ESTD. 1939

KARNATAK LAW SOCIETY'S
GOGTE INSTITUTE OF TECHNOLOGY
"JNANA GANGA" UDYAMBAG, BELAGAVI-590008,
KARNATAKA, INDIA.
Approved by AICTE & UGC
Permanently Affiliated and Autonomous Institution Under
Visvesvaraya Technological University, Belagavi
www.git.edu

ESTD. 1979

2018-19 Scheme

Department: Architecture

Programme: B.Arch

1st and 2nd Semester Syllabus

INSTITUTION VISION

Gogte Institute of Technology shall stand out as an institution of excellence in technical education and in training individuals for outstanding caliber, character coupled with creativity and entrepreneurial skills.

MISSION

To train the students to become Quality Engineers with High Standards of Professionalism and Ethics who have Positive Attitude, a Perfect blend of Techno-Managerial Skills and Problem solving ability with an analytical and innovative mindset.

QUALITY POLICY

- Imparting value added technical education with state-of-the-art technology in a congenial, disciplined and a research oriented environment.
- Fostering cultural, ethical, moral and social values in the human resources of the institution.
- Reinforcing our bonds with the Parents, Industry, Alumni, and to seek their suggestions for innovating and excelling in every sphere of quality education.

DEPARTMENT VISION
The Department of Architecture shall stand out as the Department of excellence in architectural education and space making, in training individuals for outstanding calibre, character and holistic development.

MISSION
To train the students to grapple with complex issues that are emerging in today's society and encourage them to be designers who will find architectural solutions that respond appropriately to culture, climate and context

COURSES, PERIODS OF STUDY AND SUBJECTS OF EXAMINATION UNDER CHOICE BASED CREDIT SYSTEM FOR THE ARCHITECTURE DEGREE PROGRAM

1.0 Under the Choice based credit system, which is a student/ learner centric system, the courses of study in the Architecture Degree program shall be as under:

1.1 **Professional Core (PC) Course:** A course, which should compulsorily be studied by a candidate as a core requirement is termed as a Core course.

1.2 **Basic Sciences and Applied Engineering (BS & AE) Course:** A course which informs the Professional core and should compulsorily be studied.

1.3 **Elective Course:** Generally a course which can be chosen from a pool of courses and are of two types:

(i) **Professional Elective (PE)** which may be very specific or specialized or advanced or supportive to the discipline/ subject of study or which provides an extended scope

(ii) **Open Elective (OE)** which enables an exposure to some other discipline/subject/domain or nurtures the candidate's proficiency/skill

1.4 **Employability Enhancement Courses (EEC)** which may be of two kinds: Employability Enhancement Compulsory Courses (EECC) and Skill Enhancement Courses (SEC)

Semester wise distribution of credits for B.Arch. program

Total credits for B.Arch. Program: 260 credits

	Semester	Credits per Sem	Total credits
1st year	1	25	54
	2	29	
2nd year	3	29	57
	4	28	
3rd year	5	31	63
	6	32	
4th year	7	31	47
	8	16	
5th year	9	20	39
	10	19	
	Total	**260**	**260**

BATCH _2018

Karnatak Law Society's

GOGTE INSTITUTE OF TECHNOLOGY, BELAGAVI-08

Bachelor of Architecture

SCHEME OF TEACHING AND EXAMINATION

Department :Architecture **Semester: I**

Subject Stream	Subject Code	Course Type	Subject Title	Teaching Department	Contact Hrs				Credits	Marks					Duration of Exam
					L	S	P/SE	Total		CIE		SEE		Total	
										CP	PA	VIVA /TW	EXAM		
DESIGN	18DES1.1	PC	Basic Design and Visual Arts	Architecture	1	6	0	7	10	10	40	50	-	100	
	18DES1.2	PC	Model Making	Architecture	0	0	3	3	CA	20	80	-	-	100	-
TECHNOLOGY	18TEC 1.1	BS&AE	Building Construction and Materials-I	Architecture	1	2	2	5	5	10	40	50	-	100	-
	18TEC 1.2	PC	Architectural Graphics-I	Architecture	0	1	3	4	3	10	40	50	-	100	-
	18TEC 1.3	BS&AE	Structures-I	Architecture	3	0	0	3	3	10	40	-	50	100	3 hrs
HUMANITIES	18HUM1.1	PC	History of Architecture- I	Architecture	3	0	0	3	3	10	40	-	50	100	3 hrs
	18HUM1.2	SEC	Communication Skills	Architecture	1	0	0	1	1	20	80	-	-	100	-
				Total	9	9	8	26	25	90	360	150	100	700	

L-Lecture **CIE- Continuous Internal Evaluation ·Class Participation**

S-Studio **SEE- Semester End Examination** **PA-Progressive Assessment** **CA-Compulsory Audit**

P-Practical PC - Professional Core; BS&AE- Building Science and Applied Engineering; PE- Professional Elective; OE- Open Elective

SE - Studio Exercise PAECC - Professional Ability Enhancement Compulsory Courses; SEC - Skill Enhancement Courses.

Minimum Marks for passing: Theory, Studio and Lab Marks (CIE) : 40%, Term Work/ Viva/Lab(SEE) : 40% Theory Marks (SEE) : 40%,

BATCH _2018

Karnatak Law Society's

GOGTE INSTITUTE OF TECHNOLOGY, BELAGAVI-08

Bachelor of Architecture

SCHEME OF TEACHING AND EXAMINATION

Department :Architecture **Semester: II**

Subject Stream	Subject Code	Course Type	Subject Title	Teaching Department	Contact Hrs				Credits	Marks					Duration of Exam
					L	S	P/ SE	Total		CIE		SEE		Total	
										CP	PA	VIV A/T	EXAM		
DESIGN	18DES2.1R	PC	Architectural Design -I	Architecture	1	6	0	7	9	10	40	50	-	100	-
TECHNOLOGY	18TEC 2.1	BS&AE	Building Construction and Materials-II	Architecture	1	2	2	5	5	10	40	50	-	100	-
	18TEC 2.2	PC	Architectural Graphics-II	Architecture	0	1	3	4	3	10	40	50	-	100	-
	18TEC 2.3	BS&AE	Structures-II	Architecture	3	0	0	3	3	10	40	-	50	100	3 hrs
	18TEC 2.4	BS&AE	Surveying and Levelling	Architecture	2	0	2	4	3	10	40	-	50	100	3 hrs
HUMANITIES	18HUM2.1	PC	History of Architecture-II	Architecture	3	0	0	3	3	10	40	-	50	100	3 hrs
	18HUM2.2	PC	Art Appreciation	Architecture	2	0	0	2	2	20	80	-	-	100	-
	18HUMB2.3	SEC	Kannada	Architecture	2	0	0	2	1	5	20	-	25	50	2 hrs
	18HUMS2.3														
				Total	14	9	7	30	29	85	340	150	175	750	

L-Lecture	**CIE- Continuous Internal Evaluation**	**CP-Class Participation**	
S-Studio	**SEE- Semester End Examination**	**PA-Progressive Assessment**	**CA-Compulsory Audit**
P-Practical	PC - Professional Core; BS&AE- Building Science and Applied Engineering; PE- Professional Elective; OE- Open Elec		
SE - Studio Exercise	PAECC - Professional Ability Enhancement Compulsory Courses; SEC - Skill Enhancement Courses.		
Minimum Marks for passing:	Theory, Studio and Lab Marks (CIE) : 40%, Term Work/ Viva/Lab(SEE) : 40% Theory Marks (SEE) : 40%,		

BASIC DESIGN AND VISUAL ARTS

Course Code	**18DES1.1**	**Credits**	**10**
Course type	**PC**	**CIE Marks**	**50 Marks**
Hours/week: L-T-P	**7 Hrs (1 Lecture+6 Studios) per Week**	**SEE Marks**	**50 Marks**
Total Hours:	**Lecture = 14 Hrs; Studio = 84 Hrs, Total = 98 Hrs**	**SEE Duration**	**Term work**

Course learning objectives

1. To develop an understanding of Principles of design and develop a series of compositions.
2. To expose students to various tools of sketching and painting.

Unit-I: Principles of Design **42 Hours**

a) Understanding the design elements like Point, Line, Plane, Volume, Colour, Shape, Size and Texture.
b) Understanding the design principles like Contrast, Harmony, Rhythm, Balance, Symmetry, Proportion, Repetition, Radiation, Gradation, Anomaly, Unity, Similarity and Concentration.
c) Application of design principles in two dimensional and three dimensional compositions.

Unit-II: Anthropometry **35 Hours**

a) Basic Anthropometrics, average measurements of human body, its proportion and their graphical representation.
b) Basic human functions and their implications on space requirements. Minimum and optimum areas for mono functions. Movement and circulation diagrams, basic sense of scale of human body and its interrelationship with day to day objects and spaces.

Unit-III: Sketching and Observation **14 Hours**

a) To develop sketching skills using various tools and exercises.
b) Sketching of objects such as pots, chairs, sculptures, block compositions, still life, etc. using pencil only. Emphasis on understanding proportions and recreating it.
c) Field trips to architecturally rich sites under guidance and exploring the processes and techniques of sketching with emphasis on understanding of perspective drawing of a live setting. Emphasis on understanding of proportions, silhouettes and details.

Unit-IV: Colour Theory **07 Hours**

a) Colour wheel, Primary, secondary, and tertiary colours, colour schemes, exercises in understanding of colour value and intensity.
b) Use of painting tools and materials like easels, brushes, paper, watercolour and poster colour.

Reference Books:

1. **Wong Wucius, Principles of Form and Design, Van Nostrand Rein Hold, New York, 1993**
2. **Chakrabarti Debkumar: Indian Anthropometric Dimensions, National Institute of Design, 1997, India**
3. **Ching Francis D K: Architecture: Form, Space and Order, John Wiley & Sons Inc, 2007, New Jersey**
4. **Wong Wucius: 'Principles of Colour composition' , Van Nostrand Rein Hold, New York, 1993**
5. **Cohen David & Anderson Scott: 'a visual language elements of design', Herbert Press,2006, Great Britain.**
6. **Schwarz Hans: Draw in pencil-charcoal, crayon and other media, Dolphin press, 1980, New Delhi**

Course delivery methods	Assessment methods
1. **Presentation**	1. **Exercise marking**
2. **Exercise**	2. **Exhibition**
3. **Model**	3. **Semester End Term Work**

Scheme of Continuous Internal Evaluation (CIE):

Components	Portfolio Marking	Average of two assignments	Quiz/Seminar/ Project	Class participation	Total Marks
Maximum Marks:50	40	-	-	10	50
➢ **Minimum marks required to qualify for SEE: 20 out of 50**					

Scheme of Semester End Examination (SEE):

1. Term work will be conducted for 50 marks for term work exam and same will be considered of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**
3. Students have to submit the portfolio at the end of the semester for SEE.

MODEL MAKING

Course Code	**18DES1.2**	**Credits**	**CA**
Course type	**PC**	**CIE Marks**	**100 Marks**
Hours/week: L-T-P	**3Hrs (Studio Exercises) per Week**	**SEE Marks**	**-**
Total Hours:	**Studio exercise = 42 Hrs ;** **Total = 42 Hrs.**	**SEE Duration**	**-**

Course learning objectives

To develop the ability to appreciate the three dimensional explorations of design and to introduce the students to the tools, techniques and materials used for model making.

Unit-I: Introduction to Model making and block modelling **12 Hours**

a) Introduction to concepts of model making and various materials used for model making.
b) Preparation of base for models using wood or boards.
c) Introduction to block models of buildings (or 3D Compositions) involving the usage of various materials like Thermocol, Soap/Wax, Boards, Clay etc.

Unit-II: Detailed Modelling **30 Hours**

a) Making detailed models which includes the representation of various building elements like Walls, Columns, Roofs, Steps, Windows/glazing, Sunshades, Handrails using appropriate materials
b) Representing various surface finishes like brick/stone representation, stucco finish etc. Various site elements – Contour representation, Roads/Pavements, Trees/Shrubs, Lawn, Water bodies, Street furniture, Fencing etc.

Reference Books:

1. **Dunn Nick, Architectural Model making, Laurence King Publishing, 2010.**

Course delivery methods	**Assessment methods**
1. Demonstration of material and technique	1. **Model marking**

Scheme of Continuous Internal Evaluation (CIE):

Components	**Model making**	**Average of two assignments**	**Quiz/Seminar/ Project**	**Class participation**	**Total Marks**
Maximum Marks:100	80	-	-	20	100

- **Note: This subject does not have Semester End Examination (SEE).**
- **Minimum marks required to pass CIE: 40 out of 100**

BUILDING CONSTRUCTION AND MATERIALS - I

Course Code	**18TEC 1.1**	**Credits**	**5**
Course type	**BS & AE**	**CIE Marks**	**50 marks**
Hours/week: L-T-P	**5 Hrs (1 Lecture + 2 Studios+2 studio Exercise) per Week**	**SEE Marks**	**50 marks**
Total Hours:	**Lecture = 14 Hrs** **Studio = 28 Hrs ; Studio exercise =28 Hrs** **Total = 70 Hrs**	**SEE Duration**	**Term work**

Course learning objectives

To introduce students to building components and usage of basic building materials and construction methods.

Unit – I: Introduction **10 Hours**

Introduction to various building components and their functions, conventions used in drawing plans, sections and elevations

Unit - II :Brick Technology **15 Hours**

a) Introduction
b) Brick as a Building material- Types, properties, uses and manufacturing methods.
c) Types of brick masonry - Walls, Wall junctions, Bonds, Buttresses, Arches, Lintels, Vaults and Domes.
d) Field visit to construction sites and hands on exploration of basic brick masonry bonds.

Unit – III: Stone Technology **15 Hours**

a) Introduction
b) Stone as a Building material- Types, properties, uses, methods of quarrying and types of dressing.
c) Types of stone masonry- Walls, Wall junctions, Bonds, Buttresses, Arches, Lintels, Vaults and Domes.
d) Field visit to see stone masonry buildings and hands on exploration of basic stone masonry.

Unit – IV: Foundation and Walls **20 Hours**

a) Introduction to Foundation
b) Function and types of foundation.
c) Load bearing foundations in Brick and Stone

Unit – V: Cement as a building material **10 Hours**

a) Introduction
b) Types of cement used in building, properties, grades and uses
c) Introduction to materials like fine and coarse aggregates, their sources etc.

Reference Books:

1. **Barry R, The Construction of Buildings, Volume 1, Blackwell Science, Seventh Edition 1999, Oxford, UK**
2. **Chudley R and Greeno R, Building Construction Handbook, Seventh Edition, Elsevier, 2008, Oxford, UK**
3. **Ching D. K, Building Construction Illustrated, Fourth Edition, John Wiley & Sons, 2008, New Jersey, USA**
4. **Rangawala S. C, Engineering Materials, 43rd edition, Charotar Publishing House Pvt. Ltd, 2017, India**

Course delivery methods	Assessment methods
1. **Lectures**	**1. Term work**
2. **Case study**	
3. **Site visit**	

Scheme of Continuous Internal Evaluation (CIE):

Components	Portfolio Marking	Average of assignment (two)/activity	Quiz/ seminar/ project	Class Participation	Total Marks
Maximum Marks:50	40	-	-	10	50
Minimum marks required to qualify for SEE : 20 out of 50					

Scheme of Semester End Examination (SEE):

1. Term work will be conducted for 50 marks for term work exam and same will be considered of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**
3. Students have to submit the portfolio at the end of the semester for SEE.

ARCHITECTURAL GRAPHICS-I

Course Code	**18TEC1.2**	**Credits**	**3**
Course type	**PC**	**CIE Marks**	**50 marks**
Hours/week: L-T-P	**4 Hrs. (1 Studio + 3 Studio Exercises) per Week**	**SEE Marks**	**50 marks**
Total Hours	**Studio = 14 Hrs; Studio Exercises = 42 Hrs; Total = 56 Hrs.**	**SEE Duration**	**Term Work**

Course learning objectives

1. To introduce the students to the fundamentals of drawing techniques.
2. To introduce students to the two-dimensional representations of built elements and built forms.
3. To develop the ability of the students to perceive three dimensional objects and enhance the visualization skills.

Unit – I : Introduction to Visual Representations and Euclidean Geometry **20 Hours**

a) Introduction to basic principles of drawing and lettering used in Architectural drawings.
b) Introduction to sign conventions used in drawings.
c) Concept of scale, dimensioning and its application in Architectural drawing.
d) Construction of Lines, Angles, Triangles, Quadrilaterals and Regular Polygons.
e) Construction of Plane Curves, Ellipse, Parabola, Hyperbola and Oval.

16 Hours

Unit – II : Orthographic Projection (First Angle Projection)

a) Principles of Orthographic Projection, Projection of Points, Lines, Planes and Solids.
b) Orthographic Projection of simple Architectural built elements and built forms.

Unit – III : 3D Projections – Isometric and Axonometric **20 Hours**

a) Introduction to Isometric Projections and views of solids.
b) Isometric views of simple built elements and built forms.
c) Introduction to Axonometric views of solids.
d) Axonometric views of simple built elements and built forms.

Reference Books:

1. **Ching Francis D. K: Architectural Graphics, John Wiley and Sons Inc., New York, 1996 and onwards.**
2. **Gopalkrishna K R: Engineering Graphics, Sree Offset, Bangalore, 1990 and onwards.**
3. **Bhatt N. D., Engineering drawing, Charotar Publishing House, 1986 and onwards.**

Course delivery methods	Assessment methods
1. Lectures	1. Term work evaluation

Scheme of Continuous Internal Evaluation (CIE):

Components	Portfolio marking	Average of assignments (Two)/Activities	Quiz/Seminar/ Project	Class Participation	Total Marks
Maximum Marks: 50	40	-	-	10	50
➢ **Minimum marks required to qualify for SEE: 20 out of 50.**					

Scheme of Semester End Examination (SEE):

1 Term work will be evaluated for 50 marks and the same will be considered for the calculation of SGPA and CGPA.

2 **Minimum marks required in SEE to pass: 20 out of 50.**

3 Students have to submit the portfolio at the end of the semester for SEE.

STRUCTURES-I

Course Code	**18TEC1.3**	**Credits**	**3**
Course type	**BS & AE**	**CIE Marks**	**50 marks**
Hours/week: L-T-P	**3 Hrs. (Lectures) per Week**	**SEE Marks**	**50 marks**
Total Hours:	**Lecture = 42 Hrs; Tutorial = 0 Hrs;Total = 42 Hrs**	**SEE Duration**	**3 Hours for 100 marks**

Course learning objectives

Introduce students to evolution of structures and the basic principles of governing structural systems.

Unit – I: Evolution of Structures Structural Systems and Structural materials 06Hours

a) Observation and analysis of structural systems present in the nature.
b) Historic perspective and definition of structure.
c) Vertical/lateral systems: Wall, Cantilever, Frame(Moment and Braced), Truss, Arch, Vault, Dome, Shell, Cable (Stayed and Suspended) and Membrane.
d) Mechanical properties of Structural Materials: Wood, Masonry, Steel and Concrete.
e) Advantages and Disadvantages of Structural Materials.
f) Choice of Structural Materials for Domestic and Industrial buildings.

Unit – II: Principles of Statics - Scalars and Vectors 09 Hours

a) Characteristics and Classification of Forces, Composition and Resolution of Forces.
b) Principle of transmissibility of Forces, resultant and equilibrant of coplanar, concurrent and non-concurrent Force systems.
c) Equations of static equilibrium.
d) Free-body diagrams.

Unit – III: Equilibrium of Force Systems 09Hours

a) Equilibrium of coplanar concurrent and coplanar non-concurrent force systems.
b) Support Reactions – Types of loading and support conditions and their significance.
c) Concept of statically determinate and indeterminate structures.
d) Determination of support reactions for statically determinate Beams and Trusses.

Unit – IV: Centroid and Moment of Inertia 09Hours

a) Determination of Centroid of simple lamina (symmetrical and asymmetrical).
b) Moment of Inertia and Radius of Gyration of simple cross-sections of beams and columns including built-up sections.
c) Concept of Polar Moment of Inertia (Basic theory and application of formulas for solving numerical problems).

Unit – V: Analysis of Truss 09Hours

a) Truss concept of triangulation, common truss configurations.
b) Definition of perfect, deficient and redundant trusses.
c) Introduction to methods of analysis of trusses (Only theory and no problems).

Text Books

1. **D.S. Bedi, M.P. Poonia, Engineering Mechanics, Khanna book publishing company Private Limited, 2018**
2. **Nitsure S. P. and Sawant H. J., "Elements of Civil Engineering and Mechanics", Technical Publications, 1st Edition (2014).**

Reference Books:

1. **Salvadori Mario: Structure in Architecture, the building of buildings.**
2. **Schierle G. G: Structure and Design.**

Course delivery methods	**Assessment methods**
1. **Lectures**	1. **Assignment**
2. **Power Point Presentation**	2. **I A Test**
3. **Videos**	3. **Semester end Exam**

Scheme of Continuous Internal Evaluation (CIE):

Components	**Total of two I.A. tests**	**Average of assignments (Two) /activity**	**Quiz/Seminar/ Project**	**Class Participation**	**Total Marks**
Maximum Marks:50	40	-	-	10	50

- ➢ Writing two IA tests is compulsory**.**
- ➢ **Minimum marks required to qualify for SEE: 20 out of 50**

Scheme of Semester End Examination (SEE):

1. It will be conducted for 100 marks of 3 Hours duration. It will be reduced to 50 marks for the calculation of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**
3. Question paper contains two questions from each unit each carrying 20 marks. Students have to answer one full question from each unit.

HISTORY OF ARCHITECTURE – I

Course Code	**18HUM1.1**	**Credits**	**3**
Course type	**PC**	**CIE Marks**	**50 marks**
Hours/week: L-T-P	**3Hrs. (Lecture) per Week**	**SEE Marks**	**50 marks**
Total Hours:	**Lecture = 42 Hrs; Tutorial = 0 Hrs; Total = 42Hrs.**	**SEE Duration**	**3 Hours for 100 marks**

Course learning objectives:

To provide an introduction to students about the culture and Architecture of early civilizations.

Unit I: Introduction **08 Hours**

a) What History education entails? Architecture's connection with History
b) Time Line: Western History and Indian History
c) Introduction to Pre-Historic Civilization: Primitive man - shelters, settlements, religious and burial systems E.g.: Oval hut at Nice, Dolmen tomb, Gallery grave, Passage grave, Houses at CatalHuyuk, Henge Monuments and Stone Henge.

Unit II: River Valley Cultures **10 Hours**

Introduction, Critical appreciation of works and synoptic study of Architectural characteristic features from the following periods:

a) Indus Valley Civilization: e.g. Layout of Mohenjo-Daro, House plan, Community well, Great Bath and Granary at Mohenjo-Daro
b) Tigris and Euphrates Valley Civilization: e.g. Ziggurats at Warka, Ur, TchogaZanbil and Palace of Sargon.
c) Nile Valley Civilization: e.g. Mastaba Tombs, Pyramid of Cheops, Temple of Khons at Karnak and Obelisk.

Unit III: Pre-Classical Cultures: Western **08Hours**

Introduction, Critical appreciation of works and synoptic study of Architectural characteristic features from the following periods:

a. Mycenea: e.g. Palace at Tiryns.
b. Persia: e.g. Palace of Persepolis.
c. Etruscan: e.g. Temple of Juno Sospita.

Unit IV: Pre-Classical Cultures: Vedic and Buddhist **08 Hours**

a. Pre-classical Aryan and Mauryan: Vedic and Epic Age Salient features e.g. – Vedic Village.
b. Early Buddhist Rock-cut Architecture: Experiments at Barabar Hills-Lomas Rishi Cave, Sudama Cave and Nagarjun Hills-SitaMarhi Cave.

Unit V: Classical Cultures: Buddhist and Jain **08 Hours**

a) Buddhist: Study of design principles. Typologies:Stupa (Great Stupa at Sanchi), Chaitya (Chaitya at Karli), Viharas(Viharas at Ajanta), and Toranas(Torana at Sanchi)
b) Jain Architecture: Study of design principles. Typologies: Temples (Adinatha Temple at Ranakpur and Vimala Vasai at Mount Abu).

Reference Books:

1 **Fletcher Banister: A History of Architecture, CBS publishers & distributors, 1992, India.**
2 **Brown Percy: Indian Architecture, Buddhist and Hindu Period, D B Taraporevala sons & co, 1983, Bombay.**
3 **Grover Satish: Architecture of India – Buddhist and Hindu, vikas publishing house pvt. Ltd. 1980, New Delhi.**
4 **Tomory Edith: History of Fine Arts in India and The West, Orient Longman ltd., 1982, New Delhi.**

Course delivery methods	**Assessment methods**
1. Lectures	**1. Assignments**
2. Documentary Videos	**2. Internal Assessment Test**
	3. Semester End Examination

Scheme of Continuous Internal Evaluation (CIE):

Components	**Total of two I.A. tests**	**Average of two assignments**	**Quiz/Seminar/ Project**	**Class participation**	**Total Marks**
Maximum Marks:50	40	-	-	10	50

- Writing two IA tests is compulsory
- **Minimum marks required to qualify for SEE: 20 out of 50**

Scheme of Semester End Examination (SEE):

1. It will be conducted for 100 marks of 3 Hours duration. It will be reduced to 50 marks for the calculation of SGPA and CGPA.

2. **Minimum marks required in SEE to pass: 20 out of 50**

3. Question paper contains two questions from each unit each carrying 20 marks. Students have to answer one full question from each unit.

