: The requirements pertaining to the handicapped and elderly people are to be addressed in design and detailing. One minor and one major Project shall be carried out during the semester together with two time bound exercises.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	"Time Saver Standards for Architectural Design Data" by John Hanock.	
2.	"Architectural Graphic Standards" by Ramsay and Sleeper.	
3.	"Space, Time and Architecture" by Gideon.	
4.	"Elements of Architecture from Form to place" by Von Meiss, Pierre.	
5.	Time Saver Standard for Site Planning by Chiara, J. D. (1984), McGraw Hill Book Co., NY.	
6.	Architecture: Form, Space, and Order by Ching, F. D. K. (1996), Van Nostrand Reinhold, New York.	
7.	Architecture Drafting and Design by Helper, D. and Wallach, P. (1987), McGraw Hill Company, NY.	
8.	Designing room for children by Juliet, M. (1984), Little Brown and Company, London.	
9.	Neufert – Architect's Data by Neufert, E. (2000), Crosby Lockwood and Sons, London.	

Course Outcome

Sr	Course Outcome	CO
1	Develop the ability to provide architectural solutions for simple problems.	CO1
2	Develop sensitivity to be more observant to their surroundings as a basic creative instinct.	CO2
3	Understand the architectural design process of multifunctional units while applying the learning of the previous semesters.	CO3
4	Understand the use of materials, construction techniques and structural systems used in the elements of built forms.	CO4

Course Code	: ALM DC 203
Course Title	: Building Construction & Materials-III
L-T-P/S=Credits	: 2-0-4 =4
Course Category	: DCC
Pre-requisite Courses (if any)	:NIL
Equal Course Code (if any)	:ALU2512
Equivalent Course Code (if any)	:

Detailed Syllabus

Introduction to RCC and Building Components

Introduction to RCC; Types, Mixing, Curing, Water Cement Ratio, Properties and Workability. Use of RCC in buildings. Relevant IS Codes for RCC works and tests. RCC Admixtures.

Introduction to RCC Components of a Building; Foundation, Columns, Beams, Walls, Slab etc;
Types of RCC Foundations, related terminology & details.

Staircase

Introduction to Staircase; its definition and related terminology. *Types of Staircases*, construction methods of – Masonry staircase, Timber staircase, *RCC staircase*, Steel Staircase and composite staircase. Study of fire escape staircase in view of building materials & construction technology.

Building Components & Details

Typical Building *Sections of a Two Storied load bearing brick masonry and RCC framed building* illustrating basic building components together with special features like toilet, staircase and DPC details.

Arches & Lintels

Spanning component; Arches & Lintels, Type of Arches in brick and stone, related terminology. Formwork, shuttering for RCC members, centering for arches.

Teaching Methodology: Faculty shall impart teaching by lecture/presentations; students shall prepare sheets (on the topics made *italics*) with relevant construction details in studio. Market survey of building materials shall be carried out as a group exercise.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	Building Construction & Materials	
2.	A text book of Building Construction	
3.	Building Materials & Construction	
4.	Building Construction	
5.	Construction Technology	
6.	Building Construction & Materials	

Course Outcome

Sr	Course Outcome	CO
1	Understand RCC as building material, it's used in building construction, properties & grades.	CO1
2	Gather knowledge of manufacturing and judicious usage of building materials in construction of building elements like staircases, arches and lintels.	CO2
3	Understand construction techniques / methods as per procedures recommended by IS Codes.	CO3
4	Work Out / Apply appropriate details for building construction.	CO4

Course Code : ALL DC 205
Course Title : Building Structures-III
L-T-P/S=Credits : 2-1-0 =3
Course Category : DCC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALL2513
Equivalent Course Code (if any) :

Detailed Syllabus

Theorem of Three Moments

Static indeterminacy - Theorem of three moments - fixed & continuous beam - bending moment and shear force diagram.

Moment Distribution Method

Moment Distribution Method, Bending moment and shear force diagram of continuous beams.

Introduction to RCC

Working stress method – Moment of resistance of RCC beams. Introduction to singly, doubly and T beams.

Approximate Methods for Analysis of Multi-storeyed Frames

Substitute frame method - portal method - cantilever method and Kani's method.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	Ramamurtham S. and Narayanan R. (2008), Strength of Materials, 3rd Edition, Dhanpat Rai Publications Company, ISBN: 9788187433545.	
2.	Ashok K. Jain, (2009), Advanced Structural Analysis with Finite Element & Computer Applications, Nem Chand & Brothers, ISBN 978-81-852-4081-7.	
3.	Hibbeler, R. C. (2005), Structural Analysis (5th Ed.), Pearson Education India, ISBN-10: 0131470892.	
4.	S. S. Bhavikatti, (2005), Structural Analysis, 2nd edition, Vikas Publishing House, ISBN: 812-59-171-60.	

Course Outcome

Sr	Course Outcome	CO
1	Understand the methods of analysis & different techniques available for the analysis of structures.	CO1
2	Identify the best suitable method of analysis for various cases.	CO2
3	Understand the behavior of indeterminate structures and prepare SF / BM diagrams.	CO3

Course Code :ALL DC 207
Course Title : History of Architecture - III
L-T-P/S=Credits : 2-1-0 =3
Course Category : DCC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALL2514
Equivalent Course Code (if any) :

Detailed Syllabus

Egyptian Architecture

Introduction to Egyptian Civilization, City Planning and Architectural characteristics, Tomb Architecture, Mastabas, Pyramids and Art Form in the ancient period – explain with examples of the buildings, construction technology, building materials used, evolution of form and development with significant changes over the time period.

History of Western Architecture

Mesopotamian Civilization, Babylonian, Assyrian, Architectural characteristics, Art Form – explain with examples of the buildings, construction technology, building materials used, evolution of architectural form and developments with significant changes over the time period.

Greek Architecture

Classical orders and constituent elements of architecture - Column orders and the articulation of temples. Classification of temples, Geometry and symmetry of individual buildings and their relationship with others based on different organizing principles and conditions of site. Study of importance- Acropolis, Agora, Temples, Theatres, Tombs and House forms.

Roman Architecture

Introduction to building types to correspond the complex social functions and structure. Concrete and construction of vaults and domes. Uses of classical orders in surface articulation. Study of important forums, Temples, Basilicas, Theaters, Amphitheatres, Circuses, Tombs, Triumphal arches, palaces, houses and villas.

Early Christian Architecture & Byzantine Architecture

Development of early church and Roman basilica. Interiors of churches and the articulation of interiors to create spiritualized space. Study of Italian basilicas and churches. Centrality and interiors of both cross domed and cross in square plan churches. Study of Interior and Exterior of churches. Construction of domes over polygonal compartments through the use of pendentives.

Teaching Methodology: Faculty shall impart teaching by lecture/presentations; students shall prepare posters/sheets/presentations illustrating various architectural styles.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	"The History of Architecture" by Sir Bannister Fletcher.	
2.	"A Global History of Architecture" by Fransis D. K. Ching.	
3.	"World History of Architecture" by Fazio M.	
4.	"History Encyclopedia' by Adams Simon.	

Course Outcome

Sr	Course Outcome	CO
1	Understand architectural elements, forms, development trends, construction techniques, materials and technologies used in built environment across civilizations.	CO1
2	Understand transformation patterns in architecture during various kingdoms / time periods and analyse the contributing factors for the design development of different styles.	CO2
3	Familiarize themselves with the socio-economic, historical and political influences of time period in architectural development.	CO3

Course Code :ALM SE 201
Course Title :Computer Applications in Architecture-I
L-T-P/S=Credits :2-0-4 =4
Course Category :SEC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALP2515
Equivalent Course Code (if any) :

Detailed Syllabus

Introduction to Computer

Overview of Computer classification and Networks, LAN, MAN, WAN, Internet, Intranet, network topology. Internetworking: Bridges, Repeaters and Routers. Technology of small computer system, terminology & operation principles of P.C., Introduction to application software and graphic system; and use of printers, scanner, plotter, File Management. Introduction to operating systems, windows and its applications. Basics of Internet & e-mail.

Documentation with Computers

Introduction to MS-OFFICE-2003 or higher version, Word document creation, editing, formatting table handling, mail merge. Excel-2003, editing, working, retrieval, important functions, short cut keys used in EXCEL. MS-Power Point; Job Profile, Elements of Power point, Ways of delivering Presentation, Ways of handling presentations e.g. creating, saving slides, show controls, Adding formatting, animation and multimedia effects.

Introduction to CAD

Understanding the use of drawing tools, Basics of CAD, Drawing & editing of 2D objects using CAD commands, setting drawing units, limits, size and dimensioning, text & labeling. Setting up of drawings of various simple architectural objects with complete text and dimensioning.

Architectural Drawing using CAD

Architectural representation using hatch, colour and line type, use of multiline, style, block, use of symbol library, basic techniques for preparing architectural drawings. Concept of Model space & Paper space. Plotting & Print settings.

Teaching Methodology: Faculty/Instructor shall impart teaching by lecture/demonstrations; students shall undertake exercises in computer lab.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	Office 2000 Made Easy: The Basics & Beyond by Alan Neibauer, Tata McGraw Hill, 2000.	
2.	2007 Microsoft Office System Step by Step (English) 2nd Edition by Joyce al. Cox, Publisher Microsoft Press.	
3.	AutoCAD Architectural User Guide by Autodesk Inc.	
4.	Understanding AutoCAD by Sham Tikoo.	
5.	In Simple Steps - AutoCad 2014 (English) 1st Edition (Paperback) by Kognanat Learning Solutions Inc., Publisher – Dreamtech Press (2014).	

Course Outcome

Sr	Course Outcome	CO
1	Understand the fundamental concepts of computer systems.	CO1
2	Develop understanding of hardware and software, their purpose and use.	CO2
3	Develop basic skills in application of Information Technology tools and techniques.	CO3
4	Use features of MS Office packages for documents.	CO4
5	Prepare Architectural Drawings using CAD software	CO5

Course Code	:ALL BS 201
Course Title	: Climatology
L-T-P/S=Credits	: 2-1-0 =3
Course Category	: BSC
Pre-requisite Courses (if any)	:NIL
Equal Course Code (if any)	:ALL2516
Equivalent Course Code (if any)	:

Detailed Syllabus

Elements of Climate

Introduction – Elements of climate, instruments for their measurement and representations of climatic data. Earth Sun relationship. Classifications of tropical climates, Major climatic zones of India as per NBC. Study of traditional dwelling units in various climatic zones. Macro, Micro & Site Climate; Effect of landscape elements on site climate.

Thermal Comfort

Thermal comfort: Effect of climatic elements on thermal comfort. Body's heat exchange with surrounding environment. Thermal comfort indices viz., Effective temperature, Bio-climatic chart.

Thermal Performance of Buildings

Thermal performance of building elements: effect of thermo-physical properties of building materials and elements on indoor thermal environment. Thermal properties of building materials; Conductivity, Resistivity, Diffusivity, Thermal Capacity, Time Lag and 'U' value. Construction techniques for improving thermal performance of walls and roofs. Recommended U values of building elements as per ECBC.

Daylight & Ventilation

Day Lighting: Advantages and Limitations, Day light factor, components of Day light factor, design considerations. Shading Devices – Design of Shading Devices: Solar Azimuth and Altitude, Angle of Incidence, Wall Azimuth, Shadow Angles, Overheated Period, Sun Path Diagrams. Types of shading devices. Procedure of designing shading devices.

Natural ventilation: Functions of natural ventilation, Design considerations, effect of openings and external features on internal air flow.

Teaching Methodology: Faculty shall impart teaching by lecture / presentation & demonstrations; Students shall undertake relevant exercises in labs / studio.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	Manual of Tropical Housing and Building by Koenigsberger, Ingersoll, Mayhew, Szokolay, Climatic Design, Orient Longman Pvt. Ltd, 1973.	
2.	Energy Conservation Building Code 2008.	
3.	Climate Responsive Architecture by Arvind Krishan, Tata McGraw-Hill Publishing Company Limited New Delhi, 2001.	
4.	Buildings, Climate and Energy by Markus & Morris, Pitman Publishing Ltd. 1980.	
5.	Tropical Architecture – Maxwell Fry & Jane Drew.	
6.	Design Primer for Hot Climate – Allan Konya.	
7.	Climatology Fundamentals and application by John R Mather.	

Course Outcome

Sr	Course Outcome	CO
1	Understand elements and classification of climate, related terminology and relationship of climate with architecture.	CO1
2	Understand various concepts of climate analysis and its use in Architecture.	CO2
3	Understand parameters of human thermal comfort and formulate strategies for its achievement in built environment building.	CO3
4	Understand, apply and analyze parameters of thermal performance of buildings in various climatic zones.	CO4

Course Code	:ALM ES 201
Course Title	: Building Services-I
L-T-P/S=Credits	: 2-0-2 =3
Course Category	: ESC
Pre-requisite Courses (if any)	:NIL
Equal Course Code (if any)	:ALU2517
Equivalent Course Code (if any)	:

Detailed Syllabus

Water Supply Requirements

Introduction to Water Supply; Water Requirement for different building types; storage, Storage and Distribution of Water - Different methods of water distribution boosting water, gravity and pressure distribution by public reservoirs / OHT to individual buildings. Potable Water Standards, Domestic water demand, capacity of overhead tanks and calculation of water consumption.

Water Distribution 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. Layout of water supply lines in a domestic building in conformity with IS Codes.

Drainage Systems

Basic principles of disposal of waste water from buildings. Ssystems of drainage – separate, combined and partially separate system, advantages and disadvantages of each system. Concept, design and detailing of rainwater harvesting systems. Study of sanitary fittings, washbasins, WC's, bathtubs, sink, urinals, bidets, flushing cistern, traps etc. Proper location and ventilation of traps, intercepting chambers and inspection chambers.

Sanitation- Sewerage

Introduction, importance and purpose of sanitation, terminology and definitions; bacteria, invert, sewer, sewerage, refuse, collection and disposal of refuse. Man holes – drop manholes, manhole with intercepting trap, inspection chambers, self cleansing velocity, drains on sloping sites, sub soil drainage, storm water disposal – catch basins, inlets, storm water regulators.

Septic Tanks; Capacity calculations and Details of a Septic Tank, soak pit, soak well, design aspects, disposal of effluent. Systems of plumbing – single stack, one pipe, one pipe partially ventilated, two pipe disposal of waste water from buildings.

Teaching Methodology: Faculty shall impart teaching by lecture, presentation/demonstrations; Students shall undertake exercises in the form of assignments / charts / report and market survey of related building materials.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	National Building Code of India 2016 (Part 9 & 10).	
2.	Water supply and sanitary engineering by S.C.Rangwala, Charotar publishing house.	
3.	Water supply and sanitary engineering by Charanjit Shah, Galgotia publishers.	
4.	Design and practical handbook of plumbing, by Mohan & Anand.	
5.	Plumbing- Design and practice by Deolalikar	
6.	Water Supply and Sanitation by B. C. Punmia.	

Course Outcome

Sr	Course Outcome	CO
1	Understand water requirements in various types of buildings and integration of water supply services in architectural design.	CO1
2	Develop design skills for water supply and drainage systems in buildings and prepare architectural drawings / drainage layouts.	CO2
3	Understand terminology and basic principles of water supply and sanitation.	CO3
4	Understand functions of various plumbing fittings and fixtures, applicable IS Codes.	CO4

Course Code :ALM DC 202
Course Title : Architectural Design-IV
L-T-P/S=Credits : 2-0-6 =5
Course Category : DCC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALU2521
Equivalent Course Code (if any) :

Detailed Syllabus

Introduction to Site Analysis & Site Planning, Parking Requirements, Types of Parking, various layouts and related standards. Study of social and physical environment and methods of construction emerging out of the traditional way of life of the people in a given place. Design of a simple building for public activity, in a non-urban setting, or a situation without urban regulatory controls. Introduction to other role players in the architectural process viz, the client and the user.

Major studio project shall be introduced to deal with two or more distinctly different contexts with design requirements being identical to carry out Architectural Design as a Response to Climate. Choice of building materials for walls, roof, external colors and textures, layouts and internal finishes should be suitably considered as tool for architectural design solutions in respective climatic conditions. In the minor project, context with a number of constraints should be considered. Studio shall attempt to define the nature of relationship between built and un-built spaces; and the understanding of using uncovered / open spaces for functional needs shall be highlighted in architectural design presentation.

Topics: Motel, Recreation Club, Farm House, Primary School, Midway Shopping Complex etc.

Course Coordinator shall organize educational tour of students to facilitate case studies and general awareness to nearby / local or outstation localities, following University norms & procedures.

Note: The requirements pertaining to the handicapped and elderly people are to be addressed in design and detailing.

Students should carry out One Major, One Minor and Two Time Bound Architectural Design exercises. The portfolio covering the above topics shall be presented for evaluation by external examiners.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	'Principles of three Dimensional Design' by Wucius Wong.	
2.	"Time Saver Standards for Architectural Design Data" by John Hanock.	
3.	"Architectural Graphic Standards" by Ramsay and Sleeper.	
4.	"Space, Time and Architecture" by Gideon.	
5.	"Elements of Architecture from Form to place" by Von Meiss, Pierre.	
6.	Architecture: Form, Space and Order by Francis D. K. Ching, John Wiley & Sons.	

Course Outcome

Sr	Course Outcome	CO
1	Understand the meaning of cultural and physical context of built environment and techniques of analyzing such contexts.	CO1
2	Understand various factors of the context that influences the design of built environments.	CO2
3	Understand parameters of Site Analysis and apply these for the given project site.	CO3
4	Work out zoning within the specified site and prepare architectural design of building for specific function.	CO4

Course Code	:ALM DC 204
Course Title	: Building Construction & Materials-IV
L-T-P/S=Credits	: 2-0-4 =4
Course Category	: DCC
Pre-requisite Courses (if any)	:NIL
Equal Course Code (if any)	:ALU2522
Equivalent Course Code (if any)	:

Detailed Syllabus

Flooring

Requirements/Properties of good flooring materials, Types of flooring, methods of laying, Finishing of floors as per functional requirements with different finishes like cement, mosaic, terrazzo, tiles, concrete pavers, wood, epoxy, vinyl, carpets etc., Manufacturing & Properties of various Floor Tiles, *Construction Details of Timber Floor*.

Roofing Systems & Materials

Types and Forms of Roof; simple flat, jack arch, lean to roof and coupled roofs; Method of construction of *RCC roofs including terracing details*; *Coffered Slab, Flat Slab & Hollow roof construction*; Construction of domes (methodology), vaults and shell roofs. Roofing Materials & Terracing Details.

Trusses

Types of wooden and *steel trusses*, related terminology and their applicability for various uses. Detailing of timber/ *steel trussed roofs, Truss lighting (North lighting), Tubular steel trusses*, north light glazing, roof covering/sheets and drainage details of trussed roofs.

Wall Finishing Materials

Introduction to internal & external wall finishing materials, their properties, use and methods of application. Types of mortar, plasters (smooth, rough, textured, grit-wash), cladding etc. *Construction Details of external stone cladding & internal wooden paneling*.

Teaching Methodology: Faculty shall impart teaching by lecture/presentations; students shall prepare sheets with applicable (on topics made *italics*) construction details in studio. Market survey of building materials shall be carried out as a group exercise.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	Building Construction & Materials, S.C. Rangwala	
2.	A text book of Building Construction, B.C. Punmia	
3.	Building Materials & Construction, Shushil Kumar.	
4.	Building Construction, Mackay WB Vol. 1-4	
5.	Construction Technology, Chudley Vol. 1-6	

Course Outcome

Sr	Course Outcome	CO
1	Possess knowledge of Flooring, Roofing and Wall Finishing building materials used in construction, their properties, classification & types available.	CO1
2	Equip themselves with the knowledge of building materials and their judicial usage.	CO2
3	Understand construction details of various roofing system & trusses.	CO3

Course Code : ALL DC 206
Course Title : Building Structures-IV
L-T-P/S=Credits : 2-1-0 =3
Course Category : DCC
Pre-requisite Courses (if any) : NIL
Equal Course Code (if any) : ALL 2523
Equivalent Course Code (if any) :

Detailed Syllabus

Limit State Method – Flexure

Concept of limit state method - Moment of Resistance of rectangular beam sections and flanged beam sections
 - Design of rectangular beam sections and flanged beam sections.

Design of Slabs and Staircases (Limit State Method)

Limit state design of one way slab & two way slab - Types of staircases – Design of staircases.

Design of Compression Members (Limit State Method)

Design of axially and eccentrically loaded short & long column.

Design of Footings (Limit State Method)

Design of footing – strip footing for walls, square and rectangular footing for axially and eccentrically loaded columns - combined footing. Detailing for expansion joints in RCC framed buildings.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	Gambhir, M.L., (2011), "Fundamentals of Reinforced Concrete Design", Prentice-Hall of India. ISBN: 9788120330481.	
2.	S Unnikrishna Pillai & Devdas Menon, (2005), Reinforced Concrete Design, Tata Mcgraw Hill, ISBN: 9780070141100.	
3.	Varghese (2005), Advanced Reinforced Concrete Design, Prentice-Hall of India.	
4.	Gurcharan Singh (2005), Design of R.C.C. Structures in S. I. Units, Standard Publishers Distributors.	
5.	B. C. Punmia (2003), Design of reinforced concrete structures, Lakshmi Publishers. IS:456 (2000) & SP:16	

Course Outcome

Sr	Course Outcome	CO
1	Develop skills in structural design of beams, columns, slabs by limit state method.	CO1
2	Understand the limit state method of design of beams, columns and slabs.	CO2
3	Carry out structural design of building elements for low rise small scale buildings.	CO3

Course Code :ALL DC 208
Course Title : History of Architecture-IV
L-T-P/S=Credits : 2-1-0 =3
Course Category : DCC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALL2524
Equivalent Course Code (if any) :

Detailed Syllabus

Romanesque & Gothic Architecture

Massiveness and verticality of medieval churches combination of five towered structures and longitudinal basilica. Gradual integration of tower from early to later examples. Integration of centralized and longitudinal plans. Articulation of external wall like arcaded interiors resulting in dematerialization of exterior. Study of important cathedrals and churches from Italy and France. Gothic – pointed arch architecture, Notre Dame.

Renaissance and Baroque Architecture

Background and influences on Renaissance Architecture. Characteristics of Renaissance Architecture in general. Eg: St Andrea, Mantua and Palazzo Rucellai by Leon Alberti, Villa Rotunda (Capra) by Palladio, (New) St Peter's Rome by Michelangelo and others, St Paul's London by Sir Christopher Wren. General characteristics of Baroque. Eg: St Peter's Piazza by Bernini.

Modern Movement in Europe

Transitional Period – A brief account of the situation before the changeover to Modern architecture in Europe. Palladian Revival in Britain, Greek Revival and Gothic Revival Eg: Chiswick House, London, Mereworth castle, Kent, St Pancras Church, London, West Minister Palace, London, Arc de Triomphe, Paris. Impact of Industrial Revolution in Europe – The Social, economic and political changes effected, new requirements of the society, new materials and technological developments.

Modern Architecture in America

The Chicago School – works of Louis Sullivan, Early Industrial buildings, Contributions of Bauhaus, De Stijl movement, Italian Futurism, Art Nouveau movement and Arts and Crafts Movement to Modern Architecture. Eg: Wainwright Building, St Louis, Guaranty Building, Buffalo, Crystal Palace, London. Bauhaus school at Dessau, Schroder house by Rietveld, Casa Mila, Casa Batlo, Sagrada Familia, Tassel House, Brussels, Paris Metro Station Entrance, Red house, Kent.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	"The History of Architecture" by Sir Bannister Fletcher.	
2.	"Modern Architecture – A Critical History" by Frampton Kenneth.	
3.	"A Global History of Architecture" by Fransis D. K. Ching.	
4.	"World History of Architecture" by Fazio M.	
5.	History of Architecture – J E Swain	
6.	History of Architecture by Dora Couch	
7.	The Great Age of World Architecture – by GK Hiraskar	

Course Outcome

Sr	Course Outcome	CO
1	Understand architectural elements, forms, development trends, construction techniques, materials and technologies used in built environment during time Period.	CO1
2	Understand transformation patterns in architecture during various kingdoms / time periods and analyse the contributing factors for the design development of different styles.	CO2
3	Familiarize themselves with the socio-economic, historical and political influences of time period in architectural development.	CO3

Course Code :ALM SE 202
Course Title : Computer Applications in Architecture-II
L-T-P/S=Credits : 2-0-4 =3
Course Category : SEC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALP2525
Equivalent Course Code (if any) :

Detailed Syllabus

3D Modeling

Introduction to 3D modeling; Basic commands and usage of 3D drawing. Drafting basic geometrical forms and combinations of the same in three dimensions, editing of simple geometrical forms, addition and subtraction of 3D forms, Understanding Coordinate Systems and use of UCS. Introduction of solid modeling. Learning solid modeling commands, editing solid modeling. Working on different planes. 3D surfaces setting up elevation thickness and use of dynamic projections in ACAD. Exercise on wire mesh modeling.

Rendering 3D Models

Advanced 3D creation and rendering, Material application, Lighting, Camera setting, Background, Scenic development for still 3D images and their final editing in Photoshop or appropriate software.