COMMUNICATION SKILLS

Course Code	**18HUM1.2**	**Credits**	**1**
Course type	**SEC**	**CIE Marks**	**100 Marks**
Hours/week: L-T-P	**1 Hr. (Lecture) per Week**	**SEE Marks**	**-**
Total Hours	**Lectures=14 Hrs; Total = 14 Hrs**	**SEE Duration**	**-**

Course learning objectives:

To develop skills in effective communication – reading, listening, written and verbal

Unit I: Reading and Listening **04 Hours**

a) Reading of a passage from famous book and discussion on the same.
b) Listening to an audio clip and discussion on the same

Unit II: Writing **04 Hours**

a) Understanding the difference between formal and informal letters etc.
Exercise: Students to Write /draw a letter to fellow architects, clients, public authorities, contractors, enquiries to industries, dealers.
b) Introduction and discussion on exploratory topic for a brief essay
c) Observation based writing.

Unit III: Interpretation of Materials **02 Hours**

a) Notes taking: From spoken and written English.
b) Comprehension of lectures and speeches to locate key points

Unit IV: Verbal presentations **04 Hours**

Understanding the differences among seminars, conferences, convention, congress, debates, extempore speeches, panel discussions.
Exercise: Students shall write a brief abstract of 200 words on a topic.

Reference Books:

1. **Working in English: Teachers Book, Jones Leo.**
2. **Communicative English for Professional Courses**

Course delivery methods	**Assessment methods**
1. **Lectures**	1. **Assignments**

Scheme of Continuous Internal Evaluation (CIE):

Components	**Exercise Marking**	**Average of two assignments**	**Quiz/Seminar/ Project**	**Class participation**	**Total Marks**
Maximum Marks:100	80	-	-	20	100

- **Note: This subject does not have Semester End Examination (SEE).**
- **Minimum marks required to pass CIE: 40 out of 100.**

2nd Semester B.Arch

ARCHITECTURAL DESIGN – I

Course Code	**18DES2.1**	**Credits**	**10**
Course type	**PC**	**CIE Marks**	**50 Marks**
Hours/week: L-T-P	**7 Hrs (1 Lecture+6 Studios) per Week**	**SEE Marks**	**50 Marks**
Total Hours:	**Lecture = 14 Hrs; Studios = 84 Hrs, Total = 98 Hrs**	**SEE Duration**	**Term Work**

Course learning objectives:

1.To develop an understanding of Elements of space making.
2.To study individual variables like light, colour, texture, scale etc. in the formation and evolution of architectural form.

Unit I: Elements of Space Making: 35 Hours

a) Understanding the Elements of space making like Floor, Wall, Roof, Openings, Staircases and Columns.
b) Space making exercises with proper understanding of context and using variables like light, colour, texture and scale with the help of models and sketches.

Unit II: Design Project: 63 Hours

a) Introduction of basic terminology and their location in an architectural space such as concept of plinth, sill level, lintel level, slab level, etc. and their relevance in architectural space making.
b) Design of a mono-functional space (like living, dining, kitchen and bedroom) exploring the possibilities of built, unbuilt and in-between spaces
c) Project shall be formulated as a process of understanding the various elements of space making. Project for e.g. Residence, Weekend house, Guest house or project of similar nature and scale shall be chosen.

Reference Books:

1. **Edwards Brain: Understanding Architecture through drawing, Taylor and Francis, 2008, New York.**
2. **PandyaYatin: Elements of Space making, Mapin Publishing, 2007, India.**
3. **Knauer Roland: Transformation - Basic principles and methodology of design, James Gussen, 2008, Germany.**

Course delivery methods	Assessment methods
1. **Presentation**	1. **Submission marking**
2. **Case Study**	2. **Exhibition**
3. **Model**	3. **Semester End Term Work**

Scheme of Continuous Internal Evaluation (CIE):

Components	Portfolio Marking	Average of two assignments	Quiz/Seminar/ Project	Class participation	Total Marks
Maximum Marks:50	40	-	-	10	50
➢ **Minimum marks required to qualify for SEE: 20 out of 50**					

Scheme of Semester End Examination (SEE):

1. Term work will be conducted for 50 marks for term work exam and same will be considered of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**
3. Students have to submit the portfolio at the end of the semester for SEE.

BUILDING CONSTRUCTION AND MATERIALS – II

Course Code	**18TEC 2.1**	**Credits**	**5**
Course type	**BS & AE**	**CIE Marks**	**50 marks**
Hours/week: L-T-P	**5 Hrs (1 Lecture + 2 Studios+2 studio Exercise) per Week**	**SEE Marks**	**50 marks**
Total Hours:	**Lecture = 14 Hrs Studio = 28 Hrs ; Studio exercise =28 Hrs ; Total = 70 Hrs**	**SEE Duration**	**Term work**

Course learning objectives

To acquaint students with Techniques and Practices pertaining to Timber as construction material.

Unit – I Timber Roofs **16 Hours**

a) Introduction
b) Lean to roof, King post, Queen post, Mansard roof and Collard roof.

Field visit to study and document timber roofs

Unit – II Timber Doors **20 Hours**

a) Introduction
b) Types- Batten door, Ledged door, Braced door, Panelled door, Flush door, Glazed door and Joinery details

Unit – III Timber Windows **20 Hours**

a) Introduction
b) Types-Glazed window, Panel Window and its joinery details.

Note: Field visit to study different types of timber doors and windows and explore various types of carpentry joinery details

Unit – IV Timber and Commercial Wood **14 Hours**

a) Introduction
b) Quality of timber, defects, Seasoning, Preservation, Natural, Hardwood and Softwood,
c) Uses of commercial wood, plywood, hardboard, particle board, block board, veneers, laminates and MDF etc.
d) Anti-termite Treatment and pest control.
e) Market study and sample collection of various commercial wood products, anti-termite and pest control products

Reference Books:

1. **Barry R, The Construction of Buildings, Volume 1, Blackwell Science, Seventh Edition 1999, Oxford, UK.**
2. **Chudley R and Greeno R, Building Construction Handbook, Seventh Edition, Elsevier, 2008, Oxford, UK.**
3. **Ching D. K, Building Construction Illustrated, Fourth Edition, John Wiley & Sons, 2008, New Jersey, USA.**

4. **Rangawala S. C, Engineering Materials, 43rd edition, Charotar Publishing House Pvt. Ltd, 2017, India.**

Course delivery methods	Assessment methods
1. **Lectures**	**1. Term work**
2. **Case study**	
3. **Site visit**	

Scheme of Continuous Internal Evaluation (CIE):

Components	Portfolio Marking	Average of assignment (two)/activity	Quiz/ seminar/ project	Class Participation	Total Marks
Maximum Marks:50	40	-	-	10	50
Minimum marks required to qualify for SEE : 20 out of 50					

Scheme of Semester End Examination (SEE):

1. Term work will be conducted for 50 marks for term work exam and same will be considered of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**
3. Students have to submit the portfolio at the end of the semester for SEE.

ARCHITECTURAL GRAPHICS-II

Course Code	**18TEC2.2**	**Credits**	**3**
Course type	**PC**	**CIE Marks**	**50 marks**
Hours/week: L-T-P	**4 Hrs. (1 Studio + 3 Studio Exercises) per Week**	**SEE Marks**	**50 marks**
Total Hours	**Studio = 14 Hrs; Studio Exercises = 42 Hrs; Total = 56 Hrs.**	**SEE Duration**	**Term Work**

Course learning objectives:

1. To develop the ability of the students to perceive three dimensional objects and enhance the visualization skills
2. To develop the rendering skills of the students

Unit – I : Sections of Solids **12 Hours**

a) Sections of basic solids.
b) True shapes of sections.

Unit – II : Interpenetration of Solids **20 Hours**

Interpenetration of various solids like cube, cylinder, prism, pyramid and cone.

Unit – III : Perspective **12 Hours**

a) Introduction to Perspective drawing: Brief study of history and development of perspective drawings.
b) Terminology in Perspective drawing: Station point, Picture plane, Vanishing point, Eye level and Horizon line.
c) One-point Perspective: Simple objects, built forms and interiors.
d) Two-point interior perspective: Simple objects. built elements and built forms.
e) Approximation method of perspective drawing of buildings, human figures, street furniture, etc.

Unit – IV : Sciography : **12 Hours**

a) Introduction
b) Study of principles of shades and shadows in plan and elevation of simple built elements and built forms.

Reference Books:

1. **Ching Francis D. K: Architectural Graphics, John Wiley and Sons Inc., New York, 1996 and onwards.**
2. **Gopalkrishna K R: Engineering Graphics, Sree Offset, Bangalore, 1990 and onwards.**
3. **Bhatt N. D., Engineering drawing, Charotar Publishing House, 1986 and**

onwards.

4. **Norling Ernest R., Perspective Made Easy, Dover Publications Inc., New York, 1999 and onwards.**

5. **Powell William F., Perspective, Walter Foster Publishing, Laguna Hills, CA, 1989 and onwards.**

6. **Mulik Shankar, A Text Book of Perspective and Sciography, Allied Publishers Ltd., Ahmedabad,1994 and onwards.**

Course delivery methods	**Assessment methods**
1. Lectures	**1. Term work evaluation**

Scheme of Continuous Internal Evaluation (CIE):

Components	**Portfolio marking**	**Average of assignments (Two)/Activities**	**Quiz/Seminar/ Project**	**Class Participation**	**Total Marks**
Maximum Marks: 50	40	-	-	10	50
➢ **Minimum marks required to qualify for SEE: 20 out of 50.**					

Scheme of Semester End Examination (SEE):

1 Term work will be evaluated for 50 marks and the same will be considered for the calculation of SGPA and CGPA.

2 **Minimum marks required in SEE to pass: 20 out of 50.**

3 Students have to submit the portfolio at the end of the semester for SEE.

STRUCTURES-II

Course Code	**18TEC2.3**	**Credits**	**3**
Course type	**BS&AE**	**CIE Marks**	**50 marks**
Hours/week: L-T-P	**3 Hrs. (Lectures) per Week**	**SEE Marks**	**50 marks**
Total Hours:	**Lecture = 42 Hrs; Tutorial=0 Hrs; Total = 42Hrs**	**SEE Duration**	**3 Hours for 100 marks**

Course learning objectives:

1. To understand the basic principles of structural mechanics so that it forms the basis for study of structural design.
2. To give an introduction to the basic principles governing the structural behaviour of beams

Unit – I:Basic Principles of Mechanics 08Hours

a) Tension, Compression, Shear, Bending, Torsion; symbols and notations, Stress/Strain relations (Hooke's Law).
b) Types of Stresses (Compressive, Tensile, Bending, Shear) and Strain (Axial, Shear, Volumetric) with simple problems.
c) Modulus of Elasticity, Typical Stress-Strain behaviour of Steel and Concrete.
d) Elastic constants, Rigidity Modulus, Poisson's Ratio, Bulk Modulus and Shear Modulus.
e) Relations between Modulus of Elasticity and Modulus of Rigidity.
f) Application to uniform sections with simple problems.

Unit – II: Bending Moment and Shear Force Diagrams 09Hours

a) Concept of Shear Force and Bending Moment.
b) Relationship among Load, Shear force and Bending Moment.
c) BMD and SFD for statically determinate Beams subjected to combinations of concentrated and uniform loadings.

Unit – III:Bending and Shear Stresses for Beams 09Hours

a) Theory of Bending with assumptions, Flexure Formula.
b) Bending Stress distribution for simple sections (symmetrical about vertical axis).
c) Strength of a section, equation for Shear stress distribution across a section, Shear Stress distribution for simple sections. (Only diagrams for rectangle, T and I Section).

Unit – IV: Columns and Struts 09Hours

a) Differentiation between short and long column.
b) Concept of effective length, slenderness ratio and critical load.
c) Euler's formula for different end conditions.
d) Failure of Euler's Theory.

Unit – V: Slope and Deflection 07Hours

a) Concept and application to Cantilever and Simply supported beams using Maclauy's

method with

1. Point load
2. Udl for entire span.

Text Books:

1. **Bansal R K: Strength of Materials, Laxmi Publications, New Delhi, Third Edition**
2. **S.S.Bhavikatti:Strength of Materials, Vikas Publishing House, Second Edition.**

Reference Books:

1. **Salvadori Mario: Structure in Architecture, the building of buildings.**
2. **Basavarajaiah B. S., Mahadevappa P. "Strength of Materials in SI Units", University Press (India) Pvt. Ltd., 3rd Edition, 2010**

Course delivery methods	Assessment methods
1. **Lectures**	1. **Assignment**
2. **Power Point Presentation**	2. **IA Test**
3. **Videos**	3. **Semester End Exam**

Scheme of Continuous Internal Evaluation (CIE):

Components	Total of two IA tests	Average of assignments (Two) /activity	Quiz/ Seminar/ Project	Class Participation	Total Marks
Maximum Marks:50	40	-	-	10	50

- ➢ Writing two IA tests is compulsory.
- ➢ **Minimum marks required to qualify for SEE: 20 out of 50**

Scheme of Semester End Examination (SEE):

1. It will be conducted for 100 marks of 3 Hours duration. It will be reduced to 50 marks for the calculation of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**
3. Question paper contains two questions from each unit each carrying 20 marks. Students have to answer one full question from each unit.

SURVEYING AND LEVELLING

Course Code	**18TEC2.4**	**Credits**	**3**
Course type	**BS&AE**	**CIE Marks**	**50 marks**
Hours/week: L-T-P	**04 (02 Lecture+02 Practical)**	**SEE Marks**	**50 marks**
Total Hours:	**Lecture = 28 Hrs; Practical= 28Hrs ; Total = 56 Hrs**	**SEE Duration**	**3 Hours for 100 marks**

Course learning objectives:

To develop the skills and knowledge related to Surveying and Levelling Principles and practice.

Unit – I Introduction **12 Hours**

Definition, Classification, Principles of surveying, Units of measurement, Shrunk Scale

12 Hours

Unit – II Chain Survey

Instruments used, Types of chain, Instruments for ranging, erecting perpendiculars and Obstacles in chaining.

12 Hours

Unit – III Plane Table Survey and Theodolite

a) Introduction to Plane table- Plane table and accessories, Methods of plane table survey, Radiation, Intersection, Traversing and resection, Two point and Three point problems and their solutions.
b) Introduction to Theodolite - Definition of different terms, Temporary adjustments, Uses, Measuring horizontal and vertical angles, Method of repetition

12Hours

Unit – IV Levelling

Definition, Classification, Booking and reduction of levels, Errors in levelling.

08 Hours

Unit – V Contouring and Total Station Survey

a) Characteristics of contours, Direct and indirect methods of contouring, Understanding of Contours.
b) Introduction to total station survey.

Text Books:

1. **Punmia B. C. , Surveying Volume I, Standard book House, 1980**
2. **Kanetkar T. P. and Kulkarni S. V., Surveying and Leveling (Part 1), Vidhyarathi, GrihaPrakarranPuna, 1981.**

Reference Books:

1. **B.C. Punmia, Ashok Kumar Jain, Arunkumar Jain., Surveying - Vol. 1., Laxmi Publications pvt.ltd, 2005**

Course delivery methods	**Assessment methods**
1. **Lectures**	1. **Assignment**
2. **Power Point Presentation**	2. **IA Test**
3. **Videos**	3. **Semester End Exam**

Scheme of Continuous Internal Evaluation (CIE):

Components	Total of two IA tests	Average of assignments (Two) /activity	Quiz/Seminar/ Project	Class Participation	Total Marks
Maximum Marks:50	40	-	-	10	50
➢ Writing two IA tests is compulsory. ➢ **Minimum marks required to qualify for SEE: 20 out of 50**					

Scheme of Semester End Examination (SEE):

1. It will be conducted for 100 marks of 3 Hours duration. It will be reduced to 50 marks for the calculation of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**
3. Question paper contains two questions from each unit each carrying 20 marks. Students have to answer one full question from each unit.

HISTORY OF ARCHITECTURE – II

Course Code	**18HUM2.1**	**Credits**	**3**
Course type	**PC**	**CIE Marks**	**50 marks**
Hours/week: L-T-P	**3Hrs. (Lecture) per Week**	**SEE Marks**	**50 marks**
Total Hours:	**Lecture = 42 Hrs; Tutorial = 0 Hrs; Total = 42Hrs.**	**SEE Duration**	**3 Hours for 100 marks**

Course learning objectives

To present students an overview of the History of Architecture of Greece, Roman, Early Christian, Byzantine, Romanesque and Gothic. To develop the appropriate skills of reading, discussion and writing as well as understanding of the spatial experience of buildings in order to appreciate the complexity of the influences bearing on architecture, as reflected in the major historical periods.

Unit I : Greek Architecture **08 Hours**

a) Introduction: Critical appreciation of works and synoptic study of architectural characteristic features. Study of Design principles and study of orders: Optical Corrections, Doric, Ionic and Corinthian.
b) Typologies: Temples (Parthenon), Theatres (Theatre at Epidaurus) and Acropolis.

Unit II: Roman Architecture **10 Hours**

a) Introduction: Critical appreciation of works and synoptic study of architectural characteristic features. Study of Design principles and study of Orders: Doric, Ionic, Corinthian, Composite, Tuscan.
b) Typologies: Temples (Pantheon), Amphitheatre (Colosseum), Thermae (Thermae of Caracalla), Aqueduct (Pont du Garde at Nimes), Basilica (Basilica of Trajan), Triumphal Arch (Arch of Septimius Severus) and Pillar of Victory (Column of Trajan).

Unit III: Early Christian and Byzantine **08 Hours**

a) Early Christian: How architecture evolved as religious practice and study of design principles. Typology: Church (Church of St.Peter's, Rome and St. Clemente, Rome)
b) Byzantine: Study of design principles. Typology: Church (Hagia Sophia, Constantinople).

Unit IV: Medieval Architecture **08 Hours**

a) Introduction: Critical appreciation of works and synoptic study of architectural characteristic features. Study of Design principles.
b) Typologies: Cathedral (Pisa Cathedral), Bell Tower (The Campanile, Pisa) and Baptistery (Baptistery, Pisa)

Unit V: Gothic Architecture **08 Hours.**

a) Introduction: Critical appreciation of works and synoptic study of architectural characteristic features and study of Design principles.
b) Typologies: Church (Notre Dame, Paris and Chartres Cathedral, Paris).

Reference Books:

1. **Fletcher Banister: A History of Architecture, CBS publishers & distributors, 1992, India.**
2. **Stierlin Henri: Greece, Taschen, 1997, Germany.**
3. **Stierlin Henri: The Roman Empire, Volume I, Taschen, 1996, Italy.**
4. **Xavier Barral I Altet: The Romanesque, Taschen, 1998, Italy.**
5. **Binding Gunther: High Gothic: References Taschen, 1999, Italy.**

Course delivery methods	**Assessment methods**
1. Lectures	**1. Assignments**
2. Documentary Videos	**2. Internal Assessment Test**
	3. Semester End Examination

Scheme of Continuous Internal Evaluation (CIE):

Components	**Total of two I.A. test**	**Average of two assignments**	**Quiz/Seminar/ Project**	**Class participation**	**Total Marks**
Maximum Marks:50	40	-	-	10	50

- Writing two IA tests is compulsory
- **Minimum marks required to qualify for SEE: 20 out of 50**

Scheme of Semester End Examination (SEE):

1. It will be conducted for 100 marks of 3 Hours duration. It will be reduced to 50 marks for the calculation of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**
3. Question paper contains two questions from each unit each carrying 20 marks. Students have to answer one full question from each unit.

ART APPRECIATION

Course Code	**18HUM2.2**	**Credits**	**2**
Course type	**PC**	**CIE Marks**	**100 marks**
Hours/week: L-T-P	**2 Hrs (2 Lecture) per Week**	**SEE Marks**	**_ _**
Total Hours:	**Lecture = 28 Hrs** **Total = 28 Hrs**	**SEE Duration**	**_ _**

Course learning objectives:

1. To understand Visual Art Forms and their Cultural Connections
2. To encourage students to appreciate fields of Arts and to make a piece of Art and Exhibit

Unit I: Introduction to Work of Art **08 Hours**

a) The Humanities: A study of Values and Taste
b) Response to Art, Identifying Art Conceptually and Perceptually
c) Participation, Artistic form, Content and Subject matter of Art form

Unit II: History of Art and Critic of Art **08 Hours**

a) Overview of Art and its progression through History, Important works of Art and Artists
b) Brief history of Western Art- The Renaissance- 17th Century- 18th Century- 19th Century- The impressionism and Beyond-Art Deco and ArtNouveau-Cubism - Abstraction-Surrealism-Modern Art: Post Cubism to 1980- Contemporary Art From 1980
c) The Art market- Participation and Criticism - Types

Unit III: Painting **04 Hours**

a) The Media of Paintings-Elements of Painting-Characteristics of Paintings-Types (Abstract and Representational)
b) Styles of Painting and understanding works of major Artists.

Unit IV: Sculpture **04 Hours**

Sensory Interconnection- Sculpture and Space - Types- Sculpture and Human body - Techniques and Materials of Sculpture making.

Unit V: Architecture **04 Hours**

a) Space and Architecture-Types of Spaces-Necessities of Architecture-Types of Architecture
b) Interrelationship between Art and Architecture

Reference Books:

1. **Martin David F and Jacobus Lee: The Humanities through Arts, Ninth Edition, McGraw Hill education, New York, USA, 2011**
2. **Getlein Mark: Living with Art, Tenth edition, Mc Graw Hill education, New York, USA, 2012**

Course delivery methods	Assessment methods
1. Presentation	1. **Exercise marking**
2. Exercises	

Scheme of Continuous Internal Evaluation (CIE):

Components	Portfolio Marking	Average of two assignments	Quiz/Seminar/ Project	Class Participation	Total Marks
Maximum Marks: 100	80	-	-	20	100
➢ **Note: This subject does not have Semester End Examination (SEE).** ➢ **Minimum passing marks: 40 out of 100**					

ESTD. 1939

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GOGTE INSTITUTE OF TECHNOLOGY
"JNANA GANGA" UDYAMBAG, BELAGAVI-590008,
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ESTD. 1979

2018-19 Scheme

Department: Architecture

Programme: B.Arch

1st to 10th Semester Scheme of Teaching and Examination

3rd and 4th Semester Syllabus

BATCH _2018

Karnatak Law Society's

GOGTE INSTITUTE OF TECHNOLOGY, BELAGAVI-08

Bachelor of Architecture

SCHEME OF TEACHING AND EXAMINATION

Department :Architecture **Semester: III**

Subject Stream	Subject Code	Course Type	Subject Title	Teaching Department	Contact Hrs				Credits	Marks					Duration of Exam
					L	S	P/SE	Total		CIE		SEE		Total	
										CP	PA	VIVA/TW	EXAM		
DESIGN	18DES 3.1	PC	Architectural Design -II	Architecture	1	6	0	7	10	10	40	50	-	100	-
	18DES 3.2	BS&AE	Climatology	Architecture	3	0	0	3	3	10	40	-	50	100	3 hrs
TECHNOLOGY	18TEC 3.1	BS&AE	Building Construction and Materials-III	Architecture	1	2	2	5	5	10	40	50	-	100	-
	18TEC 3.2	BS&AE	Building Services-I	Architecture	3	0	0	3	3	10	40	-	50	100	3 hrs
	18TEC 3.3	BS&AE	Structures-III	Architecture	3	0	0	3	3	10	40	-	50	100	3 hrs
	18TEC 3.4	SEC	Computer Application-I	Architecture	1	0	2	3	2	10	40	50	-	100	-
HUMANITIES	18HUM 3.1	PC	History of Architecture-III	Architecture	3	0	0	3	3	10	40	-	50	100	3 hrs
	18HUM 3.2	PC	Vacation Assignment-I	Architecture	0	0	0	0	CA	20	80	-	-	100	-
				Total	15	8	4	27	29	90	360	150	200	800	

L-Lecture **CIE- Continuous Internal Evaluation** **CP-Class Participation**

S-Studio **SEE- Semester End Examination** **PA-Progressive Assessment** **CA-Compulsory Audit**

P-Practical PC - Professional Core; BS&AE- Building Science and Applied Engineering; PE- Professional Elective; OE- Open Elective

SE - Studio Exercise PAECC - Professional Ability Enhancement Compulsory Courses; SEC - Skill Enhancement Courses.

Minimum Marks for passing: Theory, Studio and Lab Marks (CIE) : 40%, Term Work/ Viva/Lab(SEE) : 40% Theory Marks (SEE) : 40%,

Note: Students are to be taken on study tour or given vacation assignment after II semester examinations, before the starting of III semester

BATCH _2018

Karnatak Law Society's

GOGTE INSTITUTE OF TECHNOLOGY, BELAGAVI-08

Bachelor of Architecture

SCHEME OF TEACHING AND EXAMINATION

Department :Architecture **Semester: IV**

Subject Stream	Subject Code	Course Type	Subject Title	Teaching Department	Contact Hrs				Credits	Marks					Duration of Exam
					L	S	P/SE	Total		CIE		SEE		Total	
										CP	PA	VIVA/TW	EXAM		
DESIGN	18DES 4.1	PC	Architectural Design -III	Architecture	1	6	0	7	10	10	40	50	-	100	-
TECHNOLOGY	18TEC 4.1	BS&AE	Building Construction and Materials-IV	Architecture	1	2	2	5	5	10	40	50	-	100	-
	18TEC 4.2	BS&AE	Building Services-II	Architecture	3	0	0	3	3	10	40	-	50	100	3 hrs
	18TEC 4.3	BS&AE	Structures-IV	Architecture	3	0	0	3	3	10	40	-	50	100	3 hrs
	18TEC 4.4	SEC	Computer Application-II	Architecture	1	0	2	3	2	10	40	50	-	100	-
HUMANITIES	18HUM 4.1	PC	History of Architecture-IV	Architecture	3	0	0	3	3	10	40	-	50	100	3 hrs
	18HUM 4.2	PC	Humanities	Architecture	1	0	2	3	2	20	80	-	-	100	-
				Total	13	8	6	27	28	80	320	150	150	700	

L-Lecture **CIE- Continuous Internal Evaluation** **CP-Class Participation**

S-Studio **SEE- Semester End Examination** **PA-Progressive Assessment** **CA-Compulsory Audit**

P-Practical PC - Professional Core; BS&AE- Building Science and Applied Engineering; PE- Professional Elective; OE- Open Elective

SE - Studio Exercise PAECC - Professional Ability Enhancement Compulsory Courses; SEC - Skill Enhancement Courses.