3D Modeling with SketchUP

Basics of Google Sketchup, Drawing & Measurement Tools, creation of geometrical shapes & forms, union and intersection of forms. Application of colour & materials.

Introduction to editing tools, modifying existing shapes and forms, 3D drawings with site and surroundings, sciography & rendering in 3D drawings. Concept of camera and walkthrough.

Teaching Methodology: Faculty shall impart teaching by lecture/demonstrations; students shall undertake exercises and prepare sheets in studio.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	AutoCAD Architectural User Guide by Autodesk Inc.	
2.	Understanding AutoCAD by Sham Tikoo.	
3.	In Simple Steps - AutoCad 2014 (English) 1st Edition (Paperback) by Kognanat Learning Solutions Inc., Publisher – Dreamtech Press (2014).	
4.	Architectural Design with SketchUP by Alexander C. Schreyer.	

Course Outcome

Sr	Course Outcome	CO
1	To equip students with skills required in using Computers as a tool for design, 3D modeling and rendering.	CO1
2	To familiarize the students with 3D drawing and sketching using appropriate softwares for Building visualization & Design representation.	CO2
3	Produce architectural drawings using CAD and illustration software programs with demonstrate an understanding of furniture, people and accessories, 3- dimensional renderings.	CO3

Course Code :ALL DC 210
Course Title : Theory of Design
L-T-P/S=Credits : 2-1-0 =3
Course Category : DCC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALL2526
Equivalent Course Code (if any) :

Detailed Syllabus

Design as a Tradition

Introduction to design, Role of Design in daily life and in society. Impact/function of Design, Indigenous Design Practices, Role of design in the changing social scenario. Role and responsibility of Designers. Aspects of Design.

Design Theory

Concept of visual language and visual design. Introduction to Gestalt laws, composition, figure and ground relationships, introduction to concept of negative space, use of symmetry, generation of patterns and textures using simple elements, use of grids in graphic composition, controls and display psycho-physiological aspects of design.

Management of Design Process, human factor in managing design / team work.

Form Studies

Use of combinatory as a method of 3D form generation. Form, material and process relationship. Form exploration in the context of products. Expressions in Form like soft, hard, warm, cold, precise, gross ,delicate , strong, fragile, rugged etc.

Study of product expressions by analyzing in terms of elements like form, proportion, colour, texture etc. Introduction to abstraction in form. Study of 3D abstraction in art and sculpture. Exploration of industrial material and processes as elements of design through 3D abstraction of entities in Nature.

Teaching Methodology: Faculty shall impart teaching by lecture / presentation & demonstrations; Students shall undertake home assignments / seminar presentations.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	'Design Fundamentals (Elements, Attributes and Principles)' by Steven Bradley	
2.	'Geometry of Design, Revised and Updated (Design Briefs)' by Kimberley Elam; Princetone Architectural Press.	
3.	'Design Basics' 9th Edition by Stephen Pentak & David A. Lauer; Wadsworth Publishing.	
4.	'Design as Art' by Bruno Munari; Penguin Modern Classics (UK)	
5.	' A Book About Design: Complicated Doesn't Make It Good' by Mark Gonyea (ISBN13: 9780805075755).	
6.	'Design Fundamentals' by Robert Gillam Scott; R. E. Krieger Pub. Co (1980).	

Course Outcome

Sr	Course Outcome	CO
1	Comprehend a theoretical framework in architectural thinking since antiquities thus developing sensitivity to link design and theory.	CO1
2	Understand, describe, and develop design as a process of inquiry, thought, and actions.	CO2
3	Understand theoretical concepts and contextual variations of thoughts through historical eras.	CO3
4	Apply theoretical standpoints in architectural design thinking and process.	CO4

Course Code :ALM ES 202
Course Title : Building Services-II
L-T-P/S=Credits : 2-0-2 =3
Course Category : ESC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALU 2527
Equivalent Course Code (if any) :

Detailed Syllabus

Electrical Services

Terminology and Conventions as per IS Codes.

Importance of electrical services in buildings, introduction to commonly used terminology. Supply and distribution of electricity to buildings – substations (including – high tension panels, transformers, low tension panels, generators) and overhead versus underground distribution systems, electrical panel boards (types, sizes, layout standards) etc.,

Internal supply and distribution – brief description of various cabling types, conduit, PVC casing and capping wiring systems; Earthing and brief description of protective devices – fuses, MCB's, ELCB, etc., Electrical load estimation, Introduction to power and lighting circuits. Indian Electricity Rules-Relevant codes of Practice.

HVAC Services

Terminology and Conventions as per IS Codes.

Need for mechanical ventilation in buildings. Rate of ventilation for different occupancies. Methods and equipment employed for mechanical ventilation in buildings.

Brief introduction to psychometric process, air cycle and refrigeration cycle. Summer and winter air-conditioning, calculation of air conditioning loads, Zoning: purpose and advantages. Air- distribution systems: Ducts and duct systems. Air-outlets

Air-conditioning methods and equipment: window units, split units and central Air conditioning systems.

Lifts & Escalators

Brief history-types of Elevators like traction, Hydraulic etc., Double-decker, sky lobby, lift lobby, lift interiors etc., Definition and components of Elevator in a building: environmental considerations i.e., location in building, serving floors, grouping, size, shape of passenger car, door arrangement etc.,

Service requirements: Quality of service, quantity of service, time, passenger handling capacity, space and physical requirements, machine room spaces and their typical layout.

Escalators – Definition, Application, Capacity, Location and Arrangement in buildings. Space requirement, Conveyor belts-movement of passengers and goods.

Applicable IS Codes for Lifts and Escalators.

Teaching Methodology: Faculty shall impart teaching by lecture, presentation & demonstrations; students shall undertake field exercises in surveying and leveling.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	National Building Code of India 2005.	
2.	Building Services Handbook by Hall Fred.	

Course Outcome

Sr	Course Outcome	CO
1	Understand terminology related to electrical & mechanical services as per IS Codes.	CO1
2	Develop sensitivity with respect to their integration into Architectural Design.	CO2
3	Learn various components of building services and formulate / apply strategies for their integration with architectural design.	CO3

Course Code :ALM DC 301
Course Title : Architectural Design-V
L-T-P/S=Credits : 2-0-6 =5
Course Category : DCC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALU3511
Equivalent Course Code (if any) :

Detailed Syllabus

Introduction to fire & life safety regulations as per NBC (Part-4), urban development controls, codes and by-laws. Exercise in articulation and manipulation of programmed needs criticism and evaluation of alternative concepts, decision-making process.

Introduction to designing of multifunctional community building types on an intermediate scale. Importance of space programming, case studies and site analysis in architectural design.

Importance of culture/traditions and building byelaws in shaping built forms.

Design problems based on technical criteria of given programme and site should be introduced.

Design of mid scale low rise buildings like Commercial buildings, Auditorium, Community Center, Public Library, Nursing Home.

Note: The requirements pertaining to the handicapped and elderly people are to be addressed in design and detailing. One minor and one major Project shall be carried out during the semester together with two time bound exercises.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	"Time Saver Standards for Architectural Design Data" by John Hanock.	
2.	"Architectural Graphic Standards" by Ramsay and Sleeper.	
3.	"Space, Time and Architecture" by Gideon.	
4.	"Elements of Architecture from Form to place" by Von Meiss, Pierre.	
5.	Time Saver Standard for Site Planning by Chiara, J. D. (1984), McGraw Hill Book Co., NY.	
6.	Architecture: Form, Space, and Order by Ching, F. D. K. (1996), Van Nostrand Reinhold, New York.	
7.	Architecture Drafting and Design by Helper, D. and Wallach, P. (1987), McGraw Hill Company, NY.	
8.	Designing room for children by Juliet, M. (1984), Little Brown and Company, London.	
9.	Neufert – Architect's Data by Neufert, E. (2000), Crosby Lockwood and Sons, London.	

Course Outcome

Sr	Course Outcome	CO
1	Carry out architectural design of multifunctional community buildings on an intermediate scale with emphasis on building byelaws, impact of culture, traditions and building construction on the built form.	CO1
2	Appropriately use building materials in view of their properties, aesthetic value and functional use.	CO2
3	Identify and integrate necessary provisions for building services in architectural design.	CO3

Course Code	:ALM DC 303
Course Title	: Building Construction & Materials-V
L-T-P/S=Credits	: 2-0-4 =4
Course Category	: DCC
Pre-requisite Courses (if any)	:NIL
Equal Course Code (if any)	:ALU 3512
Equivalent Course Code (if any)	:

Detailed Syllabus

Plastic Products for Buildings

Plastics – types, properties and uses of plastics such as polycarbonates, acrylics, PVC, polymer films, Fiber Reinforced Plastic and UPVC in buildings. Typical construction details for plastic products.

Special Doors & Windows

Introduction to special doors for garages and workshops, sliding doors, collapsible gate and rolling shutters, revolving doors. Mechanized and electrically operated doors.

Steel windows: their types, various sections and elements used in construction / fabrication. Relevant IS Codes for steel doors & windows.

Aluminum Doors, Windows & Partitions

Introduction to Aluminum as building material, advantage and disadvantages, study of various sections available for doors and windows together with accessories.

Aluminum framed doors, windows & partitions types, design and construction details.

Paints

Introduction to finishing materials like paints, varnishes and distempers, emulsions, cement base paints, advanced paints & coatings. Constituents of oil paints, characteristics of good paints, types of paints and process of painting different surfaces like cement plaster, wood, metals etc.

Types of varnish, surface preparation and methods of applying varnish and French polish and melamine finish.

Teaching Methodology: Faculty shall impart teaching by lecture/presentations; students shall prepare sheets (on topics made *italics*) with applicable construction details in studio. Market survey of building materials shall be carried out as a group exercise.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	Building Construction & Materials, S.C. Rangwala	
2.	A text book of Building Construction, B.C. Punmia	
3.	Building Materials & Construction, Shushil Kumar.	
4.	Building Construction, Mackay WB Vol. 1-4	
5.	Construction Technology, Chudley Vol. 1-6	

Course Outcome

Sr	Course Outcome	CO
1	Understand Plastic, PVC and Paints as building material, their use in building construction, properties & application method.	CO1
2	Gather knowledge of fabrication of doors and windows in buildings and work out their construction details.	CO2
3	Understand construction techniques / methods as per procedures recommended by IS Codes.	CO3
4	Work Out / Apply appropriate details for building construction considering various materials.	CO4

Course Code :ALL DC 305
Course Title : Building Structures-V
L-T-P/S=Credits : 2-1-0 =3
Course Category : DCC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALL 3513
Equivalent Course Code (if any) :

Detailed Syllabus

Simple and Built-up Beams

Introduction to need and types of connection in building structures - Design of Connections: Riveted, Welded and Bolted.

Design of Tension and Compression Member

Design of tension members (single and built-up), Design of compression members (single and built-up column), Lacing - Battens

Design of Beams and Plate Girders

Design of beams - simple and built-up beams - laterally supported and unsupported beams - concept of shear. Introduction to Plate Girders and related terminology, curtailment of flange plates, Introduction to design of stiffeners and splices, concept of gantry girder.

Roof Trusses

Roof Trusses - Calculation of dead load, live load, wind load and earthquake load - Design of joints – supports - members for pitched roof truss and purlins.

Water Tanks

Over-head water tanks – Introduction to design of rectangular water tank, cylindrical water tank and pressed steel tanks. Introduction to design of staging and foundation - Maintenance of Water tanks..

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	Ramachandra (2004), Design of Steel structures, Vol. I & Vol. II, 4th Edition, Standard Publishers Distributors, ISBN: 9780071544115.	
2.	Vajirani V. N., Ratwani M. M. and Mehra H. (2012), Design and Analysis of Steel Structures, 18th Edition, Oscar Publications, ISBN: 9788174092953.	
3.	Syal I. C. (2009), Design of Steel Structures, Standard Publishers Distributors, New Delhi, ISBN: 9788180141270.	
4.	Ramchandra (2006), Non Linear Analysis of Steel Structures, Standard Publishers Distributors, ISBN: 9788180140785. IS: 800-2007 & Steel Table.	
5.	Ramamurtham, Design of Steel Structures.	

Course Outcome

Sr	Course Outcome	CO
1	Understand the concepts of structural design of steel structures and construction details.	CO1
2	Analyze and design of plate girder, gantry girder for various applications.	CO2
3	Know different types of roofs, calculation of forces and design of roof trusses.	CO3
4	Carry out structural design of overhead water tanks.	CO4

Course Code : ALL AE 301
Course Title : Principles of Management
L-T-P/S=Credits : 3-0-0 =3
Course Category : AEC
Pre-requisite Courses (if any) : NIL
Equal Course Code (if any) : ALL 3514
Equivalent Course Code (if any) :

Detailed Syllabus

Evolution of Management

Management concepts, definition, nature, importance; Management as Art, Science and calculations, Profession, Principles and Functions; Evolution of Management thoughts: Classical Theories, Behavioral Theories and Modern Management Theories.