Minimum Marks for passing: Theory, Studio and Lab Marks (CIE) : 40%, Term Work/ Viva/Lab(SEE) : 40% Theory Marks (SEE) : 40%,

3rd Semester B.Arch.

ARCHITECTURAL DESIGN – II

Course Code	**18DES3.1**	**Credits**	**10**
Course type	**PC**	**CIE Marks**	**50 marks**
Hours/week: L-T-P	**7Hrs. (1Lecture+6Studio) per Week**	**SEE Marks**	**50 marks**
Total Hours:	**Lecture= 14 Hrs; Studio=84 Hrs Total= 98 Hrs**	**SEE Duration**	**Viva**

Course learning objectives

1.To introduce students to the techniques of reading physical context and cultural context related to the built environment, such as site, site surroundings, climate, culture, etc. of the region.
2.To enable students to demonstrate a design solution which responds to context.

Unit - I: Introduction to Context and Architectural Response 08 Hours

Students will be introduced to the 'Theory of Context' related to built environment. Further students will present the literature case studies on works of Master architects, exploring ideas of cultural and physical contexts by analyzing the prominent buildings and presenting the outcome in the form of analytical drawings that will demonstrate the process of development of built form in response to Physical and Cultural Context.

Unit - II: Design Project 90 Hours

Major Design Project:
Project shall deal with two or more distinct contexts with identical design programme. Students shall study various elements of Physical and Cultural contexts like Site, Site surroundings, Climate, Culture, Architectural character of the region etc. The same shall be represented in the form of data collection using maps, sketches, abstract diagrams etc. Project, for e.g. design of Museum, Community center, Recreational club,Cultural Centre,, Primary School or project of similar nature and scale shall be chosen.
The study shall be demonstrated in the form of detailed scaled drawings.

Design Methodology:

The entire design process comprises of various stages of reading the context, understanding design and context through various stages such as case study, site selection and analysis, data collection, concept, conceptual design sketches, design drawings and final design submission.

Reference Books:

1. **Yi-fu Tuan, Space and Place, University of Minnesota Press, 25th edition, London,2001 and onwards**
2. **Benjamin Andrew, Architectural Philosophy- Repetition, Function and Alterity, Continuum International Publishing Group Ltd, 2000 and onwards**
3. **Leach Neil, Rethinking Architecture: Reader in Cultural Theory, T&F, 1997 and onwards**
4. **Tschumi Bernard, Event-Cities 3: concept vs. content, MIT Press c2004.**

Course delivery methods	**Assessment methods**
1. Lectures	**1. Case study report assessment**
2. Case Study presentation	**2. Design Reviews**
3. Site study	**3. Design Viva**
4. Design Discussions	

Scheme of Continuous Internal Evaluation (CIE):

Components	**Portfolio Marking**	**Average of assignments (Two) /activity**	**Quiz/ Seminar/ Project**	**Class Participation**	**Total Marks**
Maximum Marks:50	40	-	-	10	50
➢ **Minimum marks required to qualify for SEE: 20 out of 50**					

Scheme of Semester End Examination (SEE):

1. It will be conducted as 50 marks Viva-Voce exam and same will be considered for the calculation of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**

CLIMATOLOGY

Course Code	**18DES3.2**	**Credits**	**3**
Course type	**BS &AE**	**CIE Marks**	**50 Marks**
Hours/week: L-T-P	**3Hrs. (3Lecture) per Week**	**SEE Marks**	**50 Marks**
Total Hours:	**Lecture = 42 Hrs; Tutorial = 0 Hrs; Total = 42 Hrs**	**SEE Duration**	**3 Hours for 100 marks**

Course learning objectives

1. To develop the knowledge required for understanding the influence of Climate on Architecture.
2. To acquaint students with Design considerations for Hot –Dry, Warm-Humid and Composite climatic zones.

Unit-I: Characteristics, Types of Climate and Site Climate **08 Hours**

a) Introduction to Climatology, Relation to Architecture, Role of the Designer. Relevance of climatic aspects in Architecture with some examples of Vernacular Architecture, like Bhunga houses and Kerala House. Elements of climate, measurement and representations of climatic data. Classifications and Characteristics of tropical climates. Major climatic zones of India.
b) Site Climate: Natural factors and built elements affecting site climate.

Unit-II: Thermal Comfort and Thermal Performance **08 Hours**

a) Thermal Comfort Factors and Balance, Body's Mechanism of Heat Production and Loss, Methods of Heat Transfer, Definitions of Thermal comfort indices like Effective Temperature and CET. Heat Exchange of Buildings, Internal Heat Gain/ Loss, definitions of Sol Air Temperature, Solar Gain Factor.
b) Thermal performance of building elements and construction techniques. Definitions of Periodic heat flow, Conductance, Resistance, Surface Conductance, U value, Time Lag & decrement factor, the Effect of Different Materials and Multilayered Bodies-Insulation/Cavity, and construction techniques for improving thermal performance of walls and roofs.
c) Study of building examples to understand the use of materials in Architecture e.g. Jodhpur University by Ar. Uttam Jain and IIM-Bengaluru by Ar. B.V.Doshi.

Unit-III: Sun Path and Shading Devices **08 Hours**

a) Sun path diagram, use of solar charts in climatic design, Types of shading devices.
b) Study of different traditional shading devices like Jharokha, Jaali walls and contemporary shading devices. Building examples to understand different shading devices shall include CEPT, Ahmedabad, Tower of shadows, High Court and Legislative building, Chandigarh.

Unit-IV: Natural Ventilation and Daylighting **08 Hours**

a) Functions of natural ventilation, Stack effect, effects of openings and external features on internal air flow, air movements around buildings.
b) DayLighting: Daylight Factor, components of daylight factor, Advantages and

limitations in different climatic zones, Light from walls and roof.

Self-Learning Topics: Study of examples of stack effect and natural ventilation in hot and dry climate and warm-humid climate in vernacular and contemporary Architecture.

Unit-V: Climatic Design Considerations **10 Hours**

a)Design considerations for buildings in Hot –Dry, Warm-Humid and Composite climatic zones.

b) Case Studies to understand climate responsive design considerations,like Sangath - Ahmedabad, Verem Housing - Goa and Asaid Games Village, Delhi.

Self-Learning Topics: Study of Case studies of buildings designed for climate responsiveness for understanding design considerations in Hot –Dry, Warm-Humid and Composite climatic zones.

References Books:

1 **Koenigsberger and Ingersol, Manual of Tropical Housing & Buildings (Part-II), Universities Press/Orient Blackswan, 1985 and onwards.**

2 **Krishnan Arvind, Baker & Szokolay, Climate Responsive Architecture, Tata McGraHill, New Delhi, 2001 and onwards.**

3 **MujumdarMilli, Energy efficient buildings, TERI India publications, 2002 and onwards.**

4 **Rudofsky Bernard, Architecture without Architects, A Short Introduction to Non-Pedigreed Architecture, University of New Mexico Press, July 1st 1987 and onwards.**

5 **Fry Maxwell and Drew Jane, Tropical Architecture in the Dry and Humid Zones, Batsford, London, 1964 and onwards**

Course delivery methods	Assessment methods
1. Lectures	**1. Assignments**
2. Documentary Videos	**2. Internal Assessment Test**
	3. Semester End Examination

Scheme of Continuous Internal Evaluation (CIE):

Components	Total of two IA tests	Average of assignments (Two) /activity	Quiz/ Seminar/ Project	Class Participation	Total Marks
Maximum Marks:50	40	-	-	10	50
➢ Writing two IA tests is compulsory. ➢ **Minimum marks required to qualify for SEE: 20 out of 50**					

Self Study topics shall be evaluated during CIE (Assignments and IA tests) and 10% weightage shall be given in SEE question paper.

Scheme of Semester End Examination (SEE):

1. It will be conducted for 100 marks of 3 hours duration. It will be reduced to 50 marks for the calculation of SGPA and CGPA
2. **Minimum marks required in SEE to pass: 20 out of 50**
3. Question paper contains two questions from each unit each carrying 20 marks. Students have to answer one full question from each unit.

BUILDING CONSTRUCTION AND MATERIALS – III

Course Code	**18TEC3.1**	**Credits**	**5**
Course type	**BS&AE**	**CIE Marks**	**50 marks**
Hours/week: L-T-P	**5 Hrs. (1 Lecture + 2 Studios + 2 Studio Exercises) per Week**	**SEE Marks**	**50 marks**
Total Hours:	**Lecture =14 Hrs; Studio = 28 Hrs; Studio Exercise =28; Total = 70 Hrs**	**SEE Duration**	**Viva**

Course learning objectives

1. To acquaint students with Construction Techniques and Practices pertaining to R.C.C. Foundations, Columns, Beams and Types of Slabs.
2. Introduction to Staircases.
3. To understand Paints, Plastering and Waterproofing materials and methods

Unit – I: Reinforced Cement Concrete **08 Hours**

a) Introduction to RCC Framed Structures and principles and methods of RCC structures.
b) Scaffolding and formwork.
c) Types of Piles - Precast Piles, Cast in-situ Piles. Methods of driving Piles and Pile caps.

Unit – II: RCC Foundations, Columns, Beams, Lintels and Slabs **14 Hours**

a) Foundation - Shallow and Deep foundations and types.
b) Columns and beams
c) Arches and Lintels.

Self learning topics: Documentation of the process of casting of RCC components.

Unit – III: RCC Slabs **20 Hours**

a) One-way and Two-way slab.
b) Sloping slab.
c) Cantilever slab.

Unit – IV: Staircases **14 Hours**

a) Introduction and Components of staircases.
b) Types of Staircases - Staircase in Timber, Metal and R.C.C.

Unit – V: Plastering, Paints and Waterproofing 14 Hours

a) Methods of Plastering, Internal, External Plastering and various plaster finishes like Grit Plaster and Waterproof Plaster.
b) Types of Paints like Distempers, Emulsions, Oil based Paints, Cement Based Paints and Textured Paints, their Characteristics and application.
c) Types of Varnish and Method of applying Varnish, French polish and Melamine finish.
d) Waterproofing and Waterproofing materials like Chemical Admixtures and Surface applications.

Self learning topics: Market survey and documentation of different types of plasters, brands and varieties of paints and distempers, varnishes and samples of waterproofing products.

Note: Site Visits and documentation for each module and study of material application shall form part of the portfolio.

Reference Books:

1. **Mackey W B, Building construction, volume 3, Orient Longman, London, 1985 and Onwards.**
2. **Chudley R, Construction Technology, volume 3, ELBS, England, 1997 and Onwards.**
3. **Barry R, Construction Technology, volume 2, EWP, New Delhi, 1999 and Onwards.**
4. **Ching Francis D.K.,Building Construction Illustrated, John Wiley & Sons,Inc,Hoboken, New Jersey**

Course delivery methods	Assessment methods
1. Lectures	1. Case study report assessment
2. Case Study	2. Construction Viva
3. Site visit	

Scheme of Continuous Internal Evaluation (CIE)

Components	Portfolio Marking	Average of assignments (Two) /activity	Quiz/Seminar/ Project	Class Participation	Total Marks
Maximum Marks:50	40	-	-	10	50
➢ **Minimum marks required to qualify for SEE: 20 out of 50**					

Scheme of Semester End Examination (SEE):

1. It will be conducted as 50 marks Viva-Voce exam and same will be considered for the calculation of SGPA and CGPA.

2. **Minimum marks required in SEE to pass: 20 out of 50**

BUILDING SERVICES-I (WATER SUPPLY AND SANITATION)

Course Code	**18TEC 3.2**	**Credits**	**3**
Course type	**BS & AE**	**CIE Marks**	**50 marks**
Hours/week: L-T-P	**3 Hrs. (Lecture) per Week**	**SEE Marks**	**50 marks**
Total Hours:	**Lecture =42 Hrs; Tutorial = 0 Hrs ;Total = 42 Hrs**	**SEE Duration**	**3 Hours for 100 marks**

Course learning objectives

1. To introduce students to the concepts of basic building services like water supply and sanitation.
2. To evolve the understanding of students to the integration of these services with Architectural design.

Unit – I: Water Supply **06 Hours**

a) Introduction: Introduction to water supply system.
b) Sources of Water: Surface sources like rivers, streams, lakes and impounded reservoirs. Underground sources like springs, infiltration galleries, tube wells and driven wells.
c) Quantity of Water: Per capita demand, types of demand – domestic, institutional and commercial, industrial, public use, firefighting and compensate losses. Factors affecting water demand.
d) Quality of Water: Types of impurities, effects and standard permissible limits of all types of impurities.

Unit – II: Sanitation **06 Hours**

a) Introduction: Importance and purpose of sanitation, principles of sanitation. History of sanitation.
b) Terminologies in sanitation: Sewerage, sewer, sullage, sewage, refuse, invert, soil pipe, waste pipe, vent pipe, anti siphonage pipe, dry weather flow and wet weather flow. Collection and disposal of refuse- Conservancy system and water carriage system. Conveyance of sewage- gully trap, inspection chamber, intercepting trap, grease traps, oil traps, backflow preventer, manholes and its types.
c) Sanitary Fixtures and Fittings: Soil appliances like water closets, bidet, urinals, flushing cistern and flush valve. Waste appliances like wash basin, sink, dishwasher and washing machine.

Self learning topics: Study and design of toilet layouts for private use, public use and for the physically challenged.

Unit – III: Sewage Collection and Storm Water Management 08 Hours

a) Systems of Drainage: Separate, combined and partially combined systems.
b) Sewage collection: Objective, space requirements and design of Septic tank and Soak pit for a typical dwelling.
c) Decentralised Wastewater Treatment: Properties, performance and scope.
d) Stormwater Management: Management of storm water drainage for a small house-draining of roof top water. Introduction to Rain water harvesting.

Self learning topics: Application of Rainwater Harvesting - Study of Rainwater Harvesting Project for any Site- residential, commercial or institutional building.

Unit – IV: Plumbing- Water Supply 10 Hours

a) Water Supply Plumbing: Typical service connection to a premises- mains, ferrule, service pipe and water meter; sump and overhead water tanks. Flow control valves –Stop cock, air and pressure relief valves and reflux valve. Pipe fixtures – tees, bends, elbows, unions, reducers, increasers and pipe supports. Bath and water fixtures – Taps, mixers, health faucets and showers.
b) Hot water system: Geysers and systems of hot water supply.
c) Introduction to alternative technology for hot water generation.

Self learning topics: Study of automated fixtures used in the toilets and study of Solar Hot Water Generation for a small residence.

Unit – V:Plumbing- Sanitation 12 Hours

a) Sanitary Plumbing: Floor traps, requirement and types of traps- P, Q, S-traps, Floor traps and bottle traps. Systems of Sanitary plumbing- Single stack, one pipe partially ventilated and two pipe system. Cross venting and fixture venting.
b) Study of Plumbing for a two bedroom house: Layout of water supply and sanitation plumbing for a small residence, including storm water drainage showing down take pipes, location of sump and OHT (Floor Plan, terrace floor plan and Section). Layout of a typical toilet block showing complete details of fittings and plumbing required for water supply and drainage. Calculation of the capacities of sump and OHT.

Reference Books:

1. **Rangwala S.C., Water Supply and Sanitary Engineering, Charotar Publishing House, Anand 388 601, 1983 and onwards.**
2. **Birdie S. G., Water Supply and Sanitary Engineering, DhanpatRai and Sons, New Delhi,1987 and onwards.**
3. **National Building Code 2005, 2007 and onwards.**
4. **Relevant IS Codes of India,**
   i. Uniform Plumbing Code India 2012, 2012 onwards
   ii. Special IS Code: SP- 35 – 1996.

Course delivery methods	Assessment methods
1. Lectures	1. Assignments
2. Technical Videos	2. Internal Assessment Test
	3. Semester End Examination

Scheme of Continuous Internal Evaluation (CIE):

Components	Total of two IA tests	Average of assignments (Two) /activity	Quiz/ Seminar/ Project	Class Participation	Total Marks
Maximum Marks:50	40	-	-	10	50
➢ Writing two IA tests is compulsory. ➢ **Minimum marks required to qualify for SEE: 20 out of 50**					

Self Study topics shall be evaluated during CIE (Assignments and IA tests) and 10% weightage shall be given in SEE question paper.

Scheme of Semester End Examination (SEE):

1. It will be conducted for 100 marks of 3 hours duration. It will be reduced to 50 marks for the calculation of SGPA and CGPA.

2. **Minimum marks required in SEE to pass: 20 out of 50**

3. Question paper contains two questions from each unit each carrying 20 marks. Students have to answer one full question from each unit.

STRUCTURES - III

Course Code	**18TEC3.3**	**Credits**	**3**
Course type	**BS & AE**	**CIE Marks**	**50 marks**
Hours/week: L-T-P	**3Hrs.(Lectures) per Week**	**SEE Marks**	**50 marks**
Total Hours:	**Lecture = 42 Hrs; Tutorial = 0 Hrs. Total= 42 Hrs**	**SEE Duration**	**3 Hours for 100 marks**

Course learning objectives

To give an introduction to the basic Principles and methods governing the structural behaviour of indeterminate structures.

Unit-I: Introduction to Statically Indeterminate Structures. 06 Hours

a) Difference between Determinate and Indeterminate structures.

b) Analysis of propped cantilever by Moment area method.

c) Introduction to different methods used in analysis of indeterminate structures

Unit-II: Fixed Beams 09 Hours

a) Introduction

b) Advantages and disadvantages of fixed beams.

c) Analysis of Fixed beams by Moment area method.

Unit-III: Continuous Beams (Clapeyron's theorem) 09 Hours

a) Introduction

b) Introduction to Clapeyron's three moment theorem.

c)Analysis of continuous beams by Clapeyron's three moment theorem (maximum three spans).

Unit-IV: Continuous Beams (Moment Distribution Method) 09 Hours

a) Introduction to Moment distribution method.

b) Analysis of continuous beams by Moment distribution method (maximum three spans).

Unit-V: Portal Frames (Moment Distribution Method) 09 Hours

a) Introduction.

b) Analysis of portal frame by Moment distribution method (single bay, single storey with non-sway).

Self-Learning Topic: Settlement of support in continuous beam by Clapeyron's method

Text Books:

1.S SBhavikatti,StructuralAnalysis,Vikas Publications, 2nd edition 2005.

2.Vazirani and Ratwani, Theory of Structures, Khanna Publication, New Delhi.

3.Ramamrutham, Theory of Structures, DhanpatRai Publishing Company, New Delhi, 9th edition.

Course delivery methods	Assessment methods
1. Lectures	1. Assignments
	2. Internal Assessment Test
	3. Semester End Examination

Scheme of Continuous Internal Evaluation (CIE):

Components	Total of two tests	Average of two assignments	Quiz/ Seminar/ Project	Class Participation	Total Marks
Maximum Marks :50	40	-	-	10	50

➢ Writing two IA tests is compulsory.

➢**Minimum marks required to qualify for SEE: 20 out of 50**

Self Study topics shall be evaluated during CIE (Assignments and IA tests) and 10% weightage shall be given in SEE question paper

Scheme of Semester End Examination (SEE):

1. It will be conducted for 100 marks of 3 hours duration. It will be reduced to 50 marks for the calculation of SGPA and CGPA.

2.Minimum marks required in SEE to pass: 20 out of 50

3**.** Question paper contains two questions from each unit each carrying 20 marks. Students have to answer one full question from each unit**.**

COMPUTER APPLICATION -I

Course Code	**18TEC3.4**	**Credits**	**2**
Course type	**SEC**	**CIE Marks**	**50 Marks**
Hours/week: L-T-P	**3Hrs. (1 Lecture +2 Practical) per Week**	**SEE Marks**	**50 Marks**
Total Hours:	**Lectures =14 Hrs, Practical=28 Hrs Total =42 Hrs**	**SEE Duration**	**Viva**

Course learning objectives

1. To develop and train students to use computers and digital media as a tool to explore, develop, evaluate and present architectural ideas.
2. To equip the student with a range of digital tools and techniques in 2D drafting and 3D modelling.

Unit – I: 2D Drafting **27 Hours**

a) Introduction to AutoCAD (or relevant 2D drafting software): 2D commands, viewports, dimensions, annotations. Time problem: classroom exercises such as measured drawing of windows, doors, staircases etc.
b) Introduction to AutoCAD (or relevant 2D drafting software): Understanding layers, paper space vs. model space, line weights, print set up for measured drawing.
c) 2D Drafting: Presentation of time problem: plan, sections, elevations of a single storied building (or II semester architectural design studio project).

Unit-II: Basic 3D Modeling **15 Hours**

a) Introduction to Basic 3D modeling (Trimble SketchUp or relevant 3D modeling software):Introduction to software interface, basic tools for 3D modeling, composition with basic shapes, viewport manipulation and application of materials.
b) 3D modeling: Demonstration of 3D modeling commands required to convert 2D project of a single storied building (or II semester architectural design studio project).

Reference Books:

1 Omura George and Graham Rick, Mastering AutoCAD 2012 and AutoCAD LT 2012, Sybex; 1 edition,2011

E-Resources:

1. **Online documentation, tutorials, blogs at www.lynda.com/AutoCAD-traning-tutorials**
2. **Online documentation, tutorials, blogs and videos: http://www.sketchup.com/learn/videos**

Course delivery methods	Assessment methods
1. Lectures	1. Presentation report assessment
2. Practical teaching	2. CAD Viva

Scheme of Continuous Internal Evaluation (CIE)

Components	Portfolio Marking	Average of assignments (Two) /activity	Quiz/Seminar/ Project	Class Participation	Total Marks
Maximum Marks:50	40	-	-	10	50
➢ **Minimum marks required to qualify for SEE: 20 out of 50**					

Scheme of Semester End Examination (SEE):

1. It will be conducted as 50 marks Viva-Voce exam and same will be considered for the calculation of SGPA and CGPA.

2. **Minimum marks required in SEE to pass: 20 out of 50**

HISTORY OF ARCHITECTURE –III

Course Code	**18HUM3.1**	**Credits**	**3**
Course type	**PC**	**CIE Marks**	**50 marks**
Hours/week: L-T-P	**3Hrs. (Lecture) per Week**	**SEE Marks**	**50 marks**
Total Hours:	**Lecture = 42 Hrs; Tutorial = 0 Hrs. Total= 42 Hrs**	**SEE Duration**	**3 Hours for 100 marks**

Course learning objectives

1. To present students an overview of the evolution of Hindu Architecture in India in its various stylistic modes, characterized by technology, ornamentation and planning practices.
2. To develop the appropriate skills of reading, writing and understanding of the spatial experience of buildings in order to appreciate the complexity of the influences bearing on Architecture as reflected in the major historical periods.

Unit-I : Evolution of Temples and Indo Aryan Period –Orissa **09 Hours**

a) Rock-cut Architecture and beginning of structural Temples: Indo Aryan - Early temples at Udayagiri, Tigawa, Sanchi, Deogarh and Bhitargaon.
b) Evolution of Hindu Temple: Dravidian Experiments at Aihole- Durga temple and Ladkhan Temple, Badami and Pattadakal.
c) Introduction and synoptic study of Parts of Orissan temples.
d) Introduction, Critical appreciation of works and synoptic study of Architectural characteristic features. Study of Design principles. E.g.: Lingaraja temple, Bhubaneshwar and Sun temple, Konark.

Unit-II : Gujarat and Khajuraho **09 Hours**

Introduction, Critical appreciation of works and synoptic study of Architectural characteristic features. Study of Design principles -

a) Gujarat: E.g. Sun Temple, Modhera.
b) Khajuraho: E.g. Kandariya Mahadeva temple, Khajuraho.

Self-Learning Topics:

Types of Shikaras of Indo Aryan style temples (Three modes of development: Latina, Shekhari and Bhumija).

Unit-III : Dravidian Period - Pallava and Chola **08 Hours**

Introduction, Critical appreciation of works and synoptic study of Architectural characteristic features. Study of Design principles-

a) Pallava: E.g. Rathas and Shore temple at Mahabalipuram, Kailasanatha and Vaikuntha Perumal temple at Kanchipuram.
b) Chola: E.g. Brihadeshwara temple at Thanjavur and GangaikondaCholapuram.

Unit-IV : Pandya and Hoysala **08 Hours**

a) Pandya: Study of Architectural characteristic features of Pandyan Gopurams.
b) Hoysala: Introduction, Critical appreciation of works and synoptic study of Architectural characteristic features. Study of Design principles.E.g. Chennakesava temple at Belur, Hoysaleswara temple at Halebid, Kesava temple at Somnathpur.

Self-Learning Topics:

Types of Hoysala temple plans: Ek-kutachala, Dwikutachala and Trikutachala with their typical parts.

Unit-V :Vijayanagar and Nayakas **08 Hours**

Introduction, Critical appreciation of works and synoptic study of Architectural characteristic features.Study of Design principles.

a) Vijayanagar: E.g.Vithala temple and Hazara Rama temple, Hampi.
b) Madurai:E.g.: Meenakshi temple, Madurai and Temple at Srirangam.

Reference Books:

1. **Brown Percy, Indian Architecture- Buddhist and Hindu Period, D. B. Taraporevala Sons and Co., Bombay, 1983 and onwards.**

2. **Grover Satish, Architecture of India- Buddhist and Hindu, Vikas Publishing House Pvt. Ltd., New Delhi, 1980 and onwards.**

3. **Tomory Edith, History of Fine Arts in India and the West, Orient Longman Ltd.,New Delhi, 1982 and onwards.**

4 **Stierlin Henry, Hindu India, Benedikt Taschen Verlag GmbH, Hohenzollernring 53, D-50672 Koln, 1998 and onwards**

Course delivery methods	Assessment methods
1. Lectures	1. Assignments
2. Documentary Videos	2. Internal Assessment Test
	3. Semester End Examination

Scheme of Continuous Internal Evaluation (CIE):

Components	Total of two IA tests	Average of assignments (Two) /activity	Quiz/Seminar/ Project	Class Participation	Total Marks
Maximum Marks:50	40	-	-	10	50
➢ Writing two IA tests is compulsory. ➢ **Minimum marks required to qualify for SEE: 20 out of 50**					

Self Study topics shall be evaluated during CIE (Assignments and IA tests) and 10% weightage shall be given in SEE question paper.

Scheme of Semester End Examination (SEE):

1. It will be conducted for 100 marks of 3 hours duration. It will be reduced to 50 marks for the calculation of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50.**
3. Question paper contains two questions from each unit each carrying 20 marks. Students have to answer one full question from each unit.

VACATION ASSIGNMENT- I

Course Code	**18HUM3.2**	**Credits**	**CA**
Course type	**PC**	**CIE Marks**	**100 marks**
Hours/week: L-T-P	**-**	**SEE Marks**	**-**
Total Hours:	**-**	**SEE Duration**	**-**

Course learning objectives

To expose students to Historical, Vernacular and Contemporary architecture.

Detailed Syllabus:

Vacation Assignment/ Study tour is to be undertaken after the end of II semester exam and before the commencement of III semester classes. This assignment could be a measured drawing and documentation of a noted building or a study tour for visiting places of architectural interest. The choice of the building to be documented and the places to be visited is left to the department. The assignment may be given as group work (4 to 6 students per group). The students have to submit a report on the measured drawing or the study tour within 15 days from the beginning of the III Semester. The reports are to be assessed by the department for progressive marks.

Note: Documentation on buildings of visited historic places. Understanding the climate, culture, context, material resources available, design strategies and the overall architectural character evolved.

Scheme of Continuous Internal Evaluation (CIE):

Components	**Portfolio /Report Marking**	**Average of assignments (Two) /activity**	**Quiz/Seminar/ Project**	**Class Participation**	**Total Marks**
Maximum Marks:100	80	-	-	20	100

- Note: This subject does not have Semester End Examination (SEE).
- **Minimum marks required to pass CIE : 40 out of 100.**

4th Semester B.Arch.

ARCHITECTURAL DESIGN - III

Course Code	**18DES4.1**	**Credits**	**10**
Course type	**PC**	**CIE Marks**	**50 marks**
Hours/week: L-T-P	**7 Hrs. (1 Lecture + 6 Studios) per Week**	**SEE Marks**	**50 marks**
Total Hours:	**Lecture= 14 Hrs;Studio= 84 Hrs Total=98 Hrs**	**SEE Duration**	**Viva**

Course learning objectives

1. To understand Housing as a process rather than a product.
2. To understand the characteristics and design elements of organic and planned communities.
3. To understand the needs of contemporary living, different levels of privacy, multifunctional community spaces, efficiency of open spaces and extended living areas.

Unit-I: Introduction to Housing **04 Hours**

The Studio shall explore the concept of Housing, Elements of housing, difference between organic and planned housing types. The understanding of housing shall be illustrated through detailed study of site and case study.

Unit-II: Literature Case Study **04 Hours**

In this phase students shall make a detailed study of a housing projects where they understand and explore the economic and socio cultural values of a community, various design elements like organizational patterns, hierarchy of open spaces, relations between built and unbuilt, extended living areas, multifunctional community spaces and amenities.

Unit-III: Design Project **90 Hours**

In this phase students through design project shall demonstrate understanding of the above housing design principles. The project shall aim to address issues pertaining to contemporary housing or occupational housing. Projects like Midrise Apartments for IT, Industrial employees,Government Servants, Teaching faculty, Textile weavers, etc. can be attempted. The context for the project can be urban, suburban or rural.

Design Methodology:

The entire design development process comprises of various processes involved in understanding patterns and theory of housing through various stages of reading and understanding design, context through various stages such as case study, site selection and analysis, data collection, concept, conceptual design sketches, design drawings and final design submission.

Reference Books:

1 **Correa Charles, Housing and Urbanization, UDRI, Mumbai, Edition 2002 and Onwards**

2 **Rapoport Amos, House Form and Culture, Prentice Hall, Edition 1969 and Onwards**

3 **Doshi B.V, Aranya Low Cost Housing. Edition 1990 and Onwards**

4 **Residential open spaces: a behavioural analysis , VastuShilpa Foundation for Studies and Research in Environmental Design 1988.**

Course delivery methods		**Assessment methods**	
1	**Lectures**	**1**	**Study report**
2	**Case study/site study**	**2**	**Design reviews**
3	**Design discussion**	**3**	**Viva**

Scheme of Continuous Internal Evaluation (CIE):

Components	**Portfolio Marking**	**Average of assignments (Two) /activity**	**Quiz/ Seminar/ Project**	**Class Participation**	**Total Marks**
Maximum Marks:50	40	-	-	10	50
➢ **Minimum marks required to qualify for SEE: 20 out of 50**					

Scheme of Semester End Examination (SEE):

1. It will be conducted as 50 marks Viva-Voce exam and same will be considered for the calculation of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**

BUILDING CONSTRUCTION AND MATERIALS – IV

Course Code	**18TEC4.1**	**Credits**	**5**
Course type	**BS & AE**	**CIE Marks**	**50 marks**
Hours/week: L-T-P	**5 Hrs. (1 Lecture + 2 Studios + 2 Studio Exercises) per Week**	**SEE Marks**	**50 marks**
Total Hours:	**Lecture = 14 Hrs; Studio = 28 Hrs; Studio Exercise 28 Hrs; Total = 70Hrs**	**SEE Duration**	**Viva**

Course learning objectives

1.Introduction to Flooring and Paving,
2.Introduction to Special types of Doors,
3.Introduction to Structural Glazing and Cladding
4.Introduction to Aluminium and UPVC windows.
5.To study manufacturing of Glass and Plastics; its types with applications in Building Industry.

Unit – I: Flooring and Paving **12 Hours**

a) Mud and Stone Flooring.
b) Marble, Granite, Tandoor and Kota Flooring.
c) Mosaic, Terrazzo, Ceramic and Vitrified Tiles.
d) Natural Wood, Pre-Engineered Wood Flooring.
e) Special flooring e.g. Epoxy, Tremix and Vinyl Flooring.
f) Paving - Cast-in-situ Concrete, Concrete tiles, Interlocking blocks, Clay tiles, Brick and stone

Unit – II: Aluminium and UPVC Windows **20 Hours**

a) Introduction
b) Types of Aluminium windows
c) Types of UPVC Windows

Unit – III: Special Types of Doors **12 Hours**

a) Frameless Glass Door, Sliding and Folding Door.
b)PVC and FRP Doors.
c)Revolving Doors
d)Remote Control Systems of Doors.
e) Collapsible gate and Rolling shutters.

Unit-IV: Structural Glazing and Cladding **12 Hours**

a)Structural Glazing and Fitting Devices.
b) Introduction to Cladding.

c) Glass Cladding.
d) Precast Concrete Cladding Panels.
e) Aluminium Composite Panel Cladding

Unit – V: Glass and Plastics as building materials **14 Hours**

a) Glass Fabrication techniques.
b) Types of glasses and their appropriate use as a building material.
c) Introduction to plastics, Properties and Architectural uses of plastics.
d) Thermoplastics and Thermosetting Plastics.
e) Structural Plastics.
f) Decorative plastic coatings.

Self learning topics: To Collect samples, rates and manufacturers information of Polycarbonate, Acrylic, PVC, Polymer films or Fibre- reinforced plastics and glass.

NOTE: Site Visits and documentation for each module and study of material application shall form part of the portfolio.

Reference Books:

1. **Mackey W B, Building Construction, Volume 3, Orient Longman, 1985 onwards.**
2. **Chudley R, Construction Technology, Volume 3, ELBS, England, 1997 onwards.**
3. **Barry R, Construction Technology, Volume2, 4, EWP, New Delhi, 1999 onwards.**
4. **Rangwala S C, Building Materials, Charotar Publishing House (Pvt Ltd), New Delhi 2015 onwards**
5. **Ching Francis D.K.,Building Construction Illustrated, John Wiley &Sons,Inc,Hoboken, New Jersey**

Course delivery methods	Assessment methods
1. Lectures	1. Case study report assessment
2. Case Study	2. Construction Viva
3. Site visit	

Scheme of Continuous Internal Evaluation (CIE):

Components	Portfolio Marking	Average of assignments (Two) /activity	Quiz/ Seminar/ Project	Class Participation	Total Marks
Maximum Marks:50	40	-	-	10	50
➢ **Minimum marks required to qualify for SEE: 20 out of 50**					

Scheme of Semester End Examination (SEE):

1. It will be conducted as 50 marks Viva-Voce exam and same will be considered for the calculation of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**

BUILDING SERVICES – II (ELECTRICAL SERVICES AND ILLUMINATION)

Course Code	**18TEC4.2**	**Credits**	**3**
Course type	**BS & AE**	**CIE Marks**	**50 marks**
Hours/week: L-T-P	**3Hrs. (Lectures) per week**	**SEE Marks**	**50 marks**
Total Hours:	**Lecture = 42 Hrs;Tutorial = 0 Hrs,Total = 42 Hrs**	**SEE Duration**	**3 Hours for 100 marks**

Course learning objectives

To introduce students to Electrical services and Illumination and to sensitize them with respect to their application in Architectural Design.

Unit-I: Introduction to Electrical Services 08 Hours

a) Introduction to commonly used terminology – Power, Voltage, Current, Connected Load, Maximum Demand, Load Factors, symbols as per IS standards etc.
b) Supply and Distribution of Electricity to Buildings: Power Requirements, Voltage levels, Substation, Ring Main Units, Metering panels, HT Breakers, Transformers, Generators, LT Panels, Cables – HT and LT, Standards like National Building Code, National Electric Code

Unit- II: Protective Devices, Earthling and Lightning Protection System, Internal Supply and Distribution 10 Hours

a) Fuses**,** Miniature Circuit Breakers, Earth Leakage Circuit Breakers, Moulded Case Circuit Breakers
b) Earthing: Introduction, Types - Pipe Earthing and Plate Earthing and lightning arresters for High rise buildings.
c) Residential Building Electrical Distribution System**:** Overhead and underground distribution system, brief description of various cabling types, conduit, PVC casing and capping wiring systems

Unit-III: Electrical Layout Design 06 Hours

a) Electrical layout of a three bedroom residential unit and calculation of the load.
b) Electrical layout of commercial outlets like restaurants of around 150 sqm

Self learning topics:Documentation of electrical layout of Showrooms / Shops/Clinic of around 150 sqm and calculation of the load.

Unit-IV: Illumination 12 Hours

a) Introduction to Illumination, Quality and Quantity of Light
b) Type of Lighting Systems: Direct, Indirect, Semi Direct and Semi Indirect.
c) Methods of lighting: Ambient, Task and Accent lighting, Street Lighting, Façade Lighting, Landscape lighting, etc.
d) Type of Light sources: Fluorescent, Incandescent, HID's, CFL, LED Halogen and neon lamps.
e) Types of Luminaires: Pendant light, Uplighter, Recessed ceiling light, wall washers etc.
f) Design considerations for lighting of museum, auditorium, garden and library

Self- Learning Topics: Market Survey and report presentation of latest technology switches and luminaries.

Unit-V: Renewable Energy Systems **06 Hours**

a) Renewable Energy Systems: Non-conventional systems like Solar, Wind, Biomass, Thermal Wave plants and its applications.

b) Application of renewable energy in design of buildings through appropriate case studies like CII Soharabji Godrej Green Business Centre, Hyderabad,Auroville Solar Kitchen,The Energy Research Institute Bangalore, Indira Paryavaran Bhavan, Ministry of Environment and Forest, PEDA Office complex, Chandigarh.

Self-Learning Topics: Study of projects involving one or more of the renewable energy systems like Solar/ Wind.

Reference Books:

1. **Cotton H.: Electrical Technology, CBS Publishers, 1984 and onwards**
2. **Uppal S. L.: Electrical Wiring, Estimating and Costing,Khanna Publishers, 2013**
3. **Anwari :Basic Electrical Engineering , 1st Edition and onwards**
4. **National electric Code, Indian Electricity Rules 1956, Energy Conservation and Building Code.1st Edition and onwards**
5. **Halpeth M.K. Light Right Teri Press 2005 and onwards**

Course delivery methods	**Assessment methods**
1. Lectures	**1. Internal Test**
2. Site visits	**2. Report**

Scheme of Continuous Internal Evaluation (CIE):

Components	Total of two IA tests	Average of assignments (Two) /activity	Quiz/ Seminar/ Project	Class Participation	Total Marks
Maximum Marks:50	40	-	-	10	50

➢ Writing two IA tests is compulsory.
➢ **Minimum marks required to qualify for SEE: 20 out of 50**

Self Study topics shall be evaluated during CIE (Assignments and IA tests) and 10% weightage shall be given in SEE question paper.

Scheme of Semester End Examination (SEE):

1. It will be conducted for 100 marks of 3 hours duration. It will be reduced to 50 marks for the calculation of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**
3. Question paper contains two questions from each unit each carrying 20 marks. Students have to answer one full question from each unit.

STRUCTURES –IV

Course Code	**18TEC4.3**	**Credits**	**3**
Course type	**BS &AE**	**CIE Marks**	**50 marks**
Hours/week: L-T-P	**3 Hrs (Lectures)per Week**	**SEE Marks**	**50 marks**
Total Hours	**Lecture = 42 Hrs;Tutorial = 0 Hrs,Total = 42 Hrs**	**SEE Duration**	**3 Hours for 100 marks**

Course learning objective:

Introduction to Design of Reinforced Concrete Structures.

Unit-I: Concrete **05 Hours**

Composition, water cement ratio, strength, durability, workability requirements. Advantages of RCC over other conventional structural practices, Design Philosophies (Limit State, Working Stress and Ultimate Load Method), Necessity and Philosophy of limit state design, stress block parameters, characteristic and design loads and strengths, load consideration as per IS875.

Unit-II: Analysis and design of beam by Limit State Method **10 Hours**

Analysis and design of singly and doubly reinforced beams for flexure and shear.

Unit-III: Design of slabs **10 Hours**

Introduction to slabs, different types of slabs, design of slabs, one way and two way slabs (simply supported and restrained).

Unit-IV: Design of columns and footings **08 Hours**

Introduction to columns and footings, design of column (axial and uniaxial) -SP-16, design of footings (axially loaded square).

Unit-V: Design of staircase **09 Hours**

Introduction to staircase, Types of staircases, Design of staircase (dog legged).

Self Learning Topics: Influence of concrete on Architecture by famous Architects like Eero Saarinen (Yale University's Dormitory building), Zaha Hadid(New Haven Connecticut building in Belgrade) and Structural Designer, Mahendra Raj (Vidhan Bhavan, Bhopal and NCDC office building, New Delhi).

Note-

1. The teacher is expected to expose the students to demonstration models, tests and experiments with materials and structural systems related to the above topics.
2. The teacher is also expected to expound the structural concepts introduced in non-mathematical terms with examples and application in architectural design.

Text Books:

1. **Jain and Jaikrishna, Reinforced Cement Concrete, Nem Chand &Bros.,New Delhi**
2. **Ramamrutham, Reinforced Cement Concrete,Dhanpat Rai & Sons, New Delhi, Third Edition and onwards.**
3. **Krishna Raju N. and Pranesh R.N.,Reinforced Cement Concrete,K K Gupta for New Age International Pvt. LTD.,New Delhi, Third Edition and onwards.**
4. **Gauld Bryan G. B, Structures for Architect, Pearson education limited, London, Third Edition and onwards.**
5. **Chings Francis.D.K, Building Structure Illustrated, John Wiley and sons, N J, USA.**

Course delivery methods	Assessment methods
1. Lectures	1. Assignments 2. Internal Assessment Test 3. Semester End Examination

Scheme of Continuous Internal Evaluation (CIE):

Components	Total of two IA tests	Average of assignments (Two) /activity	Quiz/Seminar / Project	Class Participation	Total Marks
Maximum Marks:50	40	-	-	10	50

- Writing two IA tests is compulsory.
- **Minimum marks required to qualify for SEE: 20 out of 50**

Self-Study topics shall be evaluated during CIE (Assignments and IA tests) and 10% weightage shall be given in SEE question paper.

Scheme of Semester End Examination (SEE):

1. It will be conducted for 100 marks of 3 hours duration. It will be reduced to 50 marks for the calculation of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**
3. Question paper contains two questions from each unit each carrying 20 marks. Students have to answer one full question from each unit.

COMPUTER APPLICATION - II

Course Code	**18TEC4.4**	**Credits**	**2**
Course type	**SEC**	**CIE Marks**	**50 Marks**
Hours/week: L-T-P	**3Hrs. (1 Lecture +2 Practical) per Week**	**SEE Marks**	**50Marks**
Total Hours:	**Lectures =14 Hrs ;Practical=28 Hrs ;Total =42 Hrs**	**SEE Duration**	**Viva**

Course learning objectives

To develop awareness and familiarity with Advanced Computer applications in Architecture and to equip students with skills required in using digital tools to conceive, develop and present Architectural ideas.

Unit – I: Advanced 3D Modeling and Visualization Techniques 15 Hours

a) Introduction to advanced SketchUp extensions and tools to aid 3D modeling, adding details to models in 3D space
b) Study of Advanced Rendering and Visualization Techniques of Design Studio projects using softwares .

Unit – II: Presentation Techniques 27 Hours

a) Introduction to Graphics Editing Tools using softwares. Concepts of image editing, image scanning, effects, filters, etc.
b) Presentation of II semester Architectural Design studio project- rendering of 2D drawings. Adding foreground, background elements to the 3D visualizations. Tools for Presentation of the edited 2D drawings and 3D visualizations.

Reference Books:

1. **Daniel Tal, Rendering in SketchUp: From Modeling to Presentation for Architecture, Landscape Architecture, and Interior Design, John Wiley & Sons.**
2. **Matt Donley, SketchUp to LayOut: The essential guide to creating construction documents with SketchUp Pro & LayOut, MasterSketchUp.**

E-Resources:

1. **Bark, Steve, An Introduction to Adobe Photoshop; Bookboon.com**

Course delivery methods	Assessment methods
1. Lectures	1. Presentation report assessment
2. Practical teaching	2. CAD Viva

Scheme of Continuous Internal Evaluation (CIE)

Components	Portfolio Marking	Average of assignments (Two) /activity	Quiz/ Seminar/ Project	Class Participation	Total Marks
Maximum Marks:50	40	-	-	10	50
➢ **Minimum marks required to qualify for SEE: 20 out of 50**					

Scheme of Semester End Examination (SEE):

1. It will be conducted as 50 marks Viva-Voce exam and same will be considered for the calculation of SGPA and CGPA.

2. **Minimum marks required in SEE to pass: 20 out of 50**

HISTORY OF ARCHITECTURE –IV

Course Code	**18HUM4.1**	**Credits**	**3**
Course type	**PC**	**CIE Marks**	**50 marks**
Hours/week: L-T-P	**3Hrs. (Lectures) per Week**	**SEE Marks**	**50 marks**
Total Hours:	**Lecture = 42 Hrs; Tutorial =0 Hrs** **Total = 42 Hrs**	**SEE Duration**	**3 Hours for 100 marks**

Course learning objectives:

1. To provide an introduction to the culture and architecture of Islamic and Colonial periods in India.
2. To develop a critical appreciation towards the evolution of the various stylistic modes, characterized by technology, ornamentation and planning practices.

Unit - I Imperial Style (12th to 16th Century AD) 10 Hours

a) Early phase: Advent of Islam into India. Evolution of the Islamic Architecture – Salient features of Mosque and Tomb.
b) Critical appreciation of works and synoptic study of architectural characteristic features of the contribution of various dynasties under the Imperial style(Slave, Khilji, Tughlaq, Sayyid and Lodi)
Slave and Khilji dynasties – E.g.Quwwat-ul-Islam Mosque, Qutub-Minar, Enlargement of Quwwat-ul-Islam Mosque by Iltutmish, Tomb of Iltutmish, Enlargement of Quwwat-ul-Islam Mosque by Ala-ud-din Khilji and Alai Darwaza.
c) Tughlaq, Sayyid and Lodi dynasties -E.g. Tomb of Ghiyas-ud-din Tughlaq, Khirki Masjid, Tomb of Firoz Shah Tughlaq, Shish Gumbad, Tomb of Mubarak Shah Sayyid and Tomb of Sikandar Lodi.

Unit - II Provincial style (Bengal, Jaunpur and Bijapur) 08 Hours

Critical appreciation of works and synoptic study of architectural characteristic features of the provincial style.
a) Bengal (1203 to 1573 AD) and Jaunpur (1376 to 1479AD) Provinces – E.g. Adina Masjid, Pandua and Eklakhi Tomb, Pandua; Atala Masjid, Jaunpur and Jami Masjid, Jaunpur.
b) Bijapur (1490 to 1656AD) Provinces - Gol Gumbaz, Ibrahim Rauza and Jami Masjid, Bijapur

Unit - III Provincial style(Ahmedabad and Malwa) and Mughal Architecture 08 Hours

Critical appreciation of works and synoptic study of architectural characteristics features of Provincial and Mughal style.
a) Ahmedabad (1411 to 1455 AD)and Malwa Provinces (1405 to 1569 AD) -.E.g. Jami Masjid, Ahmedabad and Teen Darwaza, Ahmedabad; E.g. Jami Masjid, Mandu, Jahaz Mahal, Mandu, Hindola Mahal, Mandu.

b) Mughal Architecture (1526 to 1605 AD) – E.g. Humayun's Tomb, Delhi

Self learning topics: Study of the architectural characteristics of Jami Masjid, Champaner

Unit - IV Mughal Architecture (1605 to 1707 Century AD) 08 Hours

a) FatehpurSikri (Layout and Diwan-i-khas, Jami Masjid, Tomb of Salim Chisti and Buland Darwaza)
b) Akbar's tomb, Sikandra.
c) TajMahal, Agra - Layout of the Tomb and the concept of Charbagh.

Unit - V Colonial Architecture 08 Hours

a) Introduction to Colonial Architecture in India. Colonial architecture in Calcutta- Victoria Memorial, Calcutta.Colonial architecture in Bombay- Victoria Terminus, Bombay.
b) Design of New Capital of Delhi- Contributions of Sir Edward Lutyens, Herbert Baker- Layout of New Delhi, Rashtrapati Bhavan and Parliament House.

Reference Books:

1. **Tadgell Christopher, The History of Architecture in India from the Dawn of civilization to the end of the Raj; Phaidon Press, London, U.K. Ltd., 2002 onwards.**
2. **Brown Percy, Indian Architecture (Islamic Period) Vol II; DB Taraporevala and Sons Co.Pvt. Ltd., Bombay, 1983 and subsequent publications.**
3. **Grover Satish, Islamic Architecture in India, Galgotia Publications, India, 1996 onwards.**
4. **Stierlin Henri, Stierlin Anne, Islamic Art and Architecture, Thames & Hudson, 2002 onwards.**
5. **Ferguson, J.A., Encyclopedia of World Architecture (Islamic Architecture), Aryan books, 1998 onwards.**
6. **Fletchers Banister, A History of Architecture, C.B.S.Publishers, 1996 onwards.**
7. **Tillotson, G.H.R. , The Tradition of Indian Architecture: Continuity, Change and the Politics of Style since 1850, Oxford University Press, Delhi, 1989 onwards.**
8. **Tomory Edith, A History Of Fine Arts In India And The West, Orient**

Blackswan Pvt Ltd.-(New Delhi), 2009 onwards.

9 Asher Catherine B., Architecture of Mughal India, Cambridge, 1995 onwards.

Course delivery methods	Assessment methods
1. Lectures	1. Assignments
2. Documentary Videos	2. Internal Assessment Test
	3. Semester End Examination

Scheme of Continuous Internal Evaluation (CIE):

Components	Total of two IA tests	Average of assignments (Two) /activity	Quiz/Seminar/ Project	Class Participation	Total Marks
Maximum Marks:50	40	-	-	10	50
➢ Writing two IA tests is compulsory. ➢ **Minimum marks required to qualify for SEE: 20 out of 50**					

Self Study topics shall be evaluated during CIE (Assignments and IA tests) and 10% weightage shall be given in SEE question paper.

Scheme of Semester End Examination (SEE):

1. It will be conducted for 100 marks of 3 hours duration. It will be reduced to 50 marks for the calculation of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50.**
3. Question paper contains two questions from each unit each carrying 20 marks. Students have to answer one full question from each unit.

HUMANITIES

Course Code	**18HUM 4.2**	**Credits**	**2**
Course type	**PC**	**CIE Marks**	**100 marks**
Hours/week: L-T-P	**3Hrs (1 Lectures + 2 Studios) per Week**	**SEE Marks**	**-**
Total Hour	**Lecture = 14 Hrs; Studio =28 Hrs Total = 42 Hrs**	**SEE Duration**	**-**

Course learning objectives

1. To provide an insight into the Social, Cultural and Economic influences on design of human settlements.
2. To introduce students to basic concepts of Sociology and Economics.

Unit I: Types of Communities and Urbanization 08 Hours

a) Communities: Origin, growth and nature of settlements and communities, their characteristics and spatial organizations.
b) Rural Communities: Characteristics and Form, Rural society, village community, development of traditional patterns and trends of change. The concept of social stratification. Spatial aspects- Physical and Visual.
c) Urbanization: Characteristics and Form, socio-cultural impacts and effects on rural areas. Impact of urbanization on health, housing, transportation.Migration and its types.
d) Building Cost: Cost and cost indices. Life cycle costs, total cost of construction, sources of finances for buildings, time value of money.