Managerial Roles

Mintzberg's Managerial Roles; Management Levels and skills; Challenges of management; Era of dynamic engagement; Globalization and management. Definition, Styles/Types, Process and Nature of Directing, Leadership, Motivation, Communication and Controlling. Maslow's, Herzberg's and McGregor's theories.

Management Process and Planning

Management Process; Planning Concept, Objectives, Types and Steps in Planning; Strategic Planning, Management by Objectives (MBO). Decision making and steps in decision making, Forecasting meaning.

Organization & Staffing

Organizing – definition and characteristics; Principles of organization, organizational structure, Peter Drucker concept, types of organizational structure (formal & informal); Authority, Responsibility and Accountability, span of control. Delegation, Centralization and Decentralization, Departmentalization. Staffing – Function, Meaning, Process and Importance.

Ethics and Corporate Social Responsibility

CSR – meaning, definition and importance. Areas of CSR. Ethics – definition, meaning and importance. Basic approaches to ethics, Ethical and Unethical behavior, Code of Ethics, Whistle Blowing; Tools of Ethics: Values, rights, duties & more rules; Encouraging ethical behavior and creating an ethical workplace; Current corporate social responsibility and ethical issues.

Teaching Methodology: Faculty shall impart teaching by lecture/presentations/demonstrations; students shall prepare reports/charts/case studies as home assignments.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	'Management' 5th edition by Tripathy P. C. and P. N. Reddy; TATA Mc-Graw Hill (2012).	
2.	'Principles and Practices of Management' by B. P. Singh and T. N. Chhabra; Dhanpat Rai Publications (2008).	
3.	'Management Theory and Practices with Case Studie' by Vandana Jain; International Book House (2012).	

Course Outcome

Sr	Course Outcome	CO
1	Understand the basic essence of management and its significance in profession.	CO1
2	Know the theories and processes of management and apply in given cases.	CO2
3	Understand the attributes of a project, phases in project cycle, stakeholders involved and their management.	CO3
4	Familiarize themselves with the setup and functioning of organizations.	CO4

Course Code :ALM SE 301
Course Title : Computer Applications in Architecture-III
L-T-P/S=Credits : 2-0-4 =4
Course Category : SEC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALP 3515
Equivalent Course Code (if any) :

Detailed Syllabus

Introduction to BIM

Introduction to BIM, Concepts & Principles, User-Interface, Viewing the Model, Resources. Understanding terms, elements and properties. Creating a project in BIM environment, creating levels and grids, creating conceptual design.

Basic Modeling

Modeling of walls, windows, doors, setting view range, components, columns, roof, ceiling, floors, openings, surfaces, stairs, ramps, railings, curtain elements. Understanding families and working with families, family editor, creating a component, in-place components, reference planes, voids, join/cut geometry. Rooms and areas.

Annotation and Visualization

Annotations; grids, dimensions, text, tags, rooms, schedules, sheets, symbols, creating views. Setting of colour schemes, legends, openings. Visualization; rendering, materials, lights, paint tool, decals. Project phasing, detailing and preparing construction documents.

Site and Solar Studies

Site, topo-surface, building pads, divided surface, creating topo-surface from CAD contours, massing studies. Setting up and creating solar studies. Applying and removing constraints.

Teaching Methodology: Faculty/Instructor shall impart teaching by lecture/demonstrations; students shall undertake exercises in computer lab and submit home assignments.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	Mastering Autodesk REVIT Architecture 2015 by Eddy Krygiel and Jamnes Vandezende (Wiley India Pvt Ltd).	
2.	Autodesk REVIT Architecture 2015 Essentials by Ryan Duell and Tobias Hathom.	

Course Outcome

Sr	Course Outcome	CO
1	Understand difference between CAD and BIM.	CO1
2	Know and understand the fundamentals of Building Information Modeling (BIM).	CO2
3	Learn various workflows and procedures of BIM work-environment.	CO3
4	Develop basic skills in application of BIM tools and techniques in architecture and prepare 2D and 3D drawings using BIM software.	CO4

Course Code :ALL BS 301
Course Title : Acoustics & Lighting
L-T-P/S=Credits : 2-1-0 =3
Course Category : BSC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALL 3516
Equivalent Course Code (if any) :

Detailed Syllabus

Lighting in Built Environment

Quality and quantity of light; Definitions of related terminology. Requirements of lighting as per NBC 2005 for various tasks. Methods of lighting: ambient, task and accent lighting Systems of luminaries: direct, indirect etc. Various types of electrical lamps – incandescent, fluorescent/CFL, HID's, neon, CFL & LED lamps and their lighting characteristics. Design considerations for different types of occupancies and tasks, Preparation of a lighting and electrical scheme. Lighting Design; Total Lumen Method & Falling Flux Method.

Basics of Acoustics

Introduction to the study of acoustics – nature of sound, basic terminology – frequency, pitch, tone, sound pressure, sound intensity, decibel scale, loudness, threshold of audibility and pain, masking, sound and distance – inverse square law.

Behavior of sound in enclosed spaces. Absorption of sound, sound absorption coefficient, reverberation, reverberation time calculation, use of Sabine's and Eyring's formulae, sound absorbents, porous materials, panel or membrane absorbers and cavity or Holmboltz resonators, role of functional absorbers. Absorption coefficients of indigenous acoustical materials, use of IS code 2526-1963 or latest version.

Acoustical Design

Acoustical design requirement for halls used for speech, drama and music – general purpose halls used for both speech and music, cinema theatres, open air theatres. Study of auditoria designed and acoustically treated.

Introduction to environmental noise control, noise and its classification, outdoor and indoor noise, airborne noise and structure borne noise, impact noise, community and industrial noise.

Transmission of noise and transmission loss. Maximum acceptable noise levels. Means of noise control and sound insulations.

Teaching Methodology: Faculty shall impart teaching by lecture, presentation & demonstrations.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	"Environmental Acoustics" by Leslie L Doelle	
2.	"Acoustical Designing in Architecture" by Knudson, Vern	
3.	"Acoustics: Noise and Buildings" by Parich, Peter	
4.	"Architectural Acoustics" by David Egan	
5.	National Building Code of India 2005	
6.	Derek Philips; Lighting in Architectural Design.	
7.	G. K. Lal, Elements of Lighting, 3-D Publishers.	

Course Outcome

Sr	Course Outcome	CO
1	Understand building sciences of lighting & acoustics with related terminology.	CO1
2	Understand lighting requirements as per NBC 2016 and work out lighting design for building interiors and exteriors. Develop sensitivity towards colors & lighting in built environment.	CO2
3	Understanding acoustics in buildings and its integration with architectural design and explain different phenomenon and principles related to sound propagation and their implications on building design.	CO3
4	Summarize common acoustical defects in halls / auditorium and the ways to avoid them.	CO4

Course Code : ALL VA 301
Course Title : Sociology and Economics
L-T-P/S=Credits : 3-0-0 =3
Course Category : VAC
Pre-requisite Courses (if any) : NIL
Equal Course Code (if any) : ALL3517
Equivalent Course Code (if any) :

Detailed Syllabus

Sociology

Nature, scope and utility of Sociology, relation between Sociology and society. Human Development Index, Essential elements of society, bio-social and socio-cultural systems. Rural and urban communities and their characteristics. Origin, growth and influence of cities. Definition of urbanization – patterns of life and influence of urbanization on rural life, urbanization process in India.

Migration and its impact on urbanization, social problems of urbanization – problems relating to public health, public transport and public housing, sociological understanding of slums. Social surveys and Social research – principles of social research, scope of research, units of study, choice of research topics, sources of information, literature review – official and unofficial documents, library references, publication etc., Field survey – adoption of suitable techniques in field research viz., Questionnaires, interview, case study etc., analysis and classification of data.

Economics

Definition of Economics, Economic laws, Economic goods, utility, value, price and wealth. Economic organization of society. Consumption, wants, their characteristics and laws based upon them. Standard of living, market value, opportunity cost, the laws of diminishing, increasing and constant returns. Urban land values, land utilization, factors involved in development of urban land. Cost and Benefit indices, preliminary for building. Concepts of life cycle costing with reference to buildings. Time value of money – present worth and inflation. Sources of finance for buildings.

Teaching Methodology: Faculty shall impart teaching by lecture, presentation/demonstrations; Students shall undertake exercises in the form of assignments / charts / report and survey.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	"Sociology" by Neil J Smelser	
2.	"Urban Economics" by Warner Z Hirsch.	
3.	'Social Stratification' by Dipankar Gupta.	
4.	'Social Research Methods' Bryman, Alan.	
5.	"Urban Sociology" by Jayapalan N.	
6.	"Urban Sociology" by R. K. Sharma	

Course Outcome

Sr	Course Outcome	CO
1	Understand basic concepts of sociology and social behavior of society.	CO1
2	To acquaint students to basic concepts of economics.	CO2
3	To understand the influence of sociology and economics on architecture and economic considerations in the society.	CO3
4	Comprehend the major issues in the development of architectural design in socio-cultural context	CO4

Course Code :ALM DC 302
Course Title : Architectural Design-VI
L-T-P/S=Credits : 2-0-6 =5
Course Category : DCC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALU3521
Equivalent Course Code (if any) :

Detailed Syllabus

Introduction to aspects related to campus planning (Campus Goals, Approach, Buildings / Structures, Landscape & Green Reserve, Development Density, Circulation of Pedestrian & Vehicular Traffic, Parking, Amenities & Services, Community Interface, Architectural Character, Sustainability etc.).

Institutional projects like facilities of higher learning, vocational training or a small-scale campus may be given. Project brief shall contain clearly articulated goals of the institutions regarding the role of built environment in its functioning.

Case studies of contemporary campus architecture shall be carried out.

Campus planning may be attempted as a two-stage project, with site planning, as one and other stage could be a detailed design of one of the identified buildings. The design has to respond to Climatic, Environmental and Ecological factors.

Topics: Engineering / Medical / Management / Architecture College Campus, Hotel Management / Fashion Design Institute, Housing.

Course Coordinator shall organize educational tour of students to facilitate case studies and general awareness to nearby / local or outstation localities, following University norms & procedures.

Note: The requirements pertaining to the handicapped and elderly people are to be addressed in design and detailing. Students should carry out One Major, One Minor and One Time Bound Architectural Design exercises. The portfolio covering the above topics shall be presented for evaluation by external examiners.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	National Building Code of India 2016	
2.	"Time Saver Standards for Architectural Design Data" by John Hanock.	
3.	"Architectural Graphic Standards" by Ramsay and Sleeper.	
4.	"Space, Time and Architecture" by Gideon.	
5.	Manual of Tropical Housing and Building, by Koenigsberger, Orient Longman.	
6.	Arvind Krishan, Climate Responsive Architecture, Tata McGraw- Hill Publishing Company Limited New Delhi, 2001.	
7.	Buildings, Climate and Energy by Markus & Morris, Pitman Publishing Ltd. 1980.	

Course Outcome

Sr	Course Outcome	CO
1	Understand design principles of campus planning and large scale projects.	CO1
2	Understand and apply integration aspects of climate, environmental and ecological factors in architectural design.	CO2
3	Address site planning, landscape details, circulation and services, structural viability and interiors in architectural design, simultaneously.	CO3

Course Code	:ALM DC 304
Course Title	: Building Construction & Materials-VI
L-T-P/S=Credits	: 2-0-4 =4
Course Category	: DCC
Pre-requisite Courses (if any)	:NIL
Equal Course Code (if any)	:ALU 3522
Equivalent Course Code (if any)	:

Detailed Syllabus

Expansion Joints

Introduction to expansion joints, need and *their types*, design criteria as per IS codes, *construction details at foundation, walls, floor and roof level*. Study of materials used in their construction, filling and finishing.

Glass & Glazing

Introduction to Glass as building material, history of glass, manufacturing and properties of various types of glass like plate, tinted, decorative, reinforced, laminated glass block, fiber glass, glass murals, partially coloured glass, etching of glass and its applications in building industry for both exteriors and interiors. Glass fabrication techniques.

Application of glass in buildings, *types of glazing, fixing methods, related hardware and construction details of glass curtain wall and structural glazing*.

Building Chemicals

Anti-termite treatment to foundation, masonry walls and wood work (pre construction) water proofing and weather proofing materials like chemical admixtures and surface app

Interior Materials & Details

Types & Details of Internal Partitions (in Gypsum & Plywood/ Boards) & False Ceiling systems.

Study of building interiors features like wardrobes, modular kitchens, cabinet shelves and show cases for residence, offices, book stores and commercial buildings, work stations using materials like plywood, PVC, marble, granite, cement, fiber board, gypsum products, particle board, wood wool, straw and any other materials introduced in the market.

Teaching Methodology: Faculty shall impart teaching by lecture/presentations; students shall prepare sheets (on topics made *italics*) with applicable construction details in studio. Market survey of building materials shall be carried out as a group exercise.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	Building Construction & Materials, S.C. Rangwala	
2.	Building Construction, Mackay WB Vol. 1-4	
3.	Construction Technology, Chudley Vol. 1-6	

Course Outcome

Sr	Course Outcome	CO
1	Possess knowledge of Flooring, Roofing and Wall Finishing building materials used in construction, their properties, classification & types available.	CO1
2	Equip themselves with the knowledge of building materials and their judicial usage.	CO2
3	Understand construction details of various roofing system & trusses.	CO3
4	Work Out / Apply appropriate details for building construction considering various materials.	CO4

Course Code :ALL DC 306
Course Title : Building Structures-VI
L-T-P/S=Credits : 2-1-0 =3
Course Category : DCC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALL 3523
Equivalent Course Code (if any) :

Detailed Syllabus

Soil Mechanics

Introduction to soil mechanics – trial pits – bearing capacities of common soil – foundation problems at site. Active and passive pressures of soil – Rankins theory of earth pressure,

Retaining walls

Masonry retaining walls, RCC cantilever retaining walls, Counterfort type retaining wall
 Special Foundations
 Introduction to: Raft foundation, pile foundation, pile cap.

Pre-stressed concrete

Introduction to pre-stressed concrete. Methods of pre-stressing, advantages and disadvantages of pre-stressing including simple problems.

Advanced Structural systems

Introduction to: Vierendeel girders, Space frames, Geodesic domes, Folded plates and shells, Constructional considerations for earthquake resistant structures, Large span structures like theatres, auditoriums and gymnasiums.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	R.S Khurmi SOM	
2.	K.L Rao, Calculations, design and testing of RCC	
3.	H.Segmour Harward, N-Structure- an Architect’s approach.	
4.	Reynolds and Kent –Structural Steel work	
5.	Kane, Shah- Illustrated design of RC buildings.	

Course Outcome

Sr	Course Outcome	CO
1	To understand the concept of bearing capacity of soil.	CO1
2	To design RCC cantilever retaining walls and gravity walls.	CO2
3	To understand concept of pre-stressed concrete.	CO3
4	To understand advanced structural systems such as vierendeel girder, space frame, geodesic dome, etc.	CO4

Course Code :ALL BS 302
Course Title : Environmental Studies
L-T-P/S=Credits : 3-0-0 =3
Course Category :BSC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALL 3524
Equivalent Course Code (if any) :

Detailed Syllabus

Ecology & Ecosystem

Concept of Ecology & Ecosystem, Resource analysis for various ecosystems and development imperatives (land, geology, soil, climate, water, vegetation) characteristics, exploitation, causative factors for degradation, analytical techniques.

Environmental Pollution

Definition, causes, effects, standard parameters and control measures of Air, Water, Soil, Noise, Marine, Thermal, Nuclear and Light pollution.

Causes, effects and control measures of urban and industrial waste. Physical, Chemical and Biological transformation of pollutants.

Introduction to EIA & EMP

Role of EIA in the Planning and decision making process, definition and need, evolution and objectives, tasks and scope, methods of EIA; advantages and limitations.

EMP, Best practices in Environmental Protection and Conservation.

Environmental Laws and Regulations

Introduction to Environmental Protection Act, Air (Prevention and Control of Pollution) Act, Water (Prevention and control of Pollution) Act, Wildlife Protection Act, Factories Act, Forest Conservation Act, Issues involved in enforcement of environmental legislation, MoEF Guidelines.

Teaching Methodology: Faculty shall impart teaching by lecture, presentation & demonstrations; students shall undertake exercises in art studio as well as in outdoor. Study of an environmental restoration site is suggested.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	"Environmental Studies" by Anubha Kaushik, C. P. Kaushik, New Age International Publishers.	
2.	"Environmental Studies" (from Crisis to Cure) by R. Rajagopalan, Oxford University Press.	
3.	"Environmental Studies" by Benny Joseph, Tata McGraw Hill Education Pvt Ltd.	
4.	"Principles of Environmental Science" by Cinningham, Tata McGraw Hill Education P. Ltd.	
5.	"Handbook of Environmental Laws, Rules Guidelines, Compliances and Standards" Vol I & II by R. K. Tivedi, Enviro Media.	
6.	"Environmental Acoustics" by Leslie L Doelle	

Course Outcome

Sr	Course Outcome	CO
1	To understand environment, external forces, influences, nature, behavior and the growth, development and maturity of living organisms.	CO1
2	To understand environment issues threatening the survival of mankind on earth.	CO2
3	To understand importance of the protection and conservation of our environment and control of human activities which has an adverse effect on the environment	CO3

Course Code :ALM AE 302
Course Title : Working Drawings
L-T-P/S=Credits : 2-0-4 =4
Course Category : AEC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALU3525
Equivalent Course Code (if any) :

Detailed Syllabus

Introduction to Working Drawings

Introduction to Type of Drawings and Schedules to be prepared for building construction purposes. Introduction to various components, list of drawings, details and their purpose/function in a set of working drawings of a medium and large project. Established practices of providing Allied information / Notes to be provided on various types of drawings. Check list as guide for preparation and checking of working drawing and details.

Drafting Conventions

Aspects of Architectural Drafting for GFC including Line work, Grids, Lettering, Dimensioning, Annotation, Title block(s), Office standards, Representation of different materials, Schedules / Tables and Notes on GFC Drawings. Drafting Conventions and Symbols, type of tags and graphic symbols used in GFC drawings. Method of representing various contents and specific information in working drawing / details.

GFC Drawings

Preparation of architectural GFC drawings and details of a medium / large project. Preparation of electrical drawings, water supply and sanitary drawings, structural drawings of a small project. Specifications of building materials and simple construction as separate document or annotated on the working drawings.

Teaching Methodology: Faculty shall impart teaching by lecture/demonstrations; students shall undertake exercises and prepare drawings in studio/computer lab.

The above drawings need to be prepared for one design project like Residence, Apartments, Factory buildings, Swimming pool etc., handled in an earlier architectural design studio.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	AutoCAD Architectural User Guide by Autodesk Inc.	
2.	The Professional Practice of Architectural Working Drawings by Wakita, Linde and Bakhoun (ISBN-13: 978-0470618158)	
3.	Working Drawings Handbook by Styles and Bichard, Elsevier / Architectural Press.	
4.	The Working Drawing The Architect's Tool by Park Books (ISBN 978-3-906027-31-9)	

Course Outcome

Sr	Course Outcome	CO
1	Understand type of drawings and documents required for construction purpose.	CO1
2	Learn and demonstrate the techniques of preparing working drawings following established practices and conventions.	CO2
3	Develop skills required in using Computers as a tool for producing working drawings.	CO3
4	Prepare the centerline drawings, service drawings, interior detailed drawings, schedule of openings that would be required for construction purpose.	CO4

Course Code :
Course Title : **Discourse on Human Virtues**
L-T-P/S=Credits : **3-0-0 =3**
Course Category :
Pre-requisite Courses (if any) :**NIL**
Equal Course Code (if any) :**PCL 1067**
Equivalent Course Code (if any) :

Detailed Syllabus

Human Values

Understanding the need, content and process for Value Education. Self Exploration-what is it? - its content and process; 'Natural Acceptance' and Experiential Validation- as the mechanism for self exploration. Continuous Happiness and Prosperity- A look at basic Human Aspirations.

Basic requirements for fulfillment of aspirations of every human being with their correct priority Understanding Happiness and Prosperity correctly Method to fulfill the above human aspirations.

Harmony in the Human Being

Understanding the harmony in the Nature, Understanding Existence as Co-existence of mutually interacting units in all-pervasive space. Holistic perception of harmony at all levels of existence. Understanding human being as a co-existence of the sentient 'I' and the material 'Body'.

Appraisal of physical needs, meaning of prosperity in detail. Understanding and living in harmony at various levels.

Human Relationship

Understanding harmony in the Family- the basic unit of human interaction. Understanding values in human-human relationship; meaning of Justice and program for its fulfillment. Trust and Respect as the foundational values of relationship; Difference between intention and competence. Understanding the harmony in the society (society being an extension of family), Comprehensive Human Goals.

Professional Ethics

Natural acceptance of human values, Definitiveness of Ethical Human Conduct.

Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order Competence in Professional Ethics.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	R R Gaur, R Sangal, G P Bagaria, 2009, A Foundation Course in Human Values and Professional Ethics.	
2.	Ivan Illich, 1974, Energy & Equity, The Trinity Press, Worcester, and Harper Collins, USA	
3.	E.F. Schumacher, 1973, Small is Beautiful: a study of economics as if people mattered, Blond & Briggs, Britain.	
4.	Sussan George, 1976, How the Other Half Dies, Penguin Press. Reprinted 1986, 1991	
5.	Donella H. Meadows, Dennis L. Meadows, Jorgen Randers, William W. Behrens III, 1972, Limits to Growth – Club of Rome's report, Universe Books.	
6.	A Nagraj, 1998, Jeevan Vidya Ek Parichay, Divya Path Sansthan, Amarkantak.	
7.	http://nptel.ac.in/courses/109104032/	

Course Outcome

Sr	Course Outcome	CO
1	Distinguish between values and skills, and understand the need, basic guidelines, content and process of value education.	CO1
2	Understand the meaning of happiness and prosperity for a human being.	CO2
3	Understand harmony at all the levels of human living, and live accordingly.	CO3

Course Code	:ALL DC 308
Course Title	: Specification & Estimation
L-T-P/S=Credits	: 2-1-0 =3
Course Category	: DCC
Pre-requisite Courses (if any)	:NIL
Equal Course Code (if any)	:ALL 3527
Equivalent Course Code (if any)	:

Detailed Syllabus

Specifications

Brief and detailed specification (conforming to IS codes) for all items of works in the construction of a compound wall, septic tank, load bearing residential building, RCC framed office building, factory building with truss, etc; Specification of special items like false ceiling, decorative elements, flooring, wall cladding etc.

Procedure of Estimation

Introduction to Building Estimate and its need, importance of estimation, types of estimates, mode of measurement of various items.

Procedure of estimating and preparation of Bill of Quantity (BoQ) – Method of building estimates; estimation of earth work, PCC, brick work, DPC, RCC works, plastering, stone and tile works, wood work, water supply and sanitary work. Estimating of quantities of materials like cement, sand, aggregate, brick, reinforcement, tiles, structural steel for trusses, paints used in building, ACP, paneling and cladding, joinery etc.

Analysis of Rates

Definition; method of preparation; quantity and manpower estimate for unit work.

Analysis of rates for items in building works like earth work, concrete works, first class brick work, reinforced brick and concrete work, cement plastering, DPC with cement mortar/ concrete, finishing (cement paint, distemper, acrylic emulsion, enamel paint) to walls & ceiling.

Local Schedule of Rates, market rates, measurement book, Running Account (RA) bill, interim and final certificate.

Teaching Methodology: Faculty shall impart teaching by lecture, presentation & demonstrations; students shall undertake exercises (home assignments) in estimation and costing.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	National Building Code of India 2016.	
2.	'Estimation and Costing' by S. K. Dutta.	
3.	'CPWD Specification' of Govt of India.	
4.	'Estimation and Costing in Civil Engineering' by B. N. Dutta.	

Course Outcome

Sr	Course Outcome	CO
1	Understand Brief & Technical Specifications of building materials & works.	CO1
2	Develop skills in writing specifications for various building materials and items.	CO2
3	Understand need and procedure of preparing building estimates and tender documents.	CO3
4	Learn and apply good practices in writing specifications, preparing building estimates and tender documents for building works.	CO4

Course Code :ALI PR 401
Course Title : Professional Training
L-T-P/S=Credits : 20
Course Category : PR
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALT 4511
Equivalent Course Code (if any) :

Course Outcome

Sr	Course Outcome	CO
1	Learn ethics and interpersonal skills for interaction with co-workers, clients, consultants, contractors, service providers, industry representatives and other allied stakeholders.	CO1
2	Understand the real time Office Management and Site Management practices.	CO2
3	Enhance knowledge, attitudes and skills towards better practical employability in the profession.	CO3

COURSE GUIDELINES FOR COURSE COORDINATOR

I. Criteria for selection of a Training Office

The said architect shall have at least 10 years (registered with COA or governing authority of the country) of working experience and the organization should have a variety of projects. In case of a 'Public-sector' / 'State or Central Government office / Academic institute or a multinational organization', there shall be a separate wing for architectural consultancy works.