Unit II: Elements of Society 06 Hours

a) Introduction to Sociology: Definition and theories and their relevance to social set-up, nature, scope and utility of sociology, relevance to architecture. Sociology and its branches. Relevance of related subjects like Psychology, Anthropology, History with relevance to built environment.
b) Concepts of social structure and social institutions, culture and civilization. Relationship between social structure and spatial structure. Elements of Society: Types of families and their impact on space -Single, nuclear and joint families.

Unit III: Settlement Study 12 hours

a) Comprehensive study of a rural settlement to create a holistic understanding of the socio – cultural, geographic, and economic aspects that shape the built environment and to give exposure to the methodology of conducting various surveys covering physical, visual characteristics and socio economic aspects.
b) Settlement study to understand factors of social change, social changes in a region, current pattern of housing, Social differentiation, Social mobility and Social problems, factors determining the Cultural identity of a place.

Unit IV: Documentation of Settlement Study **16 hours**

a) Representation of socio-cultural layers, geological layers, occupational patterns and Climatic layers.
b) Graphical Presentation of Observations and findings with respect to different layers of the Settlement.

Reference Books:

1 **Rudofsky Bernard, Architecture without Architects- A Short Introduction to Non- Pedigreed Architecture, University of New Mexico, New Mexico, 2010 onwards.**

2 **Alexander Christopher, The Timeless Way of Building, Oxford University Press, Oxford,1979 onwards.**

3 **Rapoport Amos, House Form and Culture, Pearson Education Ltd., Harlow,1969 onwards.**

4 **Oliver Paul, Encyclopedia of Vernacular Architecture of the World, Routledge, London, 1997 onwards.**

5 **Jones Paul, The Sociology of Architecture: Constructing Identities,**

6 **Liverpool University Press,Liverpool, 2008 onwards.**

7 **Newman David M., Sociology: Exploring the Architecture of Everyday Life, SAGE Publications Ltd., London, 2009 onwards.**

8 **Smelser Neil J., The Sociology of Economic Life, Quid Pro Books, Louisiana, 2009 onwards.**

9 **Warner Hirsch Z., Urban Economics, Simon & Schuster Custom, New York.**

10 **Pannerselvam R., Engineering Economics, Prentice Hall India, New Delhi, 2012 onwards**

Course delivery methods

1. **Lectures**
2. **Site study**
3. **Documentation**

Assessment methods

1. Portfolio

Scheme of Continuous Internal Evaluation (CIE)

Components	Portfolio Marking	Average of assignments (Two) / activity	Quiz/ Seminar/ Project	Class Participation	Total Marks
Maximum Marks: 100	80	-	-	20	100
Note: This subject does not have Semester End Examination (SEE). Minimum marks required to pass CIE: 40 out of 100					

KARNATAK LAW SOCIETY'S

GOGTE INSTITUTE OF TECHNOLOGY

UDYAMBAG, BELAGAVI-590008

(An Autonomous Institution under Visvesvaraya Technological University, Belagavi)

(APPROVED BY AICTE, NEW DELHI)

Department of Architecture

Scheme and Syllabus

Bachelor of Architecture (2018 batch)

BATCH _2018

Karnatak Law Society's

GOGTE INSTITUTE OF TECHNOLOGY, BELGAUM-08

Bachelor of Architecture

SCHEME OF TEACHING AND EXAMINATION

Department :Architecture **Semester: V**

Subject Stream	Subject Code	Course Type	Subject Title	Teaching Department	Contact Hrs				Credits	Marks					Duration of Exam
					L	S	P/SE	Total		CIE		SEE		Total	
										CP	PA	VIVA/TW	EXAM		
DESIGN	18DES 5.1	PC	Architectural Design -	Architecture	0	8	0	8	12	10	40	50	-	100	-
	18DES 5.2	PC	Theory of Architecture-	Architecture	3	0	0	3	3	10	40	-	50	100	3 hrs
	18DES 5.3	SEC	Working Drawing	Architecture	1	0	2	3	2	10	40	50	-	100	-
TECHNOLOGY	18TEC 5.1	BS&AE	Building Construction and Materials-V	Architecture	1	2	2	5	5	10	40	50	-	100	-
	18TEC 5.2	BS&AE	Building Services-III	Architecture	3	0	0	3	3	10	40	-	50	100	3 hrs
	18TEC 5.3	BS&AE	Structures-V	Architecture	3	0	0	3	3	10	40	-	50	100	3 hrs
HUMANITIES	18HUM 5.1	PC	History of Architecture-	Architecture	3	0	0	3	3	10	40	-	50	100	3 hrs
	18HUM 5.2		Vacation Assignment-II	Architecture	0	0	0	0	CA	20	80	-	-	100	-
				Total	14	10	4	28	31	90	360	150	200	800	

L-Lecture **CIE- Continuous Internal Evalua** **CP-Class Participation**

S-Studio **SEE- Semester End Examination** **PA-Progressive Assessment** **CA-Compulsory Audit**

P-Practical PC - Professional Core; BS&AE- Building Science and Applied Engineering; PE- Professional Elective; OE- Open Elective

SE - Studio Exercise PAECC - Professional Ability Enhancement Compulsory Courses; SEC - Skill Enhancement Courses.

Minimum Marks for passing: Theory, Studio and Lab Marks (CIE) : 40%, Term Work/ Viva/Lab(SEE) : 40% Theory Marks (SEE)

Note: Students are to be taken on study tour or given vacation assignment after IVsemester examinations, before the starting of V semester

BATCH _2018

Karnatak Law Society's

GOGTE INSTITUTE OF TECHNOLOGY, BELGAUM-08

Bachelor of Architecture

SCHEME OF TEACHING AND EXAMINATION

Department :Architecture **Semester: VI**

Subject Stream	Subject Code	Course Type	Subject Title	Teaching Department	Contact Hrs				Credits	Marks					Duration of Exam
					L	S	P/SE	Total		CIE		SEE		Total	
										CP	PA	VIVA	EXAM		
DESIGN	18DES 6.1	PC	Architectural Design -V	Architecture	0	8	0	8	12	10	40	50	-	100	-
	18DES 6.2	PC	Theory of Architecture II	Architecture	3	0	0	3	3	10	40	-	50	100	3 hrs
	18DES 6.3	PC	Landscape Architecture	Architecture	2	0	2	4	3	10	40	-	50	100	3 hrs
TECHNOLOGY	18TEC 6.1	BS&AE	Building Construction and Materials-VI	Architecture	1	2	2	5	5	10	40	50	-	100	-
	18TEC 6.2	PC	Physical Planning	Architecture	3	0	0	3	3	10	40	-	50	100	3 hrs
	18TEC 6.3	BS&AE	Structures -VI	Architecture	3	0	0	3	3	10	40	-	50	100	3 hrs
HUMANITIES	18HUM 6.1	PC	Contemporary	Architecture	3	0	0	3	3	10	40	-	50	100	3 hrs
				Total	15	10	4	29	32	70	280	100	250	700	

L-Lecture **CIE- Continuous Internal Evalua** **CP-Class Participation**

S-Studio **SEE- Semester End Examination** **PA-Progressive Assessment** **CA-Compulsory Audit**

P-Practical PC - Professional Core; BS&AE- Building Science and Applied Engineering; PE- Professional Elective; OE- Open Elective

SE - Studio Exercise PAECC - Professional Ability Enhancement Compulsory Courses; SEC - Skill Enhancement Courses.

Minimum Marks for passing: Theory, Studio and Lab Marks (CIE) : 40%, Term Work/ Viva/Lab(SEE) : 40% Theory Marks (SEE) : 40%,

ARCHITECTURAL DESIGN - IV

Course Code	**18DES 5.1**	**Credits**	**12**
Course type	**PC**	**CIE Marks**	**50 marks**
Hours/week: L-T-P	**8Hrs (8 Studios) per Week**	**SEE Marks**	**50 marks**
Total Hours:	**Studio=112 Hrs; Total=112 Hrs**	**SEE Duration**	**Viva**

Course learning objectives

1. To understand patterns of structural systems and their influence on spatial compositions.
2. To understand the role of structural systems in generating Architectural aesthetics.
3. To understand the design consideration required to accommodate various services.
4. To enable students to demonstrate design solutions integrating structural systems and services.

Unit I: Understanding of Structural patterns **08 Hours**

Understanding of the Structural patterns and how they influence the formal composition and spatial layout embedded in an Architectural idea.

Unit II: Introduction to Structural systems **08 Hours**

Understanding of the Structural systems for multi-level / large span buildings through various case studies.

Unit III: Design Project **96 Hours**

Design project shall explore and demonstrate an understanding of design considerations of structural systems and services by dealing with urban level projects like Hospitals, Hotels, Transport Interchanges, Terminals, Shopping Malls, Convention Centres.

Design Methodology:

The Design process comprises various stages like understanding the role of structural patterns and spatial compositions influencing design of multi-level/ large span structures through various case studies followed by site selection and analysis, data collection, concept, conceptual design sketches, study models, design drawings and final design submission.

References:

1. **Bjorn N Sandarkers,Arne P. Eggen, The Structural Basis of Architecture, Routledge, Abingdon.UK. 2011 and onwards.**
2. **Salvadori Mario, The Strength of Architecture-Why Buildings Stand Up, W.W.Norton and Company, New York, US 1991 and onwards.**

3. **Kunders G.D., Hospitals, McGraw-Hill Education Pvt. Ltd., New York.US. 2004 and onwards**
4. **Curtis Eleanor, Hotel- Interior Structures, John Wiley Academy, London.UK. 2001 and onwards.**
5. **Jodidio Philip, Santiago Calatrava Complete Works 1979-2009,Taschen, Hohenzollernring 53, Cologne, Germany, 2007 and onwards.**
6. **Taylor Brian Brace, Raj Rewal, Mimar Publications, Concept Media Ltd., London, 1992 and onwards.**
7. **Ching Francis D.K., Onouye Barry S. and Zuberbuhler Douglas, Building Structures Illustrated Pattern, Systems and Design, JohnWiley & Sons, Inc. Hoboken, New Jersey, 2009 and onwards.**
8. **Margolius Ivan, Architects + Engineers = Structures, Wiley-Academy, T J International Ltd, Padstow, Cornwall, 2002 and onwards.**

Course delivery methods	**Assessment methods**
1. **Case Study/Site Study**	1. **Study Report**
2. **Design Discussion**	2. **Design Reviews**
	3. **Viva**

Scheme of Continuous Internal Evaluation (CIE):

Components	**Portfolio Marking**	**Average of assignments (Two) /activity**	**Quiz/ Seminar/ Project**	**Class Participation**	**Total Marks**
Maximum Marks:50	40	-	-	10	50
➢ **Minimum marks required to qualify for SEE: 20 out of 50**					

Scheme of Semester End Examination (SEE):

1. It will be conducted as 50 marks viva-voce exam and same will be considered for the calculation of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**

WORKING DRAWING

Course Code	**18DES 5.3**	**Credits**	**2**
Course type	**SEC**	**CIE Marks**	**50 Marks**
Hours/week: L-T-P	**3 Hrs (1Lecture + 2 Studio Exercise) per Week**	**SEE Marks**	**50 Marks**
Total Hours	**Lecture=14 Hrs; Studio Exercise =28 Hrs; Total=42 Hrs**	**SEE Duration**	**Viva**

Course learning objectives

1. To provide students with an understanding of Graphical Conventions used in preparing Working Drawings.
2. To enable students with techniques for preparing working drawings used in Building Construction.

Unit I: Working Drawings **30 Hours**

a. Site plan, Location plan.
b. Centerline plan - Foundation Setting plan and column layout plan.
c. All floor plans showing column layout, and beam layout plan.
d. All side building elevations.
e. Sections eg: Through atrium, courtyard, staircase and toilets.
f. Schedule of openings including Doors, Windows and Ventilators
g. Grills and Railing Details.
h. Corporation Approval drawing as per Building bye laws.

Unit II: Service Drawings **12 Hours**

a. Electrical drawing with notation and symbols.
b. Plumbing drawing with notation and symbols.

NOTE: The study shall demonstrate working drawings of a R.C.C framed residential building.

References:

1. **Jefferis Alan and Madsen David A., Architectural Drafting and Design, Delmar Thomas Learning, USA. 1986 and onwards.**
2. **Rams Architectural Graphics Standards, John Wiley and Sons Inc, USA. 2008 and onwards.**
3. **Shah M.G, Kale C.M, Patki S.Y, Building Drawing: With an Integrated Approach to Built Environment, Tata McGraw Hill Education Pvt. Ltd,Delhi. 2001 and onwards.**
4. **Ching Francis D K -Advanced Building Construction illustrated, John Wiley & Sons, Inc, Hoboken, New Jersey, Fourth edition 2001.**

Course delivery methods **Assessment methods**

1	**Lectures**	**1**	**Assignment**
2	**Reference Drawings**	**2**	**Viva**

Scheme of Continuous Internal Evaluation (CIE):

Components	**Portfolio Marking**	**Average of assignments (Two) /activity**	**Quiz/ Seminar/ Project**	**Class Participation**	**Total Marks**
Maximum Marks:50	40	-	-	10	50
➢ **Minimum marks required to qualify for SEE: 20 out of 50**					

Scheme of Semester End Examination (SEE):

1.It will be conducted as 50 marks viva-voce exam and same will be considered for the calculation of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50.**

THEORY OF ARCHITECTURE - I

Course Code	**18DES5.2**	**Credits**	**3**
Course type	**PC**	**CIE Marks**	**50 Marks**
Hours/week: L-T-P	**3Hrs. (Lecture) per Week**	**SEE Marks**	**50 Marks**
Total Hours:	**Lecture = 42 Hrs; Total = 42Hrs.**	**SEE Duration**	**3Hours for 100 Marks**

Course learning objectives

To acquaint students with the basic aesthetic principles involved in architectural design and fundamentals of architectural aesthetics.

Unit 1: Principles of Aesthetics and Architectural Composition-I 10 Hours

a) Unity, Balance, Proportion, Scale in Architectural composition, illustrations and its application to the practice of design with historical as well as contemporary buildings.

b) Contrast, harmony, accentuation, restraint in Architectural composition, illustrations and its application to the practice of design in historical as well as contemporary buildings**.**

Unit 2: Principles of Aesthetics and Architectural Composition-II 10 Hours

a) Repose, vitality, strength in Architectural composition, illustrations and its application to the practice of design in historical as well as contemporary buildings.

b) Organizing principles of Aesthetics and Architectural Composition: symmetry, asymmetry, hierarchy, datum, axis, rhythm in Aesthetics and Architectural Composition and its application to the practice of design.

Self-Learning Topics: Identification and understanding of symmetry, asymmetry, hierarchy, datum, axis, rhythm in Architecture of the local and surrounding region**.**

Unit 3: Spatial Organizations of Masses in Architecture 10 Hours

a) Centralized and clustered: Illustrations of centralized and clustered massing in spatial organizations of masses in Architecture and its application to the practice of design with both historical as well as contemporary buildings.

b)Linear, radial, grid organizations: Illustrations of linear, radial, grid organization in spatial organizations of masses in Architecture and its application to the practice of design with both historical as well as contemporary buildings.

Self-Learning Topics: Study of different types of organizing patterns in different contexts like climate, topography, culture etc.

Unit 4: Concepts of Form in Architecture 06 Hours

a) Shape and Form: Primary shapes and Primary forms.

b) Form-regular and irregular forms, transformation of forms and dimensional transformation, subtractive forms, subtractive and additive forms and its categories like centralized and linear forms.

c) Elements of space making-floor, column, wall, door, windows, stair and roof.

Unit 5: Concepts of Indian Traditional Architecture and Types of Theory 06 Hours

a) Concepts of aesthetics in Indian Architectural ethos.
b) Duality, Bipolarity, Spatial narratives, Kinesthetic.
c) Positive architectural theory: Procedural theory, Substantive theory. Normative architectural theory: Polemics and Practice.

References:

1. **Pandya Yatin, Concepts of Space in Traditional Indian Architecture, Mapin India, 2005 onwards.**
2. **Ching Francis D K, Form, Space and Order, Wiley, New Jersey, 1996 onwards.**
3. **Parmar V S, Design Fundamentals in Architecture, Somaiya, New Delhi, 1997 onwards.**
4. **Johnson Paul Alan: Theory of Architecture, 1994 onwards.**
5. **Lang John, Creating Architectural Theory, Van Nostrand Reinhold, New York, 1987.**

Course delivery methods		**Assessment methods**	
1	**Lectures**	**1**	**Assignment**
2	**Documentary Videos**	**2**	**Internal Assessment Test**
		3	**Semester End Examination**

Scheme of Continuous Internal Evaluation (CIE):

Components	**Total of two IA tests**	**Average of assignments (Two) / activity**	**Quiz/ Seminar/Project**	**Class Participation**	**Total Marks**
Maximum Marks: 50	**40**	**-**	**-**	**10**	**50**

➢ **Writing two IA tests is compulsory.**
➢ **Minimum marks required to qualify for SEE: 20 out of 50**

Self Study topics shall be evaluated during CIE and 10% weightage shall be given in SEE question paper.

Scheme of Semester End Examination (SEE):

1. It will be conducted for 100 marks of 3 hours duration. It will be reduced to 50 marks for the calculation of SGPA and CGPA.

2. **Minimum marks required in SEE to pass: 20 out of 50**

3. Question paper contains two questions from each unit each carrying 20 marks. Students have to answer One full question from each unit.

BUILDING CONSTRUCTION AND MATERIALS – V

Course Code	**18TEC 5.1**	**Credits**	**5**
Course type	**BS&AE**	**CIE Marks**	**50 Marks**
Hours/week: L-T-P	**5 Hrs (1Lecture + 2 Studios + 2 Studio Exercises) per Week**	**SEE Marks**	**50 Marks**
Total Hours	**Lecture= 14;Studios=28; Studio Exercises=28; Total= 70 Hrs**	**SEE**	**Viva**

Course learning objectives

1. To study Construction systems of Roofing for Large Span Structures.
2. To study Cladding Systems for Industrial Buildings.
3. To study Complex Roofing Systems.
4. To study Ferro cement as a building technique.
5. To study Additives, Adhesives and Rubber as building materials.

Unit I: Roofing systems - Steel Structures **20 Hours**

a) Introduction to Steel trusses.

b) Steel trusses for various spans and types.

c) Typical details of a Ridge Truss.

d) Details at connections of a typical Saw-Tooth Truss for North Light and Lattice Girder.

Self Learning Topic: To prepare a scaled study model of any one type of Steel Truss.

Unit II: Cladding Systems and Roof Lighting Systems **12 Hours**

a) Wall Cladding with Cement sheets, Calcium Silicate Boards, Fiber Cement Boards and Eco- friendly Boards.

b) Wall Cladding with M.S. Profile sheets and Aluminum sheets.

c) Roof lighting systems - Details of North Light Glazing, Skylights, Sky Domes.

d) Roof Ventilation systems.

Unit III: Complex RCC Roof Structures **12 Hours**

a) RCC Shell Roofs.

b) RCC Domes, Vaults and Folded Plate.

c) Prestressed and Post Tensioning

Self Learning Topic: Case study of shell roofs and folded plates designed by renowned Architects like Eero Saarinen and Santiago Calatrava.

Unit IV: Complex Roof Structures **12 Hours**

a) Geodesic Domes.

b) Space Frames.

c) Portal Frames

d) Tensile Roof Structures and Pneumatic Structures.

Unit V: Building Techniques and Materials **14 Hours**

a) Ferro cement.

b) Additives and Adhesives in building materials.

c) Rubber as a building material.

Self Learning Topic: To collect samples, rates and manufacturing information of additives and adhesives and rubber as a building material.

NOTE: Site Visits and Documentation for each module and Study of material application shall form the part of portfolio.

References:

1. **Mackey W. B, Building Construction, Volume 3, Orient Longman, London.**
2. **Mackey W. B, Building Construction, Volume 4, Orient Longman, London.**
3. **Chudley R, Construction Technology, Volume 3, ELBS, England.**
4. **Barry R, Construction of Buildings, Volume 2 and 4, EWP, New Delhi.**

	Course delivery methods		**Assessment methods**
1	**Lectures**	**1**	**Assignments**
2	**Documentary Videos**	**2**	**Viva**
3	**Site visits**		

Scheme of Continuous Internal Evaluation (CIE):

Components	Portfolio marking	Average of assignments (Two) / activity	Quiz/ Seminar/Project	Class Participation	Total Marks
Maximum Marks: 50	40	-	-	10	50
➢ **Minimum marks required to qualify for SEE: 20 out of 50**					

Scheme of Semester End Examination (SEE):

1. It will be conducted as 50 marks viva-voce exam and same will be considered for the calculation of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**

BUILDING SERVICES- III

Course Code	**18TEC 5.2**	**Credits**	**3**
Course type	**BS&AE**	**CIE Marks**	**50 Marks**
Hours/week: L-T-P	**3 Hrs (Lectures) per Week**	**SEE Marks**	**50 Marks**
Total Hours	**Lecture = 42 Hrs; Total =42 Hrs**	**SEE Duration**	**3 Hours for 100 Marks**

Course learning objective

To develop the knowledge regarding essential Mechanical services required in buildings and their integration with Architectural Planning to achieve a comfortable and safe environment.

Unit I: Introduction to Mechanical Ventilation **08 Hours**

a) Indoor Air Quality for comfortable habitable conditions, Need for Mechanical Ventilation in buildings, Rate of Ventilation for different occupancies.
b) Methods and equipments used in Mechanical Ventilation systems, Introduction to various types of fans and filters used.
c) Introduction to Air Conditioning- Definition, Purpose, Advantages and Disadvantages.
d) Air cycle and Refrigeration cycle.

Unit II: Air Conditioning **12 Hours**

a) Summer and Winter Air Conditioning Systems, Factors considered in calculation of Air Conditioning loads.
b) Zoning in Air-conditioning, Purpose and Advantages. Transmission and distribution of Conditioned Air, Ducts and Duct systems.
c) Air Conditioning methods and equipments for Residential and Commercial use: Split and Central Air Conditioning systems. Location of Air Conditioning equipment in buildings. Architectural requirements of various equipments, equipment room for Central Air Conditioning Plant.
d) Introduction to the concept of 'Clean Room' and its Architectural requirements.
e) Introduction to terminologies like BRI (Building Related Illnesses), SBS (Sick Building Syndrome), GWP (Global Warming Potential) and (ODP) Ozone Depletion Potential.

Self Learning Topic: Case Study of Design of Air Conditioning system in a building.

Unit III: Elevators (Lifts) **08 Hours**

a) Brief history, Systems of Elevators like Traction and Hydraulic.
b) Types of Lifts- Passenger, Hospital, Goods, Dumb Waiter and Double-Decker.
c) Sky lobby, Lift lobby and Lift interiors.
d) Elevatoring a building: Design considerations - location in building, serving floors, grouping, size, shape of passenger car and door arrangements.
e) Service requirements, Quality and Quantity of services, time, passenger handling capacity, space and physical requirements, machine room spaces and typical layout of machine room, machine roomless elevator.

Unit IV: Escalators and Travelators **08 Hours**

a) Escalator- Definition, application, location and arrangement in buildings, space requirements, working mechanism of escalators.
b) Comparison between Escalators and Elevators.
c) Conveyor belt and Travelators - Definition, application, location and arrangement in buildings, space requirements, working mechanism of Travelators

Unit V: Fire protection in Buildings **10 Hours**

a) Causes of fire, Reasons for loss of life due to fire, development of fire, fire load, fire hazards, Grading of structural elements due to fire and classification of building types as per National Building Code (NBC).
b) Characteristics of Combustible and Non-Combustible materials in case of Fire.
c) Concepts of Passive fire protection and control - including Design of escape routes,Fire safety measures in Lifts, Pressurization and Compartmentation.
d) Active fire control using portable extinguishers. Basic concepts of Fixed fire fighting installations,Automatic fire detection and alarm systems, Planning of Fire control room.
e) Measures for fire protection and fire fighting requirements for High-rise buildings in India.
f) Fire safety measures for Basements.

Self Learning Topic: Case Study of Fire Fighting Measures in a building.

References :

1. **Roy J Dosat, Principles of Refrigeration, John Wiley and Sons, New York,1965 and onwards**
2. **Prasad Manohar, Air Conditioning and Refrigeration Data Hand book, New Age International Pvt. Ltd, Hyderabad,2009 and onwards**
3. **National Building Code of India, Bureau of Indian Standards, New Delhi,2005 and onwards**
4. **Arora Ramesh Chandra, Refrigeration and Air Conditioning, Tata McGraw Hill, New Delhi,2004 and onwards**
5. **Anand M., Refrigeration And Air Conditioning, Asian Book Pvt. Ltd. New Delhi,2002 and onwards**
6. **Das Akhil K., Principles of Fire Safety Engineering: Understanding Fire and Fire Protection, PHI Learning Pvt. Ltd, New Delhi,2014**

   Jain V. K, Fire Safety in Buildings, New Age International Pvt. Ltd, Hyderabad,2010

Course delivery methods		**Assessment methods**	
1	**Lectures**	**1**	**Assignment**
2	**Documentary Videos**	**2**	**Internal Assessment Test**
		3	**Semester End Examination**

Scheme of Continuous Internal Evaluation (CIE):

Components	**Total of two IA tests**	**Average of assignments (Two) / activity**	**Quiz/ Seminar / Project**	**Class Participation**	**Total Marks**
Maximum Marks:50	40	-	-	10	50
➢ Writing two IA tests is compulsory. ➢ **Minimum marks required to qualify for SEE: 20 out of 50**					

Self Study topics shall be evaluated during CIE and 10% weightage shall be given in SEE question paper.

Scheme of Semester End Examination (SEE):

1 It will be conducted for 100 marks of 3 hours duration. It will be reduced to 50 marks for the calculation of SGPA and CGPA.

2 **Minimum marks required in SEE to pass: 20 out of 50.**

3 Question paper contains two questions from each unit each carrying 20 marks. Students have to answer One full question from each unit.

STRUCTURES-V

Course Code	**18TEC5.3**	**Credits**	**3**
Course type	**BS&AE**	**CIE Marks**	**50 Marks**
Hours/week: L-T-P	**3 Hrs. (Lectures) per Week**	**SEE Marks**	**50 Marks**
Total Hours	**Lectures =42Hrs; Total = 42hrs**	**SEE Duration**	**3 Hours for 100 Marks**

Course learning objectives

To introduce students to the Design of Steel Structures.

Unit I: Introduction **05 Hours**

a) Advantages and Disadvantages of Steel structures.
b) Loads and Load combinations, Design considerations.
c) Limit State Method (LSM) of design, Failure Criteria for steel, Codes, Specifications and Section classification.
d) Types of Connections and Types of Joints

Unit II: Bolted and Welded Connections **09 Hours**

a) Behavior of bolted joints and welded connections.
b) Advantages and Disadvantages.
c) Design strength of Bolts (no staggering) and welds.
d) Simple and Eccentric Connections.

Unit III: Design of Tension Members **08 Hours**

a) Introduction.
b) Types of tension members.
c) Modes of failure, factors affecting the strength of tension members.
d) Sections used for tension members.
e) Design of tension members.

Unit IV: Design of Compression Members and Column Bases **10 Hours**

a) Introduction.
b) Types of compression members.
c) Behavior of compression members, Modes of failure.
d) Sections used for compression members.
e) Design of compression members, Built up compression members.
f) Design of simple slab base (no gusseted base).
g) Simple column and Footing connection details.

Unit V: Design of Beams **10 Hours**

a) Introduction.
b) Types of Beam, Lateral stability of beams, factors affecting lateral stability.
c) Behavior of simple and built-up beams in bending (without vertical stiffeners).
d) Design strength of laterally supported beams in Bending.

Self-Learning Topic: Study of famous steel structures e.g. Seagram Building, Salginatobel bridge, Millennium Arch.

Books:

1. **Subramanian N., Design of Steel Structures, Oxford University Press, Oxford, Third edition and onwards.**
2. **Duggal S. K., Limit State Design of Steel Structures, TATA McGraw Hill, New Delhi, Third edition and onwards.**
3. **IS875-1987, Bureau of Indian Standards, New Delhi.**
4. **Steel Tables, Birla Publication Pvt. Ltd, New Delhi.**
5. **Gauld Bryan G B, Structures for Architects, Pearson Education Limited, Harlow, Third edition and onwards**.

Course delivery methods		**Assessment methods**	
1	**Lectures**	**1**	**Assignment**
2	**Documentary Videos**	**2**	**Internal Assessment Test**
		3	**Semester End Examination**

Scheme of Continuous Internal Evaluation (CIE):

Components	**Total of best two IA tests**	**Average of assignments (Two) /activity**	**Quiz/Seminar / Project**	**Class Participation**	**Total Marks**
Maximum Marks:50	40	-	-	10	50

➢ Writing two IA tests is compulsory.
➢ **Minimum marks required to qualify for SEE: 20 out of 50**

Self Study topics shall be evaluated during CIE and 10% weightage shall be given in SEE question paper.

Scheme of Semester End Examination (SEE):

1. It will be conducted for 100 marks of 3 hours duration. It will be reduced to 50 marks for the calculation of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**
3. Question paper contains two questions from each unit each carrying 20 marks. Students have to answer One full question from each unit.

HISTORY OF ARCHITECTURE-V

Course Code	**18HUM 5.1**	**Credits**	**3**
Course type	**PC**	**CIE Marks**	**50 Marks**
Hours/week: L-T-P	**3Hrs (Lectures) per Week**	**SEE Marks**	**50 Marks**
Total Hours	**Lecture = 42 Hrs; Total = 42Hrs.**	**SEE Duration**	**3 Hours for 100 Marks**

Course learning objectives

1. To present students with an overview of the History of Renaissance, Baroque and Neoclassical Architecture.
2. To give an understanding of Industrial Revolution and Western Architecture during Modern periods.

Unit-I: Renaissance and Baroque **08 Hours**

a) Renaissance: Background and influences on Renaissance Architecture. Critical appreciation of works and synoptic study of Architectural characteristic features: e.g. St. Andrea, Mantua and Palazzo Rucellai, Florence by Leon Alberti; Villa Rotunda (Capra), Vicenza by Andrea Palladio; St. Peter, Rome by Michelangelo and St. Paul's Cathedral, London by Sir Christopher Wren.

b) Baroque: Critical appreciation of works and synoptic study of Architectural characteristic features: e.g. St. Peter's Piazza, Rome by Bernini and Palace of Versailles, Paris by Louis Le Vau.

Self Learning Topic: Study of Dome of Florence by Filippo Brunelleschi.

Unit-II: Revivals **08 Hours**

a) A brief account of the situation before the changeover to Modern Architecture in Europe.
b) Palladian Revival: e.g. Chiswick House, London
c) Greek Revival: e.g. St. Pancras Church, London.
d) Gothic Revival: e.g. Palace of WestMinster, London.

Self Learning Topics: Study of Mereworth castle, Kent and Arc de Triomphe, Paris

Unit-III: Impact of Industrial Revolution in Europe **08 Hours**

a) Social, Economical, Political, Technological and Material changes affecting society and architecture.
b) Early Industrial Buildings: e.g. Crystal Palace, London and Eiffel Tower, Paris.
c) Movements after Industrial Revolution: Arts and Crafts Movement- Ideas and works of William Morris: e.g. Red House, Kent. Art Nouveau Movement- Ideas and works of Antonio Gaudi and Victor Horta: e.g. Casa Mila, Tassel House, Brussels, Paris Metro station.

Unit-IV: Early Modern Movements **08 Hours**

a) Chicago School: Ideas and works of Louis Sullivan: e.g. WainWright Building and Guaranty building, Chicago.

b) Bauhaus School: Ideas and works of Walter Gropius: e.g. Fagus Factory and Bauhaus School at Dessau.

c) De Stijl movement: Ideas and works of Gerrit Rietveld: e.g. Schroder house, Netherlands.

Unit-V: Modern Architecture- Theories and Works of Great Masters **10 Hours**

a) Le Corbusier: Humanist Mechanomorphism and Five points of Architecture- e.g. Villa Savoye, Paris. Brutalism- e.g. Unite de Habitation, Marseilles and Surrealism: e.g. Notre Dame du Haut, Ronchamp, France.

b) Frank Lloyd Wright: Organic Architecture- e.g. Robie House, Chicago and Falling Waters, Pennsylvania.

c) Mies van der Rohe: Less is More- e.g. Barcelona Pavilion, Barcelona; Dr Farnsworth house, Illinois; God is in Detail: e.g. Seagram Building, Manhattan.

d)Oscar Niemeyer: Sculptor of Monuments- e.g. National Congress Complex and Metropolitan Cathedral, Brasilia.

Self Learning Topics: Study of Johnson Wax Building, Crown Hall, MIT and Alvorada Palace.

Reference:

1. **Frampton Kenneth, Modern Architecture –A Critical History, Thames and Hudson, London. Edition 1985 and Onwards**
2. **Trachtenberg Marvin and Hymen Isabelle, Architecture–Prehistory to Post-Modernism, Harry N. Abrams, B.V., The Netherlands. Edition 1990 and Onwards**
3. **Curtis William, Modern Architecture since 1900, Phaidon, London. Edition 1996 and Onwards**
4. **Fletcher Banister, A History of Architecture, CBS publishers and distributors, Delhi Edition 1975 and Onwards**

Course delivery methods		**Assessment methods**	
1	**Lectures**	**1**	**Assignment**
2	**Documentary Videos**	**2**	**Internal Assessment Test**
		3	**Semester End Examination**

Scheme of Continuous Internal Evaluation (CIE):

Components	Total of two IA tests	Average of assignments (Two) / activity	Quiz/ Seminar/Project	Class Participation	Total Marks
Maximum Marks: 50	40	-	-	10	50

➢ Writing two IA tests is compulsory.

➢ **Minimum marks required to qualify for SEE: 20 out of 50**

Self Study topics shall be evaluated during CIE and 10% weightage shall be given in SEE question paper.

Scheme of Semester End Examination (SEE):

1. It will be conducted for 100 marks of 3 hours duration. It will be reduced to 50 marks for the calculation of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**
3. Question paper contains two questions from each unit each carrying 20 marks. Students have to answer one full question from each unit.

VACATION ASSIGNMENT –II

Course Code	**18HUM 5.2**	**Credits**	**CA**
Course type	**PC**	**CIE Marks**	**100**
Hours/week: L-T-P	-	**SEE Marks**	-
Total Hours	-	**SEE Duration**	-

Course learning objectives

To expose students to Historical, Vernacular and Contemporary Architecture.

Vacation assignment is to be undertaken after the end of IV semester exam and before the commencement of V semester classes. This assignment could be a study tour for visiting places of Architectural interest or measured drawing and documentation of a noted building. The assignment may be given as group work. The students have to submit a report on the study tour or the measured drawing within 15 days from the beginning of the V semester which will be assessed for progressive marks.

Scheme of Continuous Internal Evaluation (CIE):

Components	**Portfolio /Report Marking**	**Average of assignments (Two) / activity**	**Quiz/Seminar/Project**	**Class Participation**	**Total Marks**
Maximum Marks: 100	80	-	-	20	100

- Note: This subject does not have a Semester End Examination (SEE).
- **Minimum marks required to pass CIE: 40 out of 100**

ARCHITECTURAL DESIGN – V

Course Code	**18DES 6.1**	**Credits**	**12**
Course type	**PC**	**CIE Marks**	**50 Marks**
Hours/week: L-T-P	**8Hrs (8 Studios) per Week**	**SEE Marks**	**50 Marks**
Total Hours:	**Studio=112Hrs; Total=112 Hrs.**	**SEE Duration**	**Viva**

Course learning objectives

1. To understand Campus and introduce principles of campus design.
2. To understand various types of Institutional Campuses and elements involved in Planning and Designing.
3. To understand the role of scales, functions, character of built form in creating formal and informal spaces of learning and of built environment in nurturing campus activities.
4. To enable students to develop design solutions demonstrating the principles of campus design.

Unit I: Principles of Campus Planning **08 Hours**

Studying, documenting and analyzing elements involved in campus design like zoning, networking, orientation, spatial organizations of built and unbuilt spaces, building scale, character, landscape elements, nature of formal and informal learning spaces and activity patterns through case studies.

Unit II: Design Project **104 Hours**

Design of Institutional project shall demonstrate understanding of principles of campus planning and role of built environment in facilitating learning activities. The design shall respect climate, environment and ecological factors of the 'Context'. The campus design will be attempted as a two stage project, with Site/Master planning as the first stage followed by detailed Architectural design proposal of identified buildings. Projects such as campus of learning for specialized/ higher education, vocational training campus in urban/ rural context may be attempted.

e.g.: Engineering College, Medical College, Management Institute, Research Centers, Institutions of Art and Architecture and similar scale projects.

Design Methodology:

The design process comprises various stages like understanding - learning through various case studies, site selection and analysis, data collection, programme formulation, concept, design drawings and final design submission.

References:

1. **Kanvinde Achyut, Miller.James H, Campus Design in India: Experience of a Developing Nation Jostens/American Yearbook Company, USA. 1969 and onwards.**
2. **Little field David, Metric Handbook – Planning and Design Data, Architectural Press,UK. 2011 and onwards.**
3. **Ernst and Neufert Peter, Neufert Architects' Data, Third Edition Blackwell Publishing, New Jersey,US, 1987 and onwards.**
4. **Lynch Kevin and Hack Gary, Site Planning, Third Edition, The MIT Press,Cambridge.**
5. **Schmertz Milred F, Campus Planning and Design - An Architectural Record Book, McGraw - Hill, New York, US, 1972 and onwards.**

Course delivery methods	**Assessment methods**
1. **Case Study/Site Study**	1. **Study Report**
2. **Design Discussion**	2. **Design Reviews**
	3. **Viva**

Scheme of Continuous Internal Evaluation (CIE):

Components	**Portfolio Marking**	**Average of assignments (Two) /activity**	**Quiz/ Seminar/ Project**	**Class Participation**	**Total Marks**
Maximum Marks:50	40	-	-	10	50
➢ **Minimum marks required to qualify for SEE: 20 out of 50**					

Scheme of Semester End Examination (SEE):

1. It will be conducted as 50 marks viva-voce exam and same will be considered for the calculation of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**

Theory of Architecture-II

Course Code	**18DES6.2**	**Credits**	**3**
Course type	**PC**	**CIE Marks**	**50 Marks**
Hours/week: L-T-P	**3Hrs. (Lectures) per Week**	**SEE Marks**	**50 Marks**
Total Hours:	**Lecture = 42 Hrs Total = 42Hrs.**	**SEE Duration**	**3Hours for 100 Marks**

Course learning objective

To provide an insight into the ideas of influential theorists in shaping the course of Western Architecture from antiquity to the present time.

Unit 1: Introduction to Theory in Antiquity 12 Hours

a)Introduction to Theory in Antiquity: Marcus Vitruvius and his multi-volume work entitled De-Architectura.
b) Introduction to Theory in Renaissance: Leon Alberti and Andrea Palladio.
c) Jacques François Blondel and Claude Perrault of French Academic Tradition.
d) 18th Century Theory: Ideas of Laugier and Boullee.

Unit II: 19th Century Theories and Modern Movement 09 Hours

a) 19th Century Theory: Concepts of Viollet Le Duc, John Ruskin and William Morris
b) Early modernist Ideas of Adolf Loos, Erich Mendelsohn.
c) Modernist ideas of Le-corbusier, Kenzo Tange.

Self Learning Topics: Study of other early modernist movements.

Unit III: Post Modern Theory and Deconstructivism 07 Hours

a) Ideas on Post-Modern Classicism by Robert Venturi and Charles Jencks.
b) Contribution to architectural ideas of Kenneth Frampton and Christopher Alexander.
c) Deconstruction: Fundamental beliefs and philosophy and ideas of Peter Eisenman.

Unit IV: Parallel Theories 07 Hours

a) Ideas of Hassan Fathy and Aldo Rossi.
b) Contribution to Architectural Thought: Ideas of Amos Rapoport, Geoffrey Broadbent - design generation theories.
c) Ideas of Rem Koolhaas and Peter Zumthor.

Unit V: Architectural Criticism 07 Hours

a) Architectural Criticism: Definition and Sources, its role and function in Architecture and the relationship between criticism and judgment in terms of thinking, discussing and writing on architecture, social and aesthetic issues.

b) Architectural Criticism types: Definition and sources according to Wayne Attoe.
Self Learning Topics: Literature study of an Architectural critique.

References:

1. **Vitruvius, Morgan M. H., Ten Books on Architecture, Dover Publications Inc. New York, US. 1960 and onwards.**
2. **Ruskin John, Seven Lamps of Architecture, Dover Publications Inc. New York, US. 1989 and onwards.**
3. **Broadbent Geoffrey, Design in Architecture: Architecture and the Human Sciences, John Wiley & Sons, 1973 and onwards.**
4. **Bhatia Gautham, A moment in Architecture, Tulika Books, New Delhi, India. 2002 and onwards.**
5. **Curtis William, Modern Architecture Since 1900, Phaidon Press, London, UK. 1996 and onwards.**
6. **Trachtenberg M, Hyman I., Architecture from Prehistory to Postmodernism, Pearson edition, London, England, 2002 and onwards.**
7. **Wayne A., Architecture and Critical Imagination, John Wiley & Sons Inc, New York, US. 1978 and onwards.**
8. **Venturi Robert, Complexity and Contradiction in Architecture, Museum of Modern Art, New York, US. 1977 and onwards.**
9. **Baker H. G., Design Strategies in Architecture: An Approach to the Analysis of Form, Taylor & Francis Publishing, Abingdon, United Kingdom, 2003 and onwards.**
10. **Schulz Norberg C., Genius Loci: Towards a Phenomenology of Architecture, Academy Editions, London. UK, 1980 and onwards.**
11. **Binet Helene, Zumthor Peter, Buildings and Projects - Peter Zumthor, Scheidegger and Spiess; Slp edition,first edition,1999 - onwards.**

Course delivery methods		**Assessment methods**	
1	**Lectures**	**1**	**Assignment**
2	**Documentary Videos**	**2**	**Internal Assessment Test**
		3	**Semester End Examination**

Scheme of Continuous Internal Evaluation (CIE):

Components	Total of two IA tests	Average of assignments (Two) / activity	Quiz/ Seminar/Project	Class Participation	Total Marks
Maximum Marks: 50	40	-	-	10	50

➢ Writing two IA tests is compulsory.

➢ **Minimum marks required to qualify for SEE: 20 out of 50**

Self Study topics shall be evaluated during CIE and 10% weightage shall be given in SEE question paper.

Scheme of Semester End Examination (SEE):

1. It will be conducted for 100 marks of 3 hours duration. It will be reduced to 50 marks for the calculation of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**
3. Question paper contains two questions from each unit each carrying 20 marks. Students have to answer One full question from each unit.

LANDSCAPE ARCHITECTURE

Course Code	**18DES 6.3**	**Credits**	**3**
Course type	**DES**	**CIE Marks**	**50 marks**
Hours/week: L-T-P	**4Hrs (2Lectures+2Studio) per Week**	**SEE Marks**	**50 marks**
Total Hours	**Lecture = 28 Hrs; Studio = 28 Hrs; Total = 56 Hrs.**	**SEE Duration**	**3 Hours**

Course learning objectives

To provide an insight into the discipline of Landscape architecture and to develop basic skills required in handling Landscape projects.

Unit I: Introduction **06 Hours**

a) Introduction to Landscape Architecture, Definitions and Basic terms.
b) Hardscape and Softscape, Materials in Hardscape and Softscape.
c) Trees, Shrubs, Grasses, Groundcovers - Definition, Growth conditions, Characteristics, Landscape values, Environmental values and Aesthetic values.

Self Learning Topics: Study of application of tree - based on environmental, aesthetic or any other Landscape value.

Unit II: Site Analysis and Site Planning **08Hours**

a) How Site affects design –Organization of the garden related to the characteristics of the site, its topography and soils, orientation and views, existing features and trees affecting property and climatic conditions.
b) Site Analysis- Regional influences on site, topographic survey, base map, overlays of slopes and drainage, geological conditions and soils, hydrology and water resources, vegetation, structures, circulation, utilities, climate, visual analysis, impact assessment, preservation and conservation, Site analysis map.
c) Site planning -Site structure diagram (Schematic plan and site plan (Conceptual) and Site structure expression.

Self LearningTopics: Analysis of One site leading to schematic plan preparation based on natural, cultural, visual or historic factors

Unit III: Elements of Landscape and their application in landscape design and historic Gardens **08 Hours**

Primary landscape Elements: Landforms, Water and Vegetation, design considerations and their role in articulating outdoor spatial design**.** Plant Material study and Planting Design, Planting plan, Plant Documentation and its relevance in Landscape.

Historic Gardens of Babylon (hanging gardens), Egypt and Persia , Spain (Allahambra), Greece and Rome , Medieval Europe- Italy (villa medici by Michelozzo, Villa De Este), France (Andre de notre and Vaux le vicomte), Formal garden of England(colonial gardens and gardens of William Kent),Japanese Gardens(Karensansui, Tsukiyama and Zen, Mughal Gardens and Indian Garden.

Unit IV: Design Philosophies of noted landscape Architects. **06 Hours**

Study of Design philosophies of Contemporary Indian Landscape Architects through their projects such as Ar. Ravindra Bhan, Prof. Mohammed Shaheer, Dr. Priyaleen Singh. Study of Design philosophies of noted Landscape Architects like Geoffrey Jellicoe, ThomasChurch, Luis Barragan, DaniKaravan and Martha Schwartz, Mayalin, Peter walker and partner through their noted works.

Unit V: Landscape Design Project **28 Hours**

a) Study of existing Landscape typologies like Courtyards(residential and public), Public Gardens and Urban spaces.
b) Streets and street furniture.
c) Demonstration of an understanding of landscape design through simple and small design exercises as Studio project. Clarity in design process, detail development and representation of landscape design scheme is emphasized

References:

1. **Simonds J.O, Landscape Architecture, McGraw-Hill Education, Delhi, 1983 and onwards.**
2. **Laurie Michael, Introduction to Landscape Architecture, Elsevier, Netherland 1975 and onwards.**
3. **Jellicoe Geoffery, The landscape of Man, Thames and Hudson, London, 2006 and onwards.**
4. **Mcharg Ian, Design with Nature, John Wiley and Sons, New Jersey, 1992 and onwards.**
5. **KrishenPradip, Trees of Delhi, Penguin, New Delhi,2006 and onwards.**
6. **Church Thomas D., Gardens are for people,third edition , University of California press.,London.1995.**
7. **Shaheer Mohammad, Dua GeetaWahi and Pal Aditi, Landscape Architecture in India A reader,LA,Journal of landscape Architecture India 2013.**
8. **Minakshi Jain & Singh.I.P, Landscape architecture History, Ecology and patterns,Copal publishing Group,2017.**
9. **Bell Simmonds.,Patterns, Perception and Processes, E & FN Spon,London,1999**

Scheme of Continuous Internal Evaluation (CIE):

Components	Total of best two IA tests	Average of assignments (Two) / activity	Quiz/ Seminar /Project	Class participation	Total Marks
Maximum Marks: 50	40	-	-	10	50

➢ Writing two IA tests is compulsory.
➢ **Minimum marks required to qualify for SEE:25 (50%)**

Self Study topics shall be evaluated during CIE and 10% weightage shall be given in SEE question paper.

Scheme of Semester End Examination (SEE):

1. It will be conducted for 100 marks of 3 hours duration. It will be reduced to 50 marks for the calculation of SGPA and CGPA.

2 **Minimum marks required in SEE to pass: 20 out of 50**

3. Question paper contains two questions from each unit each carrying 20 marks. Students have to answer One full question from each unit.

BUILDING CONSTRUCTION AND MATERIALS – VI

Course Code	**18TEC 6.1**	**Credits**	**5**
Course type	**BS&AE**	**CIE Marks**	**50 Marks**
Hours/week: L-T-P	**5 Hrs (1Lecture + 2Studios+ 2Studio Exercise) per Week**	**SEE Marks**	**50 Marks**
Total Hours	**Lectures = 14 Hrs; Studio = 28 Hrs;Studio Exercise = 28 Hrs; Total = 70 Hrs**	**SEE Duration**	**Viva**

Course learning objectives

1. To study construction details of Interior elements for Residential and Office spaces.
2. To study materials for Interior finishes.

Unit I: Residential Interiors **14 Hours**

a) Details of a typical Wardrobe in plywood.
b) Details of the Queen size bed with side tables and headboard in plywood.
c) Showcases, book shelves and cabinets in plywood and glass.
d) Modular kitchen with overhead cabinets.

Self Learning Topics: Study of hardwares, fasteners and fittings required for the above mentioned furniture.

Unit II: Office Interiors **14 Hours**

a) Introduction to table design, types of tables, function and usage.
   Detail of any one table- Reception table/Conference table/Workstation module/Executive table.
b) Detailing of File cabinets and Storage systems.

Self Learning Topics: Case study and presentation of Interior details of one small commercial establishment. e.g.: Salon, Bakery, Retail store or Cafe.

Unit III: Interior Partition Systems **14 Hours**

a) Partition systems in Glass and Aluminium with openings.
b) Partition systems in Plywood and Drywall with openings.
c) Wall Panelling in Wood/Plywood/Glass/PVC/Cement fibre boards.

Unit IV: False Ceiling Systems. **14 Hours**

a) Introduction to different types of False Ceiling.
b) False ceiling in Plywood, Glass, Wood and Wood products.
c) False ceiling - Grid ceiling and continuous ceiling with Integrated Illumination system using Cement Fibre boards, Gypsum boards, PVC and Plaster of Paris.

Unit V: Thermal Insulation and Interior finishes. **14 Hours**

a) Thermal insulation materials and methods for walls and roof.
b) Recycled Wood products, Charcoal boards, PVC sheets, Duco finish, WPC and Corian finish.

c) Wallpapers, Fabrics, Artificial stones, Corten steel and HPL.
d) Plaster of Paris and Gypsum.

Self Learning Topics: To collect samples, rates and manufacturer's information of the above mentioned materials.

NOTE: Site Visits and documentation for each module and study of material application shall form as part of the portfolio.

References:

1. **Mackey W B, Building Construction, Volume 3, Orient Longman, London.**
2. **Mackey W B, Building Construction, Volume 4, Orient Longman, London.**
3. **Chudley R, Construction Technology, Volume 3, ELBS, England.**
4. **Barry R, Construction of Buildings, Volume 2, EWP, New Delhi.**

Course delivery methods		**Assessment methods**	
1	**Lectures**	**1**	**Assignments**
2	**Documentary Videos**	**2**	**Viva**
3	**Site visits**		

Scheme of Continuous Internal Evaluation (CIE):

Components	**Portfolio Marking**	**Average of assignments (Two)/activity**	**Quiz/Seminar/ Project**	**Class Participation**	**Total Marks**
Maximum Marks: 50	40	-	-	10	50
➢ **Minimum marks required to qualify for SEE: 20 out of 50**					

Scheme of Semester End Examination (SEE):

1. It will be conducted as 50 marks viva-voce exam and same will be considered for the calculation of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**

STRUCTURES-VI

Course Code	**18TEC6.2**	**Credits**	**3**
Course type	**BS&AE**	**CIE Marks**	**50 Marks**
Hours/week: L-T-P	**3 Hrs. (Lectures) per Week**	**SEE Marks**	**50 Marks**
Total Hours	**Lectures =42Hrs; Total = 42hrs**	**SEE Duration**	**3 Hours for 100 Marks**

Course learning objectives

1. To give an introduction to pre-stressed concrete.
2. To outline and summarize special structural form.
3. Explain the concept of RC-detailing.