II. Duration of Professional Training

The duration of practical training is 18 working weeks. The dates to start and finish the practical training shall coincide with the starting and finishing dates of the respective semester, in accordance to academic calendar of Shri Mata Vaishno Devi University, Katra. However, the candidate can start his/her practical training before the said schedule i.e. during summer vacations.

III. Joining and Leaving the Training Office

The trainee is expected to join the training office on the scheduled date, and submit his 'Joining Report' on the letterhead of the office duly signed by Head of the Training to the Institute in the Performa prescribed for the purpose.

The trainee must obtain a 'professional training completion report (confidential)' and "professional training completion certificate" duly signed by Head of the Training and get relived from the office at the end of the training period or before changing the 'Training Office'. The trainee must submit these Certificates along with the Log Book and employer feedback form.

IV. Change of Training Office

In case of any emergency, a trainee may be permitted to change the training office/place of training once only during the entire period of training. He/she shall inform the Head of School/Faculty in-charge and seek prior permission for such a change.

The total duration of the practical training shall be the sum of the period of stay in different offices. It shall be in conformity with the 'Duration of Training' as prescribed in the 'Ordinances, Scheme of Examination & Syllabus' of the Shri Mata Vaishno Devi University, Katra.

V. Final Submissions

After completion of practical training, the trainee is required to submit the following to the parent Institute.

'Professional training completion report (confidential)' and "professional training completion certificate", of successful completion of the practical training, from the architect, in original copies.

'Daily Diary' with details of the day to day work record, which will be returned to the student after assessment and viva voce examination.

'Log-Book' in the prescribed format, duly filled up and signed by the 'Supervisor'.

'Training report' supplemented with the prints and documents of work done during practical training. The prints and documents shall be obtained with the permission of the Training office and shall be duly signed by the 'Supervisor'.

Training report shall be submitted in two original copies. One copy shall be returned to the student after assessment of sessional marks and viva voce examination. The second copy shall be retained by the Training and Placement Cell/library. These shall be presented in A-3 or larger size with binding.

VI. Failures

In case the student/trainee remains unsuccessful or fails in completing his/her Professional Training or viva-voce examination, the matter shall be dealt with in accordance with the relevant 'Rules and Regulations' of the Shri Mata Vaishno Devi University, Katra

COMPOSITION OF JURY PANEL FOR EVALUATION / SESSIONAL OF PROFESSIONAL TRAINING

Practical training shall be evaluated by external panel. The external panel shall consist of at least two members, one senior practicing architect and one senior academician. The evaluation shall be coordinated by practical training internal coordinator. The assessment shall be made out of 100 marks (60 marks for Understanding of work, 30 marks for Training report, 10 marks for Log-Book and Daily Diary) by the panel.

Sessional assessment report (confidential) having a weight age of 100 marks, shall be obtained on a prescribed format, from the training office. The report should be signed by the head of respective office and shall be submitted to Practical training coordinator in a confidential sealed envelope.

Course Code :ALM DC 402
Course Title : Architectural Design-VII
L-T-P/S=Credits :2-0-6 = 5
Course Category : DCC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALU 4521
Equivalent Course Code (if any) :

Detailed Syllabus

The design studio intends to provide knowledge and understanding of larger context while designing for an area / campus / complex within an urban setting. The studio attempts to develop large scale campus planning as well as architectural design of buildings within it. The studio is also focused to design buildings with contemporary technology, multi-storied building with use of elevator, escalator, centralized HVAC system, building management system (BMS), fire-fighting measures, multi-level parking and other associated services. The studio can be carried out as a two-stage project: one with the master plan for the given area / campus planning and the second could be a detailed design of one of the identified high-rise buildings. Topics like Mixed-Use Development in a TOD Zone, IT Hubs, High-Rise High Density Housing, Hospital in an urban setting etc. can be introduced as design problems of this studio.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
5.	Pandya, Yatin; (2007); Elements of Spacemaking, Mapin Pub., ISBN: 1890206792, 9781890206796.	
6.	Alexander, Christopher; A Pattern Language, Oxford University Press, London.	
7.	Bachelard, Gaston; The Poetics of Space, Penguin Classics, ISBN-13: 978-0143107521.	
8.	Unwin, Simon; (2003); Analysing Architecture, Psychology Press, ISBN: 041530685X, 9780415306850.	
9.	Curtis, William J.R.; (1996); Modern Architecture since 1900, Phaidon Press, ISBN: 0714833568, 9780714833569.	
10.	Marriage, Guy; (1st Edition, 2019); Tall: The Design and Construction of High-Rise Architecture, Routledge, ISBN: 9781138350762.	
11.	Mehta, Jaimini; (2011); Rethinking Modernity: Towards Post Rational Architecture, Niyogi Books, ISBN: 9788189738723.	
12.	Eisele, Johann; Kloft, Ellen; (Illustrated Edition, 2003); High-Rise Manual: Typology and Design, Construction and Technology, Birkhauser Publishers for Architecture, ISBN: 9783764302740.	
13.	Ascher, Kate; (Illustrated Edition, 2013); The Heights: Anatomy of a Skyscraper, Penguin Books, ISBN: 978-0143124085	
14.	Ching, Francis D.K.; Architecture: Form, Space and Order, Van Nostrand Reinhold Co., New York.	

Course Outcome

Sr	Course Outcome	CO
1	Understand architectural design in its larger context of the city / urban area, design buildings with contextual approach.	CO1
2	Analyze the design principles & site planning for large scale projects.	CO2
3	Apply site and building level services, parking, fire-fighting etc. and the other essential components of high-rise building design.	CO3

Course Code : ALM DC 404
Course Title : Advanced Building Const. Technology
L-T-P/S=Credits : 2-0-4=4
Course Category : DCC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALU 4522
Equivalent Course Code (if any) :

Detailed Syllabus

Unit I:

Pre-fabrication: Forms of Steel for Industrial construction & Roofing products. Classification, Availability, Characteristics and Uses of forms of steel and importance of steel roofing products. Industrial Construction Structural Steel Works - Portal Frame Construction, North-light truss and Lattice girder roof, with various roof coverings (corrugated metal sheets as roof panels- first to fourth generation sheets), Castellated Beams, Grillage footings, Vierendeel Girder construction.

Unit II:

Pre-stressed/Post-tension: Advanced Structural Concretes. Materials for Pre-stressing Structural Light weight Concrete, High Strength Concrete-Classification, Availability, Characteristics and Uses. Classification, Availability, Characteristics and Uses. Pre-stressed Concrete Introduction, methods of pre-stressing, types of post-tensioning systems. Types of pre-stressed concrete structures- Beams (Short span, medium span, long span), Girders & Joists. Slabs (one way, two way, flat slabs, hollow core slabs, planks), Channel sections, folded plate structures. Composite construction.

Unit III:

Advanced Formwork : Forms & Materials for Speedy Construction Reinforcement types, RMC. Advanced Formwork systems - Table Form / Flying Form, Column Formwork Systems, Horizontal Panel Systems, Vertical Panel Systems, Jump Form, Slip Form & Tunnel Form. Classification, Availability, Characteristics and Uses.

Unit IV:

Advanced Construction Technology: Mass production, transportation, storage and handling of materials. Characteristics, performance and application of mechanized construction equipment.

Teaching Methodology: Illustrated Lectures in the form of presentations, seminars, and Introduction of study material on Construction technology along with modeling. Site visits and construction yard activities.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1	McKay, W.B., (1955); "Building Construction Volume I, II, III and IV", Longmans.	
2	Ching, Francis D. K. and Adams, Cassandra; (2000); "Building Construction Illustrated", Wileyand Sons.	
3	The Construction of Buildings – Barry Volume I, II, III and IV	
4	Chudley, Roy; (2005); "Construction Technology", Longmans.	
5	Building Construction_Mitchell (Elementary and Advanced)	
6	Prestressed Concrete Structures: P. Dayaratnam Prestressed Concrete: J. R. Libby.	

Course Outcome

Sr	Course Outcome	CO
1	Understand the system to be adopted for construction of large span / advanced structure in pre- fabrication along with various roofing products used for construction work.	CO1
2	Familiarize with the various construction equipment required for speedy and effective construction works.	CO2
3	Analyze and apply the advanced building construction on site practices	CO3

Course Code : ALM DC 406
Course Title : Urban Design
L-T-P/S=Credits : 2-0-2=3
Course Category : DCC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALU 4523
Equivalent Course Code (if any) :

Detailed Syllabus

Introduction and Key Terminologies

Definition of Urban Design, Scope of the subject, Integration of Urban Design with Urban Planning and Architecture, Relevant terminologies used in the practice of Urban Design.

Evolution of Urbanity

Evolution of settlements through historical era – Urban Design elements, principles and characteristics in evolution of towns and cities of different era, Understanding the underlying growth pattern of these towns, Case examples of Ancient Towns, Temple Towns, Medieval Towns, Colonial Towns, New Towns, Contemporary Towns, Global Cities in Indian context.

Urban Design Elements, Principles and Techniques

Elements of 'The Image of The City', city shape, size, density, pattern, grain, texture, movement network, urban activity, orientation, vista, skyline and various non-physical aspects, Principles related to urban scale, urban space, urban mass, urban activity and circulation, Various techniques for the preparation of Urban Design project proposal.

Urban Design Survey Techniques

Methods of documenting an urban area, Various survey techniques involved in Urban Design, Aspects covered under physical survey & visual survey, Preparation of Visual Survey Maps and Sketches.

Urban Design Projects & proposals

Different categories of Urban Design projects – Urban Renewal, Urban Redevelopment, Urban Rehabilitation / Regeneration, Urban Conservation, Green Field and Brown Field projects, Case Study of such projects.

Teaching Methodology: Illustrated Lectures in the form of presentations, seminars, and Introduction of study material on Urban Design along with modelling.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	Spreiregen, Paul D.; (1965); Urban Design: The Architecture of Towns and Cities, McGraw-Hill.	
2.	Lynch, Kevin; (1960); The Image of the City, MIT Press.	
3.	Sim, David; (2019); Soft City: Building Density for Everyday Life, Island Press.	
4.	Lang, Jon; (2005); Urban Design: A Typology of Procedures and Products, Routledge.	
5.	Gehl, Jan; (2013); Cities for People, Island Press.	
6.	Carmona, Matthew; (2010); Public Places, Urban Spaces: The Dimensions of Urban Design, Routledge.	
7.	Meeda, Bally; (2nd Edition, 2018); Graphics for Urban Design, ICE Publishing, ISBN: 978- 0727761712.	
8.	Urban Design Associates; (2004); The Architectural Pattern Book: A Tool for Building Great Neighbourhoods	
9.	Gindroz, Ray, Urban Design Associates; (Illustrated Edition, 2002); The Urban Design Handbook: Techniques and Working Methods, W. W. Norton & Company, ISBN: 978- 0393731064.	

Course Outcome

Sr	Course Outcome	CO
1	Understand urban context and its various components.	CO1
2	Analyse urban dimensions to appreciate architecture in its larger context of city / region.	CO2
3	Apply urban design principles & objectives while designing large scale architectural project within an urban context.	CO3

Course Code :ALM DC 408
Course Title : Landscape Design
L-T-P/S=Credits : 2-0-2=3
Course Category : DCC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALU 4524
Equivalent Course Code (if any) :

Detailed Syllabus

Unit-I:

Introduction to Landscape Architecture, its scope, objectives, design process & profession of landscape architecture in relation to architecture. Elements of landscape architecture. Linkages with nature & built environment.

Unit-II:

Introductory history of Landscape Architecture with historical references from Garden design of Babylon, China, Persia. Garden design of Japan, Italy, France and England.

Unit-III:

Plant classification and nomenclature, plant identification, selection and design, their typology like shrubs, creepers, climbers, vines. Introduction to horticulture, its importance, vegetative propagation, planting preparation and methods, Landscape design exercise of a small area like courtyard, etc.

Unit-IV:

Importance of principles of design in Landscape, visual & spatial significance, balancing structural and land masses, related examples. Ecological approach for landscape design; Landscape design for various building types; Landscaping parks & roads. Formal & informal design; Use of water & man-made elements in landscape.