Unit I: Introduction to Pre-stressed concrete **06 Hours**

a) Basic concepts of Pre-stressed concrete.
b) Materials used in pre-stressed concrete-High strength concrete and high strength steel
c) Different types of Pre-stressing systems.
d) Advantages of Pre-stressed concrete.
e) Application of Pre-stressed concrete.

Unit II: Analysis of Pre-stress sections under flexure **12 Hours**

a) Basic assumptions.
b) Analysis for flexure.
c) Resultant stresses at a section.
d) Pressure Line or Thrust line
e) Concept of Load Balancing.

Unit III: Losses in Pre-stressing **10 Hours**

a) Nature of losses of Pre-stress.
b) Loss due to Elastic Deformation of Concrete.
c) Loss due to Shrinkage of Concrete.
d) Loss due to Creep of Concrete.
e) Loss due to Relaxation of stress in steel.
f) Loss of stress due to friction.
g) Loss due to Anchorage slip.
h) Total losses allowed for in design.

Unit IV: Special structural forms **06 Hours**

a) Introduction to special structural forms
b) Basic structural concepts about Shells, Folded plates, Domes, Grid structures, Flat slabs (RCC), Space frames, Tensile structures and Pneumatic structures. (no problems).

Self-learning topic: Study of any special structural form with an example

Unit V: Detailing of structural elements **08 Hours**

a) Detailing of RC Beam (singly and doubly reinforced)
b) Detailing of RC Slab (one way and two way)
c) Detailing of RC Column footing (square isolated)
d) Detailing of dog-legged staircase.

Note: The Structural Concepts and theory introduced in non-mathematical terms will be explored with field visits, applications and examples in the studio classes

References:

1. **Krishna Raju .N:Pre-stressed concrete,Tata McGraw-Hill Publishing Company Limited Publications, New Delhi, Fifth Edition and onwards.**
2. **Schodek Daniel: Structures, Pearson, Seventh edition and onwards.**
3. **Krishna Raju N. and Pranesh RN. : RCC-Design and Practice,Published by New Age International (P) Limited (2014), First Edition and onwards.**

Course delivery methods		**Assessment methods**	
1	**Lectures**	**1**	**Assignment**
2	**Documentary Videos**	**2**	**Internal Assessment Test**
		3	**Semester End Examination**

Scheme of Continuous Internal Evaluation (CIE):

Components	**Total of best two IA tests**	**Average of assignments (Two) /activity**	**Quiz/Seminar /Project**	**Class Participation**	**Total Marks**
Maximum Marks:50	**40**	**-**	**-**	**10**	**50**

➢ **Writing two IA tests is compulsory.**
➢ **Minimum marks required to qualify for SEE: 20 out of 50**

Self Study topics shall be evaluated during CIE and 10% weightage shall be given in SEE question paper.

Scheme of Semester End Examination (SEE):

1. It will be conducted for 100 marks of 3 hours duration. It will be reduced to 50 marks for the calculation of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**
3. Question paper contains two questions from each unit each carrying 20 marks. Students have to answer one full question from each unit.

PHYSICAL PLANNING

Course Code	**18HUM 6.1**	**Credits**	**3**
Course type	**PC**	**CIE Marks**	**50 Marks**
Hours/week: L-T-P	**3 Hrs (Lectures) per Week**	**SEE Marks**	**50 Marks**
Total Hours	**Lectures=42 Hrs; Total = 42 Hrs**	**SEE Duration**	**3 Hours for 100 Marks**

Course learning objectives

1. To familiarize students with the Planning principles demonstrated through various Civilizations.
2. To introduce various planning concepts and theories, discuss urbanisation and its impact on City planning.
3. To introduce various processes and techniques used in planning cities.

Unit I: History of Human Settlements **10 Hours**

a) An Introduction to Human Settlements and understanding the historical development of a City as a product of socio-cultural, economic and political ideologies.

b) History of City Planning: Principles of settlement planning in various historical periods like Mesopotamia, Egypt, Greek, Roman, Medieval, Renaissance and Neoclassical.

c) Cities of Vedic period, Indus valley, Temple towns, Cities of Mughal period and British-Colonial period.

d) City Beautiful movement.

Unit II: Planning Theories and Models **09 Hours**

a) Urban settlements and rural settlements: Origins, evolution and growth of settlements, characteristics, relation and differences.

b) Theories enunciated by Ebenezer Howard, Soria Y. Mata, Clarence Arthur Perry, Clarence Stein, Patrick Geddes, C.A. Doxiades, Le-Corbusier, Ian Mcharg and Jane Jacobs.

c) Concentric zone model, Sector theory model and Multiple nuclei model.

Unit III: Urbanization and Components of a City **08 Hours**

a) Industrialization, Urbanization and its impact on city planning: Classification of Cities - based on form, function and population.

b) Components of a City: Land use and activity pattern, traffic and road networks, density of population and population distribution, Central Business District, Residential Neighborhoods, urban nodes, fringe areas and suburbs.

c) Emergence of new forms of developments: Self Sustained Communities, Special Economic Zones (SEZ), Transit Oriented Development (TOD) and Integrated townships.

d) Introduction to the concept of Livable cities, Sustainable cities and Smart cities.

Self Learning Topic: Impact of Globalization on Indian cities.

Unit IV: Process and Techniques of City Planning **08 Hours**

a) Introduction to Planning Process: City planning, Role of planners, aims and objectives of city planning.
b)Planning Techniques: Study and analysis of existing settlements - Introduction to the methodology of conducting diagnostic surveys, land use survey, density survey, FSI survey, traffic surveys and presentation of data.
c) Introduction to the concept of Development plan, Master plan, Structure plan and Perspective plan.
d) Land use planning and zoning.

Unit V: Concept of Regional Planning and Urban Renewal **07 Hours**

a) Regional Planning: Definition of a Region, basic principles of regional planning, various types of regions.
b) Slums: Causes and Effects, prevention of formation of slums and squatter settlements.
c) Urban Renewal: Definition of Urban Renewal, Redevelopment, Rehabilitation and Conservation.

Self Learning Topic: Slum Redevelopment Case-studies.

References:

1. Chapin III F. Stuart, Kaiser Edward J. and Godschalk David R., Urban Land Use Planning, University of Illinois Press, Illinois,1995 and onwards.
2.Dutt, Binode Behari, Town Planning in Ancient India, Gyan Books Pvt. Ltd., Delhi,2009
3.Gallion Arthur and Eisner, The Urban Pattern: City Planning and Design, CBS Publisher, New Delhi ,2005 and onwards.
4. Lynch Kevin, The Image of the City, Harvard University Press, Harvard,1960 and onwards.
5. Correa Charles, Housing and Urbanisation, Thames & Hudson, London,2000.
6. Gordon Cullen Thomas, The Concise Townscape, Architectural Press Routledge,1961 and onwards.
7. Hough Michael, Cities and Natural process: A Basis for Sustainability,Routledge,1995 and onwards.
8. Katz Peter, The New Urbanism: Toward an Architecture of Community, Mcgraw Hill Professional, 1993 and onwards..
9. Evans B. Peter, Livable Cities? - Urban Struggles for Livelihood and Sustainability, University of California Press, 2002.

Course delivery methods		**Assessment methods**	
1	**Lectures**	**1**	**Assignment**
2	**Documentary Videos**	**2**	**Internal Assessment Test**
		3	**Semester End Examination**

Scheme of Continuous Internal Evaluation (CIE):

Components	Total of two IA tests	Average of assignments (Two) / activity	Quiz/ Seminar/Project	Class Participation	Total Marks
Maximum Marks: 50	40	-	-	10	50
➢ Writing two IA tests is compulsory. ➢ **Minimum marks required to qualify for SEE: 20 out of 50**					

Self Study topics shall be evaluated during CIE and 10% weightage shall be given in SEE question paper.

Scheme of Semester End Examination (SEE):

1. It will be conducted for 100 marks of 3 hours duration. It will be reduced to 50 marks for the calculation of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**
3. Question paper contains two questions from each unit each carrying 20 marks. Students have to answer one full question from each unit.

CONTEMPORARY ARCHITECTURE

Course Code	**18HUM6.2**	**Credits**	**3**
Course type	**PC**	**CIE Marks**	**50 Marks**
Hours/week: L-T-P	**3Hrs (Lecture) per Week**	**SEE Marks**	**50 Marks**
Total Hours	**Lecture = 42 Hrs; Total = 42Hrs.**	**SEE Duration**	**3 Hours for 100 Marks**

Course learning objective

To provide an insight of Contemporary trends in Indian and Western Architecture in terms of ideas and directions.

Unit-I: Masters of Post-Independence Architecture in India –I 09 Hours

a) Ideas and Works of Le Corbusier (Legislative Assembly Complex including High Court, Legislative Assembly and Secretariat, Chandigarh), Louis Kahn (IIM, Ahmedabad).

b) Ideas and Works of B.V. Doshi (CEPT, Ahmedabad and IIM, Bangalore) and Charles Correa (Gandhi Smarak, Ahmedabad and Bharat Bhavan, Bhopal).

Self Learning Topics: Mill Owners Association, Ahmedabad; Salk Institute, La Jolla; Sangath, Ahmedabad; Kala Academy, Goa.

Unit-II: Masters of Post-Independence Architecture in India –II 09 Hours

a)Ideas and Works of Raj Rewal (Pragati Maidan, New Delhi), Achyut Kanvinde (IIT, Kanpur), Anant Raje (IIFM, Bhopal), Hasmukh Patel (Newman Hall, Ahmedabad)

b) Ideas and Works of Laurie Baker (Centre for Development Studies,Thiruvananthapuram)

Self Learning Topics: Asiad Games Village, New Delhi; Nehru Science Centre, Mumbai; Engineering College, Kota; Management Development Centre, IIM-A; St. John Cathedral at Thiruvalla.

Unit-III: Contemporary Western Architects - I 08 Hours

Ideas and Works of Richard Mier (Jubilee Church, Rome),Sir Norman Foster (Hong Kong Shanghai Bank, Hong Kong), Renzo Piano (Pompidou Centre, Paris), Santiago Calatrava (Olympic Stadium, Athens)

Self Learning Topics: Smith House, Connecticut, Renault Distribution Centre, Swindon , Menil Museum, Houston , Lyon-Satolas Railway Station, Lyon

Unit-IV: Contemporary Western Architects - II 08 Hours

Ideas and Works of Bernard Tschumi (Parc de la Villette, Paris), Frank .O. Gehry (Guggenheim Museum,Bilbao), Zaha Hadid (Vitra Fire Station, Weil-am-Rhein), Daniel Lebiskind (Jewish Museum, Berlin), Rem Koolhaas(Seattle Public Library,Seattle).

Unit-V: Regionalism, Tropical Modernism and Minimalism 08 Hours

a) Geoffrey Bawa (Heritance Kandalama, Dambulla), Ricardo Legorreta(Pershing Square, Downtown, Los Angeles) Alvaro Siza (Public Library,Viana do Castelo)

b) Works of Tadao Ando.(Church of the light, Osaka, Naoshima Contemporary Art Museum, Naoshima).

Reference:

1. **Morgon, Ann Lee & Taylor Colin:Contemporary Architecture, St James Press, London, Edition 1987 and Onwards**
2. **Bahga, Bahga and Bahga:Modern Architecture in India, Galgotia Pub. Co, New Delhi 1993 and Onward**
3. **Curtis William Modern architecture since 1900, Phaidon, London Edition 1996 and Onwards**
4. **Jodidio Philip: Hadid, Complete works 1979-2013, Taschen, Berlin Edition 2009 and Onwards**
5. **Jodidio Philip: Ando Complete Works, Taschen, London Edition 2007 and Onwards**

Course delivery methods		**Assessment methods**	
1	**Lectures**	**1**	**Assignment**
2	**Documentary Videos**	**2**	**Internal Assessment Test**
		3	**Semester End Examination**

Scheme of Continuous Internal Evaluation (CIE):

Components	Total of two IA tests	Average of assignments (Two) / activity	Quiz/ Seminar/Project	Class Participation	Total Marks
Maximum Marks: 50	40	-	-	10	50

➢ Writing two IA tests is compulsory.

➢ **Minimum marks required to qualify for SEE: 20 out of 50**

Self Study topics shall be evaluated during CIE and 10% weightage shall be given in SEE question paper.

Scheme of Semester End Examination (SEE):

1. It will be conducted for 100 marks of 3 hours duration. It will be reduced to 50 marks for the calculation of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**
3. Question paper contains two questions from each unit each carrying 20 marks. Students have to answer one full question from each unit.

ESTD. 1939

KARNATAK LAW SOCIETY'S
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ESTD. 1979

2018-19 Scheme

Department: Architecture

Programme: B.Arch

1st to 10th Semester Scheme of Teaching and Examination

7th and 8th semester syllabus

BATCH _2018

Karnatak Law Society's

GOGTE INSTITUTE OF TECHNOLOGY, BELAGAVI-08

Bachelor of Architecture

SCHEME OF TEACHING AND EXAMINATION

Department :Architecture **Semester: VII**

Subject Stream	Subject Code	Course Type	Subject Title	Teaching Department	Contact Hrs				Credits	Marks					Duration of Exam
					L	S	P/SE	Total		CIE		SEE		Total	
										CP	PA	VIVA	EXAM		
DESIGN	18DES 7.1	PC	Architectural Design -VI	Architecture	2	8	-	10	14	10	40	50	-	100	-
	18DES 7.2	PC	Specification,Estimation	Architecture	3	0	-	3	3	10	40	-	50	100	3 hrs
TECHNOLOGY	18TEC 7.1	BS&AE	Alternate Building Technologies	Architecture	0	0	4	4	2	10	40	50	-	100	-
	18TEC 7.2	BS&AE	Building Services -IV	Architecture	3	0	-	3	3	10	40	-	50	100	3 hrs
	18TEC 7.3	PC	Earthquake Resistant	Architecture	2	0	-	2	2	20	80	-	-	100	-
HUMANITIES	18HUM 7.1	PE	Elective -I	Architecture	2	0	2	4	3	20	80	-	-	100	-
	18HUM 7.2	PAECC	Professional Practice-I	Architecture	3	0	-	3	3	10	40	-	50	100	3 hrs
	18CRT7.1	SEC	Certification Course	Architecture	0	0	-	0	1	-	-	-	-	-	-
				Total	15	8	6	29	31	90	360	100	150	700	

L-Lecture **CIE- Continuous Internal Evaluatio** **CP-Class Participation**

S-Studio **SEE- Semester End Examination** **PA-Progressive Assessment** **CA-Compulsory Audit**

P-Practical PC - Professional Core; BS&AE- Building Science and Applied Engineering; PE- Professional Elective; OE- Open Elective

SE - Studio Exercise PAECC - Professional Ability Enhancement Compulsory Courses; SEC - Skill Enhancement Courses.

Minimum Marks for passing: Theory, Studio and Lab Marks (CIE) : 40%, Term Work/ Viva/Lab(SEE) : 40% Theory Marks (SEE) : 40%,

BATCH _2018

Karnatak Law Society's

GOGTE INSTITUTE OF TECHNOLOGY, BELAGAVI-08

Bachelor of Architecture

SCHEME OF TEACHING AND EXAMINATION

Department :Architecture **Semester: VIII**

Subject Stream	Subject Code	Course Type	Subject Title	Teaching Department	Contact Hrs				Credits	Marks				Duration of Exam
					L	S	P/SE	Total		CIE	SEE		Total	
										PA	VIVA	EXAM		
DESIGN	18DES 8.1	PAECC	Professional Training	Architecture	16 weeks				16	50	50	-	100	-
				Total					16	50	50		100	

L-Lecture **CIE- Continuous Internal E** **CP-Class Participation**

S-Studio **SEE- Semester End Exami** **PA-Progressive Assessment** **CA-Compulsory Audit**

P-Practical PC - Professional Core; BS- Building Science and Applied Engineering; PE- Professional Elective; OE- Open Electiv

SE - Studio Exercise PAECC - Professional Ability Enhancement Compulsory Courses; SEC - Skill Enhancement Courses.

Minimum Marks for passing: Theory, Studio and Lab Marks (CIE) : 40%, Term Work/ Viva/Lab(SEE) : 40% Theory Marks (SEE) : 40%,

ARCHITECTURAL DESIGN - VI

Course Code	**18DES7.1**	**Credits**	**14**
Course type	**PC**	**CIE Marks**	**50**
Hours/week: L-T-P	**10 Hrs (2 Lectures + 8 Studios) per Week**	**SEE Marks**	**50**
Total Hours	**140 Hrs**	**SEE**	**Viva Voce**

Course learning objectives:

1. To understand what is Urban-context and introduce the idea and importance of `urban space'.
2. To introduce the concept of `Urban design' and develop skills to understand reading and documentation of urban contexts and to understand the difference between Architecture, Urban-design and Planning.
3. To demonstrate tools to document and analyze urban sites and understand the role of Architecture in shaping urban fabric that are public in nature and fit into specific urban contexts.
4. To understand and analyze the role of people's perspective in the process of Urban Design.
5. To develop design skills that can explore ideas of place making.

UNIT I: Introduction and Site Selection 06 Hours

Introduction to the concept of urban space and urban design. A Site with identified urban issues shall be selected from any urban context inside the core or its immediate and peri-urban/agglomeration areas having potential to explore urban insert project. The site area shall have strong context and have potential for demonstrating urban insert projects

UNIT II: Data Collection and Representations 30 Hours

Understanding and reading of the site should be carried out by detailed documentation of physical conditions of Site by conducting actual site surveys, drawings, sketches, photographic/audiovisual documentation and interviewing the user/people. Data from various official sources like Planning Authorities, City Corporation, City survey office, National Highway Authority, PWD and concerned authorities shall be integrated with the documentation to generate a base map for the study. Students shall be exposed to various methods and tools to represent the physical conditions by mapping of Site aspects like- Built Vs Open, Plot numbers, Land-use plans, Building heights, Roof Typologies, Building Typologies, Techniques of Building Construction, Street patterns, Types of open spaces, Services, Landscape elements, Landmarks, Street Elevations, Street Sections, Community Types, Occupations, Legal and Illegal constructions.

UNIT III: Analysis and Representations **34 Hours**

Data Collected will be interpreted in terms of maps by layering the built fabric over the socio-cultural, political and economic layer of the city. The intent of analysis is to understand, represent the context sensitively and identify the problems, potentials and needs of the area at City as well as Site level. Analysis shall lead to generate strategies and formulation of a design programme.

UNIT IV: Programme Formulation and Design **70 Hours**

Design programme shall be formulated based on the observations and strategies derived from the analysis stage which shall aim at resolving the site problems, identify and enhance the site potentials, fulfill the needs and be sensitive to contextual characteristics of the site. Finally the program is transformed into physical design with the help of examples of 'Urban Infill' projects. The project shall be formulated at various scales like City level, Area level and spot level interventions to demonstrate the integration of urban spaces and built-form. The projects shall have multiple functions, shall provide public access to majority of spaces, large gathering areas/plazas which are open and extendable to immediate urban contexts.

References Books:

1. **Geddes Patrick, Cities in Evolution: An Introduction to the Town Planning Movement and to Study of Civics, Harper & Row, New Edition, London, UK, 1968**
2. **Lynch Kevin, The Image of the City, MIT Press, Massachusetts, USA, 1960.**
3. **Gordon Cullen, The Concise Townscape, Architectural Press, New York, USA 1971**
4. **Alexander Christopher, A Pattern Language -Towns, Buildings, Construction, Oxford University press, New York, USA, 1977**
5. **Jacobs Jane, The Death and Life of Great American cities, Vintage books, New York, USA, 1961**
6. **Katz Peter, The New Urbanism: Toward an Architecture of Community, Mc Graw Hill, New York,1993**
7. **Krier Rob, Urban Space, Rizzoli International Publications, USA, 1993**

Course delivery methods	**Assessment methods**
1. Lectures and Presentations	**1.Assignments marking and Reviews evaluation.**
2.Presentation of Documentaries and Case studies	**2. Exhibition of Documentation and Analysis work.**
3.Expert Talks / Site visits	**3. Semester End Internal Evaluation and Assessment**

Scheme of Continuous Internal Evaluation (CIE):

Components	Portfolio Marking	Average of assignments (Two) /activity	Quiz/ Seminar/ Project	Class Participation	Total Marks
Maximum Marks:50	40	-	-	10	50
➢ **Minimum marks required to qualify for SEE: 20 out of 50**					

Scheme of Semester End Examination (SEE):

1. It will be conducted as a 50 marks Viva-Voce exam and the same will be considered for the calculation of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**

SPECIFICATION, ESTIMATION AND COSTING

Course Code	**18DES7.2**	**Credits**	**3**
Course type	**PC**	**CIE Marks**	**50**
Hours/week: L-T-P	**3 Hrs. (Lecture) per Week**	**SEE Marks**	**50**
Total Hours:	**42 Hrs.**	**SEE Duration**	**3 Hours for 100 marks**

Course learning objectives: To develop the necessary skills for writing specifications and preparing estimates for various types of buildings and developmental works.

UNIT I: Specifications **08 Hours**

a) Introduction: Definition,Purpose, Procedure for writing specification,types of specification. General specifications for all types of buildings.

b) Abstract and detailed specifications : Bricks, sand, cement, coarse aggregate, water, reinforcement, storing and handling of materials, Earth work in foundation, PCC, RCC, First class brick work in cement mortar, half brick thick partition in cement mortar, reinforced brick work, DPC, glazed tiles in skirting and dadoing, cement plaster, joinery in wood, steel & aluminum, painting to walls – cement paint, oil bound distemper, acrylic emulsion, enamel paint, painting to joinery, varnishing, French polishing.

UNIT II : Introduction to Estimation of Building **10 Hours**

a) Introduction,definition Importance of Estimation and Terminologies, types of estimate; various methods of approximate estimate of buildings.

b) Preliminary estimate, Approximate estimate, Abstract estimate, Plinth Area estimate, Key break estimate, Detailed estimate, Revised estimate, Supplementary estimate and Annual repair estimate. c)Data required (Drawings, Specifications and Rates), methodology of preparation, contingencies, work-charged establishment, bill of quantities.

Self-Learning Topics: To prepare estimation for different types of construction methods

UNIT III: Estimate -Types and Quantification **10 Hours**

a)Methods of Estimates:Centre Line Method, In to In, Out to out and Individual wall method.

b)Mode of Measurement : Cubic meter Square metre and Running Metre

c) Percentage of various materials used in building items like cement, steel, rubble, metal, sand, bricks, tiles.

d) To work out steel and concrete quantities from various RCC components in the building.

Self-Learning Topics: To know the use of innovative materials used in building construction to replace conventional materials.

UNIT IV: Analysis of Rates **08 Hours**

Rate analysis – definition; method of preparation; quantity and labour estimate for unit work; task or outturn work; rate analysis for: earth work, concrete works, first class brick work,

reinforced brick work, cement plastering, DPC with cement mortar/ concrete, finishing (cement paint, distemper, acrylic emulsion, enamel paint) to walls & ceiling.as per current schedule of rates (CSR) of local PWD**.**

UNIT V: Estimation of Building Services **06 Hours**

a) Estimate for water supply works: Sump tank, Overhead tank.
b) Estimate for sanitary works: Septic tank, Soak pit, Subsoil drain pit and Inspection chambers.
c) Detail estimate of a residential toilet block.

Reference Books:

1. Dutta.B.N: Estimating and Costing, UBS Publishers Distributors (P) Ltd. New Delhi, 2012 and onwards .
2. Rangwala S.C: Estimating and Costing, Charotar Publishing house (P) Ltd. New Delhi, 2013 and onwards

Course delivery methods
1. Lectures
2. Technical Videos

Assessment methods
1. Assignments
2. Internal Assessment Test
3. Semester End Examination.

Scheme of Continuous Internal Evaluation (CIE):

Components	Total of best two IA tests out of three	Average of assignments (Two) /activity	Quiz/Seminar/ Project	Class Participation	Total Marks
Maximum Marks:50	40	-	-	10	50

➢ **Writing two IA tests is compulsory.**

➢ **Minimum marks required to qualify for SEE: 20 out of 50**

Scheme of Semester End Examination (SEE):

1. It will be conducted for 100 marks of 3 hours duration. It will be reduced to 50 marksfor the calculation of SGPA and CGPA.

2. Minimum marks required in SEE to pass: 20 out of 50

3. Question paper contains two questions from each unit each carrying 20 marks. Students have to answer one full question from each unit

ALTERNATIVE BUILDING TECHNOLOGIES

Course Code	**18TEC7.1**	**Credits**	**2**
Course type	**BS & AE**	**CIE Marks**	**50 marks**
Hours/week: L-T-P	**4Hrs (4 Studio Exercise) per Week**	**SEE Marks**	**50 marks**
Total Hours:	**56 Hrs**	**SEE Duration**	**Viva Voce**

Course learning objectives:

1. Introduction to Traditional Building Materials and Techniques
2. To study Non-Conventional Building Construction Methods.
3. To study Regional Vernacular Construction techniques.

Unit I: Non-Conventional Building Construction Methods - Bamboo Construction **16 hours**

a) Introduction to Bamboo Construction techniques.
b) Details of Foundation and Plinth Construction.
c) Details of Bamboo Construction in Building Superstructure.
d) Details of Roof Construction.
e) Various joinery details in Bamboo.

Self-Learning Topics:

1. To collect Bamboo samples of various types, sizes and species and to study its local applications.
2. Case study documentation of one domestic house or small building built with Bamboo.