Teaching methodology: Studio component of the semester may be integrated with Architectural Design of the current semester.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	Leonard J. Hopper; Landscape Architectural Graphic Standards	
2.	Elizabeth Barlow Rogers; Landscape Design: A Cultural and Architectural History	
3.	Nick Robinson; The Planting Design Handbook	
4.	Travis Beck; Principles of Ecological Landscape Design	
5.	Grant Reid; Landscape Graphics	
6.	Ian L. McHarg; Design With Nature	
7.	Charles Harris & Nicholas Dines; Time-Saver Standards for Landscape Architecture	
8.	Michael Laurie; Introduction to Landscape Architecture	
9.	John Ormsbee Simonds; Landscape Architecture	

Course Outcome

Sr	Course Outcome	CO
1	Introduce to the discipline of Landscape design & its relevance to Architecture.	CO1
2	Gain an insight into the changing relationship of human with nature to develop the understanding of site values and site planning.	CO2
3	Apply the skill of integrating design of built with of open spaces	CO3

Course Code : ALM DC 410
Course Title : Town Planning & Building Bye-laws
L-T-P/S=Credits : 2-0-2=3
Course Category : DCC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALU 4525
Equivalent Course Code (if any) :

Detailed Syllabus

Unit-I:

Introduction to Settlement Planning - Evolution of human settlements- man, environment and built structure, Characteristics of settlements, Growth patterns; Ancient rural and urban settlements & its types in India; Planning Concept of Medieval cities in India

Unit-II:

Introduction to concept of Urban Planning - Evolution of Planning concepts and various theories related to growth and decay of settlements; Definitions related to Planning, Characters, Constituents and classification of town/city; Urban Problems and Issues, Hierarchy of Urban Development; Zoning & types; Participatory and inclusive planning.

Unit-III:

Planning process & Techniques - components and techniques of planning- survey techniques and data collection methods, Methods of non-spatial and spatial data analysis; Application of G.I.S and Remote Sensing techniques in urban and regional planning; Concept, Types, Scales, elements, preparation, implementation and hierarchy of plans.

Unit-IV:

Introduction to Govt. Documents, Govt. Schemes, New issues & Concepts in City Planning -URDPFI Guidelines; National Building Code; Building Bye-Laws; Land Acquisition Act; Environmental Impact Assessment (EIA); Social Impact Assessment (SIA); 73rd & 74th Amendment of Constitution of India.

Unit-V:

Study of Existing Settlements- Case studies of Planned Neighbourhoods, Communities, or Cities of the World; Hands-on Exercise related to planning at neighbourhood/community level.

Teaching Methodology: Illustrated Lectures, Films, and Introduction of Texts on Town Planning & Human settlements. Planning & Designing of a neighbourhood level project through drawing & presentation. Survey, Compilation of Data, Interpretation, Analysis, Proposal Development and Report Preparation as Studio Work.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	Joy Sen; Sustainable Urban Planning (2013), The Energy and Resources Institute (TERI)	
2.	URDPFI Guidelines Vol I, II A-II B -2014 by TCPO, Govt. Of India, MoHUA, New Delhi	
3.	Model Building Bye-Laws -2016 by TCPO, Govt. Of India, MoHUA, New Delhi	
4.	National Building Code -2016-Vol 1 & 2 by Bureau of Indian Standards, Govt. Of India	
5.	Clara H. Greed; Introducing Town Planning (1993)	
6.	Simon Eisner; The Urban Pattern, (1993) Arthur Gallion, Stanley Eisner.	
7.	B.B. Dutt; Town Planning in Ancient India, (2009) Gyan Publishing House.	
8.	S.K. Kulsrestha; Urban and Regional Planning in India: A Handbook for Professional Practice, (2012), SAGE India Publication.	
9.	C.A. Doxiadis & Hutchinson; Ekistics:An introduction to the science of human settlements (1968)	

Course Outcome

Sr	Course Outcome	CO
1	Understand the concept of evolution of Human settlements & Town Planning and their various elements, classifications, techniques and processes.	CO1
2	Familiarize about the various govt. schemes & relevant regulatory documents as well as the contemporary issues of urban areas and its possible innovative solutions.	CO2
3	Apply the concepts gained by doing small practical exercise at neighborhood level.	CO3

Course Code : ALM DC 501
Course Title : Architectural Design-VIII
L-T-P/S=Credits : 2-0-6=5
Course Category : DCC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALU 5511
Equivalent Course Code (if any) :

Detailed Syllabus

Design studio programme in this semester shall be thematic on urban & metropolitan problems and issues of larger environmental contexts. The design problem shall be of large scale, handling of a group of buildings or a cluster of buildings, preferably urban in nature to develop & understanding for problem associated with site planning, layout of roads & services, traffic pollution, land use etc. A visual & functional study of urban space in use, urban activities, services & evolution of various spaces e.g. Mass scale residential, institutional, commercial, transport, healthcare building/centre/campus. This could be a greenfield/ brownfield development, redevelopment or revitalization project in the context of the city understudy.

Teaching Methodology: Faculty shall impart teaching by lecture, presentations & visiting the Urban site along with students; students shall prepare reviews of reading material, case analysis and presentation of design interventions.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	Jon Lang; Urban Design: A typology of procedures & products, Architectural Press, Elsevier	
2.	Moughtin, Cliff; Urban Design: Street & Square, Architectural Press, Elsevier Science	
3.	Moughtin, Cliff; Urban Design: Green Dimensions, Architectural Press, Elsevier Science	
4.	Moughtin, Cliff; Urban Design: Method & Techniques, Oxford Architectural Press.	
5.	Spreiregen, Paul D; Urban Design: The Architecture of Town and Cities, New York McGraw- Hill.	
6.	Urban Design Associates; Urban Design Handbook, New York McGraw-Hill.	
7.	Watson, Donald; Time-Saver Standards for Urban Design, New York McGraw-Hill.	
8.	Cullen, Gordon; Concise Townscape, The Architectural Press, New York.	
9.	Lynch, Kevin; The Image of the City, The MIT Press, London.	
10.	Alexander, Christopher; A Pattern Language, London Oxford University Press.	

Course Outcome

Sr	Course Outcome	CO
1	Understand the developments in urban context with appropriate scale and use in order to augment user's quality of life.	CO1
2	Analyse the contextual architectural expression and amalgamating the reflections of traditional values.	CO2
3	Apply the holistic & multi-disciplined architectural design approach on urban scale.	CO3

Course Code : ALL AE 501
Course Title : Professional Practice
L-T-P/S=Credits : 2-0-0=2
Course Category : AEC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALL 5512
Equivalent Course Code (if any) :

Detailed Syllabus

Role of Regulatory bodies:

Importance of Architecture Profession, role of Architects in the society, Architects' Act 1972, registration of architects, relations with clients, contractors, consultants, public authorities. Types of works which an Architect can take; conditions of engagement. Role of Council of Architecture and Indian Institute of Architects and allied regulatory bodies, functions, constitution, and rules & regulations. Code of professional conduct & Ethics, Social responsibility.

Practicing Architecture:

Scope of work of an architect, Schedule of services, Terms & conditions of engagement, letter of appointment. Private practice, types of offices/firms, responsibilities & liabilities. Architectural Competitions procedure. Tender, Contract, Scale of charges, applicable building byelaws, municipal approvals, development controls, zoning regulations, National Building Code, Master plan, Zonal plan.

Arbitration, Valuation and Easements

Need/Scope of Arbitration, Indian Arbitration act, arbitrators, umpires, appointment, conduct, powers, duties, Sole/Joint arbitrators, Arbitration procedure, awards & impeachment. Techniques/elements of valuation, factors affecting valuation of land/building, compensation on acquisition, lease renewal/extension, standard rent, Cost of sale, Purchase & Mortgage. Easements, types, rights & features; acquisition/extinction/protection; Interim/permanent/ mandatory injunctions. dilapidation, insurance, estate development. Consumer protection act.

Office Organization & Management

Architect's office management, organization structure, responsibility towards employees, consultants & associates, maintenance of accounts, filing of records, balance sheet, Types of taxes. Copy rights and patenting, correspondence, documentation, drawings, conducting meetings, Clerk of works, inspection, works measurement, certificate of payment to contractors, applicable legislations, registration of properties, stamp duty; insurance for new work and additions; insurable value of property, claim for damages.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	Apte, V. S. (2008); Architectural Practice and Procedure, Pune	
2.	Chappell, D. M. And Willis, A. (2005); The Architect in practice. 9th Ed. Oxford	
3.	Prof. S.C.Garg, Dr.YogeshK.Garg; Professional practice in Architecture	
4.	Madhav Deobhakta; Architectural Practice in India	
5.	Council of Architecture ; Professional handbook	

Course Outcome

Sr	Course Outcome	CO
1	Understand the various aspects of architectural profession.	CO1
2	Emphasize on Architect's role in governance for creation of a sustainable built environment and the onus they owe to the profession, to their clients and to the society.	CO2
3	Analyze the implications of various laws and regulations for Architectural practice in India.	CO3

Course Code : ALL DC 503
Course Title : Green Buildings
L-T-P/S=Credits : 3-0-0=3
Course Category : DCC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALL 5513
Equivalent Course Code (if any) :

Detailed Syllabus

Introduction to Green Buildings

Concept, definition, history and evolution, benefits/significance of green buildings. Study of features which make the building green. Sustainability and green buildings. Examples of green buildings in India and the world (case studies to be presented by the students).

Green Building Rating Systems

Introduction to various rating systems (LEED, GRIHA, CASBEE, IGBC etc) Study of green building rating criteria of IGBC for new buildings with holistic approach to create environment friendly buildings, through architectural design, water efficiency, effective handling of waste, energy efficiency, sustainable buildings, and focus on occupant comfort & well-being. Mandatory requirements and credit points, various levels of rating, process of certification.

Principles and Design Strategies

Efficient use of resources (land, water, energy and materials), waste reduction and handling. Passive heating and cooling systems. Use of renewable energy and its generation on site, Eco-friendly building materials, Case studies on green buildings designed with passive cooling techniques (to be presented by the students).

Energy Conservation Building Code

Building typologies, Energy Performance Index (EPI), mandatory and prescriptive requirements for building envelop (like fenestrations, daylighting, roof and walls), thermal comfort systems and controls, lighting, electrical and renewable energy systems.

Teaching Methodology: Faculty shall impart teaching by lecture & presentations; students shall prepare reports/presentations on Case Study and/or Green Building Ratings as an individual or group exercise..

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	IGBC Green New Buildings Rating System (3.0 or latest version).	
2.	Energy Conservation Building Code of India (2017 or latest version).	
3.	Handbook of Green Building Design and Construction (ISBN 978-0-12-385128-4).	
4.	"Green Building A to Z: Understanding the Language of Green Building" by Yudelson and Jerry.	
5.	Green Building Principles And Practices In Residential Construction by Kruger, Cengage Learning	

Course Outcome

Sr	Course Outcome	CO
1	Understand concept and significance of green buildings.	CO1
2	Understand various parameters of green building rating systems.	CO2
3	Address environmental issues with due consideration to occupant's health and wellbeing while carrying out architectural design.	CO3
4	Apply energy saving measures as recommended by Energy Conservation Building Code.	CO4

Course Code : ALD AE 503
Course Title : Dissertation
L-T-P/S=Credits : 0-4-0=4
Course Category : AEC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALC 5514
Equivalent Course Code (if any) :

Detailed Syllabus

Writing

Basic Concepts and objectives of writing. Procedure – to tell how something is done. Description – to tell what something is like. Report- to tell what a class of things is like. Explanation – to give reason to why a judgment is made. Descriptive and Analytical writing in architecture

Communication.

Writing as a medium of representation of Ideas, independently, and along with other media like drawing sketching and photography. Technical communication, Professional and Business Communication

Journalism.

Understanding the scope of writing for diverse audience or readers. For printed for theoretical Journals and commercial magazines, news items and event coverage like Exhibitions, Seminars. Project description, Reviews. Web Content development for web based publications.

Knowledge

Documentation of works of Architects, Organisations and Architecture, Biographies. Critical Appraisals, Book Reviews. Project reviews. Writing of History and Theoretical studies Research writing. Dissertation writing. Publication, Concept of Authorship Plagiarism Copyright.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	Anderson, J. and Poole, M. (1998). Thesis and assignment writing. Brisbane : John Wiley.	
2.	Borden, I. and Ray, K. R. (2006). The dissertation: an architecture student's handbook. 2nd Ed.Oxford : Architectural Press.	
3.	Fink, A. (1998). Conducting research literature reviews: from paper to the Internet. Thousand Oaks : Sage.	
4.	Murray, R. (2005). Writing for academic journals. Berkshire:Maidenhead, Open University Press.	

Course Outcome

Sr	Course Outcome	CO
1	Systematically write abstract, analyse, synthesize and interpret existing literature.	CO1
2	Develop specialized knowledge in a subject area which maybe an extension to the thesis work in the following semester.	CO2
3	Build their capacity to work independently and methodically in a variety of intellectually demanding contexts.	CO3

Course Code : ALL DE 506
Course Title : Housing
L-T-P/S=Credits : 2-1-0=3
Course Category : DEC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALE 5916
Equivalent Course Code (if any) :

Detailed Syllabus

Introduction

Housing as Architecture basic need, housing as an integral part of urban & rural development, housing problem and statistic, etc. Housing Surveys and Standards: Sources of Data and information, methods and techniques of housing surveys, housing standards, etc.

Housing Design and Policies

Qualitative and quantitative demands of housing, housing estimates, various government policies and programmes. Objectives & regulations by various Housing Agencies.

Housing Cooperative and Financing Agencies

Objectives and general principles of cooperatives, self-help housing, financing agencies and their functions etc.

Housing Design Study

Introduction to methods and approaches to housing design. Study analysis and design of housing schemes. Redevelopment of slums and squatter settlements.

Teaching Methodology: Illustrated Lectures in the form of presentations, short videos, and case study.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	Babur Mumtaz and Patweikly, Urban Housing Strategies, Pitman Publishing, London, 1976.	
2.	Geofrey K.Payne, Low Income Housing in the Development World, John Wiley and Sons, Chichester, 1984.	
3.	John F.C.Turner, Housing by people, Marison Boyars, London, 1976.	
4.	Miglani O.P., Urban Housing in Developing Economy.	
5.	Jain A.K., Urban Housing and Slums.	
6.	HUDCO guidelines, MoHUA	

Course Outcome

Sr	Course Outcome	CO
1	Understand about the causes and consequences of housing problems in India.	CO1
2	Analyze the various issues involved in urban and rural housing and look for various solutions at urban and rural level.	CO2
3	Apply the knowledge about the planning and design solutions for low income groups and sensitize the end-user.	CO3

Course Code	: ALL DE 507
Course Title	: Disaster Mitigation & Management
L-T-P/S=Credits	: 2-1-0=3
Course Category	: DEC
Pre-requisite Courses (if any)	:NIL
Equal Course Code (if any)	:ALE 5917
Equivalent Course Code (if any)	:

Detailed Syllabus

Disaster types, characteristics and their causes

Understanding of disasters, hazard and its classification, vulnerability, capacity, risk. Types of Disaster (natural and manmade):to understand in detail for the cause, adverse effects, distribution patterns, mitigation measures of Earthquake, Fire, Cyclone, Flood, Landslide, Tsunami etc. Disaster Management cycle. Disaster occurrence in the world, plate tectonics, Multi hazard maps in India, Case Studies to understand above mentioned disasters (National as well as international) occurred in the past & their inferences.

Elements of disaster resilient building design

Building shapes, Architectural features and design of building in seismic zones. Indian Seismic Codes. Different types of Building such as structures of - Brick Masonry, Stone Masonry, Reinforced concrete etc. Flood & Cyclones: Design of building for flood and cyclone zones. Disaster safe construction practices for different types of hazards.

Disaster management, mitigation and preparedness

Disaster management, mitigation and preparedness; techniques of monitoring and design against the disasters Management issues related to disaster, mitigation through capacity building, legislative responsibilities. various role players in disaster management – Disaster Management Act, guidelines NDMA, SDMA, NGOs / CBOs and NDRF; Community Based Disaster Preparedness (CBDP), Disaster Risk Mitigation; Disaster Preparedness Forecasting and early warning systems for various types of disasters; pre-disaster risk and vulnerability reduction.

Post disaster recovery and rehabilitation

Post Disaster Management and Cross Cutting Issues, Post disaster management; rehabilitation and reconstruction of disaster affected areas; disaster related infrastructure development. Urban, disaster mitigation; safe hill area development guidelines and coastal zone regulations for safe habitation; human settlement planning for consequence mitigation of global warming and climate change. Remote-sensing and GIS applications in real time disaster monitoring, prevention and rehabilitation.

Teaching Methodology: Illustrated Lectures in the form of presentations, short videos, and case study

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	Building Configuration and Seismic Design-Christopher Arnold.	
2.	Handbook of Planning security Planning & Design-Peter S. Hopf.	
3.	S. Rajagopal – Problems of housing in cyclone prone areas – SERC, Vol.2 , Chennai, 1980.	
4.	Disaster Management In India GoI-UNDP Disaster Risk Reduction Programme (2009-2012)	
5.	National Disaster Management Plan, 2016. National Disaster Management Authority, Government of India. May 2016, New Delhi	

Course Outcome

Sr	Course Outcome	CO
1	Understand the disaster management as cyclic process.	CO1
2	Apprise natural disasters & factors that causes them.	CO2
3	Appreciating strategies for disaster prevention and management.	CO3

Course Code : ALM DE 501
Course Title : Architectural Conservation
L-T-P/S=Credits : 2-0-2=3
Course Category : DEC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALE 5923
Equivalent Course Code (if any) :

Detailed Syllabus

Introduction

Appreciating historical precincts, cultures & identifying the tangible & intangible heritage in relation to archaeology, cultural landscape & heritage tourism.

Conservation principles & practices

Rationale for conservation, Interventional practices such as reuse, rehabilitation, retrofitting, revitalization, preservation & redevelopment. Regulations & Role of ASI, INTACH, UNESCO & other allied bodies.

Conservation science, technology & management

Diagnosis & remedial measures for historic structures & fabric. Technological measures for distressed buildings. Maintenance & monitoring systems for management of heritage.

Conservation Studio

Case study & conservation interventions based on integrated approach for safeguarding cultural resources.

Teaching Methodology: A combination of class-room interactions, assignments and lab/studio projects.

Sr.	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	Marie Lousie Stig Sorensen, John Carman. Heritage Studies: Methods and Approaches	
2.	Sengupta, Gautam (ed.). Archaeology in India: Individuals, ideas and institutions, 2009	
3.	Stolton, Sue (ed.) & Dudley, Nigel(ed.). Arguments for protected areas: Multiple benefits for conservation and use, 2010	
4.	Forsyth, Michael. Material and Skills for Historic building Conservation, Blackwell Publishing, 2008.	
5.	Watt,D & Swallow P., Surveying Historic Buildings, Donhead, 1996	
6.	Glendinning, Miles., The Conservation Movement: a History of Architectural Preservation(ROUTLEDGE 2013)	

Course Outcome

Sr	Course Outcome	CO
1	Understand the disaster management as cyclic process.	CO1
2	Apprise natural disasters & factors that causes them.	CO2
3	Appreciating strategies for disaster prevention and management.	CO3

Course Code : ALM DE 502
Course Title : Building Simulation
L-T-P/S=Credits : 2-0-2=3
Course Category : DEC
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALE 5924
Equivalent Course Code (if any) :

Detailed Syllabus

Introduction

Review of topics on thermal comfort, Classification of climate zones, Review of traditional architecture.

Heat flow calculations in building

Unsteady heat flows through walls, roof, windows etc., Direct heat gains through windows, Convective gains/losses, air exchange rates, Gains from people, appliances etc., Air conditioning load calculations.

Passive and low energy concepts and applications

Passive cooling/heating concepts, Building form and orientation, Internal and external shading devices, Ventilation, passive concepts for composite climates, evaporative and nocturnal cooling, Earth-air tunnel, sky-therm system, Solar chimney-based hybrid system.

Building performance simulation

Use of different building simulation software for modelling of non-air conditioned spaces such as TRNSYS, ECOTECT, EQUEST etc.

Teaching Methodology: A combination of class-room interactions, assignments and lab/studio projects.

Sr	Name of Book, Author, Publisher	Year of Publication/Reprint
Text Books		
1.	Givoni, B., 1969. Man, Climate and Architecture. Elsevier Publishing Company Ltd.	
2.	Krishnan,A.,Baker,N.,Yannas,S.,Szokolay,S.,(Eds)2001.ClimateResponsiveArchitecture- A Design Handbook for Energy Efficient Buildings, Tata McGraw-Hill, New Delhi	
3.	N. K. Bansal, Gerd Hauser, Gernot Minke, 1994. Passive building design: a handbook of natural climatic control, Elsevier Science B.V.	
4.	Givoni, B., 1994. Passive and Low Energy Cooling of Buildings, John Wiley & Sons Inc., New York	
5.	Karlen, M and Benya, J., 2004. Lighting Design Basics, John Wiley & Sons Inc., New York	
6.	Richard R Janis and William K Y Tao, 2008. Mechanical and Electrical Systems in Buildings, Prentice Hall	
7.	TERI, 2004. Sustainable Building Design Manual, Vols 1 & 2.	
8.	Ministry of Power, 2017. Energy Conservation Building Code.	

Course Outcome

Sr	Course Outcome	CO
1	Understand building performance role for effectivity of architectural design.	CO1
2	Analyse the contextual performance of building functions.	CO2
3	Apply the simulation tools for evaluation of thermal building performance.	CO3

Course Code : ALD PR 502
Course Title : Architectural Design Thesis
L-T-P/S=Credits : 0-0-30=15
Course Category : PR
Pre-requisite Courses (if any) :NIL
Equal Course Code (if any) :ALD 5521
Equivalent Course Code (if any) :

Detailed Syllabus

Architectural Thesis is the final stage of learning Architecture. Through thesis project, students are expected to demonstrate the understanding of a systematic design process which includes identification of project requirements, site study and analysis, case studies, programming, schematic design development & deliverance. It provides the students with an opportunity to culminate the nine semesters of architectural education by demonstrating the body of knowledge and skills gained along with professional training. The main objective of this course is to provide an opportunity to the students to handle a complete design project of their own choice in a practicable manner using their creative abilities. This will prepare them for addressing the challenges in the profession.

Module 1: SYNOPSIS

The synopsis will be a brief introduction of the proposed thesis project and has to be submitted by the student at the end of the previous semester.

Module 2: CASE STUDY, SITE ANALYSIS AND AREA PROGRAMMING

The students have to conduct literature study and case studies – live & literature, to gain an overview for their respective design project.

Literature Review: It includes gathering the relevant standards and other information from all the available sources related to their thesis topics that will help them during the later stages of their thesis programme.

Case Studies: The students have to conduct live and literature studies of similar projects. Instead of mere documentation of these projects, information must be collected about the requirements; salient design features clearly stating the merits & demerits of the case studies.

Site Analysis: The purpose of the site analysis is to record and evaluate information on the site and its surroundings, and to use this evaluation in the design response. The site analysis should identify issues that will influence the development of design in order to make a informed response to both site opportunities and constraints, to provide a good quality living environment, and to respect, acknowledge and improve the character of the area.

Area Analysis and Programme: The students are required to prepare a comparative statement of the various available design standards, areas analysis through the various case studies, so that the area requirements for the various functional spaces for the proposed building can be finalized. This area programme should be an exhaustive list and will form the basis for the design process to be undertaken in upcoming stages.

Module 3: SCHEMATIC DESIGN

Conceptual framework: The students have to express their ideas generated on the basis of the studies (case studies / literature studies / area analysis) conducted so far in the form of conceptual drawings, sketches and models. The emphasis during this stage shall be on the basic concept explaining the principal ideas / thought process / aspirations of the student for the project in terms of planning / built form / massing of different components, leading to the design, through sketches / 3D images / block models etc.

Module 4: DESIGN FINALIZATION

Detail drawings: The schematic drawings presented in the previous module needs to be detailed out as per the comments/ suggestions received from the guides and the reviewers. The detailed drawings as per the final area programme with due consideration to structural and service requirements of the building needs to be presented at this stage.

Module 5: PRE-FINAL DESIGN

Pre-final drawings: The students are required to submit the final drawings (monochrome), views, models, etc. incorporating the comments received in the previous reviews, to be presented before a panel of internal / external reviewers.

Module 6: FINAL THESIS SUBMISSION& EXTERNAL JURY

Final rendered drawings & Models: The students are required to present all the deliverables (drawings, model, report, etc.) complete in all respects as per the comments and suggestions received from thesis guide and various review members before the final review panel.

Teaching Methodology: The thesis project shall be guided by respective assigned guides by referring tutorials on one to one basis, on related topics such as Site study & Analysis, Case Studies, Building bylaws and standards, Area Programming, structure design, Building services, Drafting conventions and Drawing Coordination and review of each stage before the assigned jury panel.

Sr.	Name of Book, Author, Publisher	Year of
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		Publication/Reprint
Text Books		
1.	Architecture Thesis Manual available online.	
2.	Summaries of all of the concurrent studios in which Thesis students are working.	
3.	Summary of each student's Thesis project, as well as links to student websites/blogs that document individual work or process.	
4.	A bibliography of readings, syllabi, weblinks, and other resources on issues such as what Thesis is, what research is in architecture, the disciplinary boundaries of architecture, some contemporary issues that could be addressed in a Thesis, or could help promote better Thesis work.	

Course Outcome		
Sr	Course Outcome	CO
1	Combine the systematic/methodological learning from various stages of study and analysis in design process towards culmination of an informed architectural design.	CO1
2	Communicate the ideas clearly using writing, verbal and visual presentation along with demonstration of self-reliance when working independently while synthesising creativity and technical knowledge.	CO2
3	Deliver an architectural design project, responsive to the context and program requirements by applying design processes/dissertation learnings and various interdisciplinary inputs applicable to the thesis title objectives.	CO3



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December 2023

Published by: ShriMataVaishnoDevi University, Katra J&K 182 320