Unit II: Non-Conventional Building Construction Methods-Adobe Earth Construction. **8 hours**

a) Introduction to Adobe Earth Construction Techniques.
b) Adobe Earth Shallow Foundations and Plinth details.
c) Adobe Earth walls and its Junctions.
d) Doors and Window fixing details in the Adobe Earth Wall.

Unit III: Non-Conventional Building Construction Methods-Rammed Earth Construction. **8 hours**

a) Introduction to Rammed Earth Construction Techniques.
b) Rammed Earth Shallow Foundations and Plinth details.
c) Rammed Earth walls and its Junctions.
d) Doors and Window fixing details in the Rammed Earth Wall.

Unit IV: Non-Conventional Building Construction Methods-Cob, Wattle and Daub Earth Construction. **8 hours**

a) Introduction to Cob Construction Techniques- Details in Walls, Floors, Roofs and Joinery.

b) Introduction to Wattle and Daub Construction Techniques- Details in Walls, Floors, Roofs and Joinery.

Unit V: Study of Regional Vernacular Construction Techniques **16 hours**

a) Analysis of vernacular and traditional buildings across climatic zones.
b) Details of Foundation and Plinth
c) Details of Superstructure.
d) Details of Roof Construction Techniques.

NOTE: Case Studies, documentation and study of material application shall form the part of the portfolio and report.

Reference Books:

1. Community Architects Network: Bamboo Construction Source Book, Hunnarshala Foundation, Gujarat, India, 2013

2. McHenry Paul Graham Jr.: Adobe and Rammed Earth Buildings - Design and Construction, University of Arizona Press, USA, 1984

3. Bee Becky: Cob Builders Handbook-You Can Hand-Sculpt Your Own Home, Groundworks Press, UK, 1998

4. Sunshine Paula: Wattle and Daub, Shrine Publications, UK, 2006

Course delivery methods	**Assessment methods**
1. Lectures	**1. Case study report assessment**
2. Case Study	**2. Sheets presentation and assessment**
3. Site visit	

Scheme of Continuous Internal Evaluation (CIE):

Components	Portfolio Marking	Average of two assignments	Quiz/Seminar / Project	Class Participation	Total Marks
Maximum Marks: 50	40	-	-	10	50
➢ **Minimum marks required to qualify for SEE: 20 out of 50**					

Scheme of Semester End Examination (SEE):

1. It will be conducted as 50 marks Viva-Voce Exam and the same will be considered for the calculation of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**

BUILDING SERVICES-IV

Course Code	**18TEC7.2**	**Credits**	**3**
Course type	**BS&AE**	**CIE Marks**	**50 marks**
Hours/week: L-T-P	**3 Hrs (3 Lecture) per Week**	**SEE Marks**	**50 marks**
Total Hours:	**42 Hrs**	**SEE Duration**	**3 Hours for 100 marks**

Course learning objectives:

To develop skills and knowledge required to understand acoustics in buildings and its integration with architectural design.

Unit I : Introduction and Behavior of Sound. 08 hours

a) Introduction to acoustics: Brief history, definition, importance of acoustics in the building design. nature of sound, auditory range for humans.
b) Basic terminologies: Propagation of sound, Displacement amplitude, Wave length, Frequency, Pitch, Tone, Frequency bands, Speed of sound, Sound pressure, Acoustical power, Intensity of sound, Decibel scale, Loudness level, Threshold of audibility and Pain, Impaired hearing, Inverse Square Law.
c) Room acoustics : Behavior of sound in an enclosed space , Reflection from plane and curved surfaces, Diffusion, Refraction, , Diffraction, Reflection, Acoustical shadows.

Self Learning Topics: Study of behaviour of sound on concave and convex surfaces.

Unit II : Acoustical Materials and Equipment. 10 hours

a) Acoustical Materials : Sound absorption, Acoustical materials and various types like Prefabricated units, Panel absorbers, Diffusers; Acoustical plaster and sprayed on materials; Acoustical blankets and curtains, porous materials, fiberglass, foam panels; Special and variable sound absorptive materials like Helmholtz resonators, draperies
b) Whispering galleries, Echoes, flutter echoes, room resonances, sound foci, dead spots, ultrasonic and infra range sound.Reverberation and reverberation time, open window unit, Absorption coefficients of important materials used for acoustical treatment. RT calculations using Sabine's formula. Effect of RT on speech and music.Acoustical design recommendation for building examples with RT calculations.
c) Introduction to Acoustical Tools and Measurements: AI (Articulation Index), STI, (Speech Transmission Index). RASTI (Room Acoustic Speech Transmission Index), Use of SLM (Sound Level Meter),sound attenuation and STC ratings—(sound transmission class), sound reinforcement systems.

Self Learning Topics: Behavior of sound in historical buildings.

Unit III : Acoustical Design of Built Spaces 10 hours

a) Open air theater: History of Greek and Roman theaters. Articulation test, Design of an open air theater with orchestra shell.
b) Closed Auditoriums : Design details of an auditorium like floor area, volume, hall shapes, ceiling, balcony recess, side walls, raking of seats for auditorium and balcony.
c) Acoustical design of seminar/lecture halls, audio visual room and cinema halls.

d) Acoustical devices and related terminologies: Need and use of sound reinforcement systems, background noise, masking effect and masking systems, importance of speech privacy, speech intelligibility, sound amplification systems.

Unit IV : Noise Reduction and methods of Noise Control 07 hours

a) Introduction to noise: Definition, outdoor and indoor sources of noise, acceptable noise levels, NRC value (noise reduction coefficient), air borne and structure borne (impact) noise, noise from ventilation system, Noise transmission, Transmission loss.
b) Construction measures of noise control of air borne and structure borne noise. Enclosures, screens, Barriers, sound locks, sound proof doors and windows, Sound insulation in A.C.ducts and plants, acoustical filters, generator rooms, machine isolation, Construction details of composite walls, double(cavity) walls, floating floors, wood joist floors and plenum barriers.

Unit V : Environmental Noise and its Control By Site Planning 07 hours

a) Environmental Noise: Introduction, Air traffic, Rail traffic, Road traffic, industrial noise, recreational activities,background noise .Various methods of controlling environmental noise.
b) Noise control in Urban Soundscape : urban noise design considerations, sustainable design (green building) strategies in building acoustics, Noise reduction and control by site planning.

Reference Books:

1. **Doelle Leslie L. , Environmental acoustics, McGraw Hill Higher education, New York,1972 Onwards.**
2. **Knudsen Vern O. and Harris Cyril M., Acoustical Designing in Architecture, American institute of Physics, NewYork 1978 onwards**
3. **Parkin Peter Hubert. And Humphreys Henry R. Acoustics, Noise and Buildings, Faber and Faber, London 1969 onwards.**

Course delivery methods

1. Lectures

2. Technical Videos

Assessment methods

1. Assignments

2. Internal Assessment Test

3. Semester End Examination.

Scheme of Continuous Internal Evaluation (CIE):

Components	Total of best two IA tests out of three	Average of assignments (Two) /activity	Quiz/Seminar/ Project	Class Participation	Total Marks
Maximum Marks:50	40	-	-	10	50

➢ **Writing two IA tests is compulsory.**

➢ **Minimum marks required to qualify for SEE: 20 out of 50**

Scheme of Semester End Examination (SEE):

1. It will be conducted for 100 marks of 3 hours duration. It will be reduced to 50 marks for the calculation of SGPA and CGPA.
2. Minimum marks required in SEE to pass: 20 out of 50
3. Question paper contains two questions from each unit each carrying 20 marks. Students have to answer one full question from each unit.

EARTHQUAKE RESISTANT ARCHITECTURE

Course Code	**18TEC7.3**	**Credits**	**2**
Course type	**PC**	**CIE Marks**	**100**
Hours/week: L-T-P	**2 Hrs (Lectures)per Week**	**SEE Marks**	**-----**
Total Hours	**28 Hrs**	**SEE Duration**	**-----**

Course learning objective:
To provide awareness and introduction to earthquake resistant buildings

Unit I: Introduction **06 Hours**

a) Building Safety from natural Hazards.
b) Earthquake Elementary Seismology.
c) Earthquake occurrence in the world, plate tectonics, faults, earthquake hazard maps of India and the states, Causes of earthquake, seismic waves, magnitude, intensity, epicenter and energy release, characteristics of strong earthquake ground motions.
d) Case studies to understand the failure of buildings due to past Earthquakes.

Unit II: Architectural Design Concepts **06 Hours**

a) Site planning, Building Forms and Architectural Design Concepts for Earthquake resistance
b) Site selection Site development Building forms – Horizontal and vertical eccentricities, mass and stiffness distribution and soft storey
c) Seismic effects related to building configuration Performance of Ground and Building in past earthquakes.

Unit III: Effects of Earthquake **06 Hours**

a) On ground, soil rupture, liquefaction, landslides behavior of various types of buildings, structures, and collapse patterns
b) Behavior of Non-structural elements like services, fixtures, mountings
c) Social and Economic consequences of earthquakes
d) Seismic vulnerability evaluation of existing buildings.

Unit IV: Seismic Design Principles **06 Hours**

a) Concept of seismic design, stiffness, strength, period, ductility, damping, center of mass,center of rigidity, torsion, design eccentricities.
b) Ductility based design: Design of energy absorbing Seismic base isolation and seismic active control
c) Seismic response control of buildings : base isolation technique, tuned mass damper, mechanical damper.
d) Case studies to understand the different earthquake resistant techniques used for High rise structures.

Unit V: Techniques of Building Repairs (Retrofitting) and Earthquake resistant features **04 Hours**

a) Repairs of Load bearing and framed structures.
b) Ductility factors affecting ductility, need for ductility in earthquake resistant structures detailing of RCC flexural and compression members.

c) Study of various materials used for building repairs post-earthquake.

Reference Books:

1. Duggal S. K., Earthquake Resistant Design of Structures, Oxford University Press, New Delhi, 2007
2.Agarwal Pankaj and Shrikhande Manish, Earthquake Resistant Design of Structures, PHI India
3. C.V.R. Murty, Earthquake Tips, National Information Center of Earthquake Engineering, IIT Kanpur, 2005
4. National Programme for Capacity Building of Architects in Earthquake Risk Management, Faculty of Architecture, Manipal Institute of Technology, Manipal, 2008
5. Hosur Vinod, Earthquake Resistant Design of building Structures, Wiley, New Delhi, 2013

Course delivery methods	Assessment methods
1. Lectures	**1. Case study report assessment**
2. Case Study	

Scheme of Continuous Internal Evaluation (CIE):

Components	Portfolio Marking of all the Modules	Average of assignments (Two) /activity	Quiz/Seminar/ Project	Class Participation	Total Marks
Maximum Marks:100	80	-	-	20	100

- **Note: This subject does not have Semester End Examination (SEE).**
- **Minimum marks required to pass CIE: 40 out of 100**

ELECTIVE - I

Course Code	**18HUM 7.1**	**Credits**	**3**
Course type	**PE**	**CIE Marks**	**100**
Hours/week: L-T-P	**4Hrs (2 Lectures +2 Studio Exercises) per Week**	**SEE Marks**	**-**
Total Hours	**56 Hrs**	**SEE Duration**	**-**

Course learning objective:
To expose the students to specialized areas of Architecture

18HUM 7.11. Architectural Journalism
Architectural Journalism is a novel way to discuss architecture, a language that aims to bridge the gap between built environment and people . It has the potential to raise questions, build curiosity, drive discourses , explain events, ideas and phenomena.

The course aims to introduce students to architectural writing, avenues to write and publish their works.

A. Architectural Writing
1. Different kinds of Architectural Writing : Documentary, Commentary, Journalism, History, Theory, Critics. Different kinds of Architectural Writers
2. History of Architectural writing.
3. Types of writing- Essay writing, concept writing , article writing, paper writing, Report writing, building/design reviews, book reviews
4. Introduction to References and Bibliography

B. Architectural Journalism
1. Relevance of Architectural Journalism
2. Difference between Architectural Journalism, Criticism and Communications
3. Avenues for reading and writing – Print media (Magazines, Journals, Books, Newspapers) Digital Media (Blogs, websites, open access Journals/Magazines)

Reference Books:

1. **Lange Alexandra "Writing about Architecture Mastering the Language of Buildings and Cities" Architecture Briefs. The Foundation of Architecture, 2015.**
2. **Wiseman Canter "Writing Architecture: A Practical Guide to Clear Communication" Trinity University Press, Texas, 2014.**
3. **Dutta Apoorva "Architectural Voices of India: A blend of Contemporary Traditional Ethos" Cambridge Scholar Publishing, 2017.**
4. **Suneja Pappal "Exploration of Architectural journalism in India" 2019.**
5. **White Strunk "The Elements of Style" econo-Clad Books Publisher, Division of Armerican Cos. Inc, Fourth Edition, 2016.**

18HUM 7.12 ARCHITECTURAL CONSERVATION
Architectural conservation describes the process through which the material, historical, and design integrity of mankind's built heritage are prolonged through carefully planned interventions. Architectural conservation deals with issues of prolonging the life and integrity of

architectural character and integrity, such as form and style, and/or its constituent building materials.

i. Understanding the need and purpose of Heritage Conservation.Types of Heritage
ii. Cultural Heritage (Tangible and Intangible), Natural Heritage and Mixed Heritage.
iii. Introduction to the terms: Preservation, Conservation, Restoration and Reconstruction.
iv. Ethics of conservation, Significance and Value Assessment.
v. Understanding the Process and Degree of Interventions -Indirect Conservations, Preservation, Consolidation, Restoration, Rehabilitation and Reconstruction.
vi. Introduction to Conventions, Charters and Institutes
vii. Understanding the Process of Documentation-Name and Reference, Location, History, Description, Functional type, Organization, Building material and Technique, Physical threats and risk, Socio Economic value.

Reference Books:

1. **M.Feilden's Bernard ,Conservation of Historic Buildings , architectural press ,Third edition ,2003 onwards .**
2. **N.L. Batra,Heritage Conservation: Preservation and Restoration of Monuments,1997 onwards**
3. **Chainani Shyam, Brief-Heritage Conservation-Legislative and Organizational Policies for India ,Intach(UK) ,2009 onwards .**
4. **Gupta Divay ,Identification of Documentation of Built Heritage in India,Intach(UK) trust ,2007 onwards**
5. **https://whc.unesco.org/en/publications/**

18HUM 7.13. DECODING CULTURAL LANDSCAPES - FINDING MEANINGS

The aim of this elective is mainly to sensitize students about systemic thinking and deriving rational interpretations based on cultural Landscapes and their processes. To explore stories, myths revolving around landscapes and elaborate his/her thinking about their interdependencies with an inclusive approach. The elective will also update students about understanding and analyzing crises that the natural systems or cultural landscapes are going through or would possibly undergo and develop a schematic solution to the same.

This course aims to introduce and give an overview of:

1. Different systems and subsystems – Wetlands, Forests, Rivers.
2. Settlement patterns and resource boundary depiction.
3. Migration and interdependency patterns - Based on landscapes.
4. Interpreting myths, anecdotes and folklores based on natural resources and landscapes also tracing their paths back in history.

Reference Books:

1. **Jellicoe Geoffery, The Landscape of Man, Thames and Hudson, London, 2006 and onwards.**
2. **Mcharg Ian, Design with Nature, John Wiley and Sons, New Jersey, 1992 and onwards.**
3. **Amita Sinha, Landscapes in India - Form and Meanings, The University Press of Colorado, July 2006**
4. **P Sainath, Everybody loves a good draught, Penguin books India, 1996**

5. **Peter Whollben, The hidden life of trees, Foreword by Tim Flannery. Greystone Books, Vancouver and Berkeley, 2016**
6. **Amita Sinha, Cultural landscapes of south east Asia, by Routledge, 2018**

Scheme of Continuous Internal Evaluation (CIE):

Components	Portfolio Marking of all the Modules	Average of assignments (Two) /activity	Quiz/Seminar/ Project	Class Participation	Total Marks
Maximum Marks:100	80	-	-	20	100

- **Note: This subject does not have Semester End Examination (SEE).**
- **Minimum marks required to pass CIE: 40 out of 100**

PROFESSIONAL PRACTICE –I

Course Code	**18HUM7.2**	**Credits**	**3**
Course type	**PAECC**	**CIE Marks**	**50 Marks**
Hours/week: L-T-P	**3 Hrs. (Lectures) per Week**	**SEE Marks**	**50 Marks**
Total Hours	**42Hrs.**	**SEE Duration**	**3 Hours for 100 marks**

Course learning objectives:

1.To understand the Profession of Architecture.
2.To understand the Responsibilities and Liabilities of the Profession.
3.To understand the Process of Contract Management.

UNIT I: Profession **09 Hours**

a. Introduction to Profession of Architecture: Definition and brief history, overview of Architectural Profession in India, opportunities, new challenges for architects, difference between profession and business.
b. The Council of Architecture (COA): Overview, Role of Council of Architecture, difference between COA and IIA. functional structure of COA, Registration procedure of COA for graduate architects, code of professional conduct as per COA regulations.
c. Indian Institute Architects(IIA):Overview, brief history,Functional structure of IIA,role and aims of IIA as a Professional body, Architects Act, 1972
d. Professional Duties and Liabilities of An Architect as per COA norms, importance, moral, professional and criminal liabilities, Duties and responsibilities of Architect towards client and under contract.

Self-Learning Topic: Membership details and Registration procedure of IIA and COA.

UNIT II: Architectural Practice **10 Hours**

a. Types of Architectural firms: Proprietorship, partnership, associateship, combined concerns, Private Limited concerns. Advantages and disadvantages of each type of firm.
b. Establishment of Architect's office with alternative solutions, staff structure, administration, basic accounting system, various taxes like professional tax, income tax, capital gain tax, wealth tax, GST(Goods and Services Tax).
c. Types and extent of services offered by architects, scale of fees, stages of payment and agreement between client and architect.Various means of getting works and obtaining projects including works partly executed by real estate agencies, architect, engineer, consultants.
d. Professional fees for comprehensive architectural services, urban design, landscape architecture, interior architecture, Conditions of engagement and Scale of charges as per guidelines formulated by COA .Architectural competitions: Introduction, purpose, types, procedure to conduct competitions as per guidelines formulated by COA, architectural copyright for projects.
e. Architectural competitions: Introduction, purpose, types, procedure to conduct competitions as per guidelines formulated by COA, architectural copyright for projects.

RERA (Real Estate Regulatory Authority) and its implications.
Self-Learning Topic: Case study of an Architect's office to understand nuances of practice.

UNIT III: Tender **09 Hours**

a. Introduction, definition, invitation to tender, types of tenders, merits and demerits of each type of tenders, suitability of different types to various categories of projects. Technical bid, price bid, prebid conference,comparison between conventional and e-tendering.
b. Typical tender notice, essential characteristics of tender notice, tender documents and contents, procedure of calling for tenders, Architect's role in tender process, issue of tender notices, receipt and opening of tender forms, scrutiny, comparative statement, process of selection and work award.
c. Various issues arising out of the tender document and tendering process.
Self-Learning Topic : Preparation of the tender document for a design project of the previous semester.

UNIT IV: Contracts **07 Hours**

a. Contracts: General principles, definition, types of contract, Contract document-Articles of Agreement with Clauses, conditions of contract, appendix, bonus and penalty clauses, liquidated and unliquidated damages, earnest money deposit, security deposit, retention amount, mobilization fund, bank guarantee.
b. Technical specification of civil, water supply and sanitation works. Details of workforce, workshop facilities, list of construction equipment, particulars of work executed, key persons permanently employed by contractor.

UNIT V: Issues of Contract **07 Hours**

a. Issues of contract: Breach of contract, termination of contract by client, by architect, by contractor. Types of insurance necessary during contract for safeguarding interest of architect, client and contractor.
b. Extension of time, delay and penalty, Architect's role in certification and approval of clients in non tendered items, extras, additional works, variations, rate analysis in case of any changes involving cost factor.

Reference Books:

1. **Namavati Roshan: Professional Practice for Architects and Engineers, Lakhani Book Depot, Mumbai (2001 and onwards)**
2. **Deobhakta Madhav: Architectural Practice in India, Pragati offset, Hyderabad (2007 and onwards)**
3. **K G Krishnamurthy and Ravindra S. V.: Professional Practice, Bangalore (2004 and onwards)**
4. **Council of Architecture, Handbook of Professional Documents 2015, AP India, New Delhi**
5. **Ar. Apte Vasant S.: Architectural Practice and Procedure, Mrs.Padmaja Bhide, Pune (2008 and onwards)**

Scheme of Continuous Internal Evaluation (CIE):

Components	Total of best two tests out of three	Average of assignments (Two)/Activities	Quiz/ Seminar /Project	Class Participation	Total Marks
Maximum Marks:50	40	-	-	10	50

- ➢ **Writing two IA tests is compulsory.**
- ➢ **Minimum marks required to qualify for SEE: 20 out of 50**

Scheme of Semester End Examination (SEE):

1. It will be conducted for 100 marks of 3 hours duration. It will be reduced to 50 marks for the calculation of SGPA and CGPA.
2. Minimum marks required in SEE to pass: 20 out of 50
3. Question paper contains two questions from each unit each carrying 20 marks. Students have to answer one full question from each unit.

PROFESSIONAL TRAINING

Course Code	**18DES8.1**	**Credits**	**16**
Course type	**PAECC**	**CIE Marks**	**50**
Hours/week: L-T-P	**-**	**SEE Marks**	**50**
Total Hours	**16 Weeks**	**SEE Duration**	**Viva Voce for 200 marks**

Course learning objectives:
To learn and participate in the various facets of Architectural Practice through Internship at an established architectural studio to get acquainted with the Profession of Architecture.

Outline : It is expected that the student understands the role and importance of the Profession. He / She should be advised / guided on the mode of application and selection of the architectural firms / design studios for internship. During the Training Period, the student is expected to take initiative and be proactive in ensuring that he/she derives the maximum benefit out of the training experience.
The student may be given opportunity and exposure to: Development of design concepts and their expression, Preparation of drawings at various stages of the project: presentation,design development,statutory approval,tender, working drawings etc. 3-D visualization of design using physical and digital models, Preparation of bill of quantities with item specifications, area statements, schedule of finishes. Understanding and evaluating impact of various building regulations for FAR / FSI, parking, height, environment, Fire Protection services, etc. Preparation of Tender documents comprising tender conditions and technical specifications. Study of works at site through time spent on construction sites, Services - collaboration with consultants and other agencies in the building project. Choice of materials available in the market - assessment and selection.

Aspects of Office Management: Understanding the nature of flow of work / instructions in the studio's setup Teamwork – organizing and presenting data for easy access to others.

Effective communication – oral, written, graphical and electronic. Meetings with clients / consultants / vendors / contractors etc. Various facets of working in an office atmosphere, use of office resources.Obtaining, distribution, handling and management/ organization of work in office.
It is understandable that all of the above may not be feasible during the period of training, but it would be good to cover as many of the above points as possible, at-least cumulatively during the training period.

Viva voce marks to be awarded based on the following works to be submitted by the student and presented during the viva:

Training Report – This shall contain copies of drawings done by the student and other works like photographs of sites visited, models produced etc. The office is required to certify each sheet as produced by the student period. Should be supported with photographs, sketches, drawings, and

other relevant data. As part of this report, a particular detail or element shall be highlighted and elaborated upon.

Building Study Report – Detailed critical study of a completed building designed by the architect with whom the student has worked. The student must have visited the building in person and should include photographs and write-ups .

Building Materials Report– Study of building material/element/technology/detail using live projects that the student has documented over the duration of training as case studies with findings regarding cost, use, maintenance, assessment etc. as obtained from the office/user/manufacturer. This can include photographs, samples, video clips, etc.

Site Study Report – A report of observations at one/more project sites over the course of the training

Note:

1. A candidate failing in the viva examination shall repeat the training afresh for 16 weeks, the starting date coinciding with the beginning of a subsequent semester.

2. To take up Viva Voce examination, a student shall produce the training certificate by the principal of the architectural firm where training was undergone, stating the nature and types of work completed during internship, as well as the satisfactory completion of training.

3. Further, the student shall also maintain and produce a log book/ Diary of day to day work at office relating to the assigned work and duly signed by the principal or authorized representative.

Scheme of Continuous Internal Evaluation (CIE):

Components	**Portfolio Marking**	**Average of assignments (Two) /activity**	**Quiz/ Seminar /Project**	**Class Participation**	**Total Marks**
Maximum Marks	50	-	-	-	50

➢ **The Internal Marks CIE (Continuous Internal Evaluation) will be awarded by the Principal Architect of the Firm.**

➢**Minimum marks required to qualify for SEE:20 out of 50**

Scheme of Semester End Examination (SEE):

1. It will be conducted as a 200 marks viva-voce exam and the same will be reduced to 50 marks for the calculation of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**

ESTD. 1939

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"JNANA GANGA" UDYAMBAG, BELAGAVI-590008,
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ESTD. 1979

2018-19 Scheme

Department: Architecture

Programme: B.Arch

1st to 10th Semester Scheme of Teaching and Examination

BATCH _2018

Karnatak Law Society's

GOGTE INSTITUTE OF TECHNOLOGY, BELAGAVI-08

Bachelor of Architecture

SCHEME OF TEACHING AND EXAMINATION

Department :Architecture **Semester: IX**

Subject Stream	Subject Code	Course Type	Subject Title	Teaching Department	Contact Hrs				Credits	Marks					Duration of Exam
					L	S	P/SE	Total		CIE		SEE		Total	
										CP	PA	VIVA/TW	EXAM		
DESIGN	18DES 9.1	PAECC	Dissertation (Thesis part - I)	Architecture	2	4	0	6	8	10	40	50	-	100	-
	18DES 9.2	BS&AE	Energy Efficient Architecture	Architecture	1	0	4	5	3	10	40	50	-	100	-
	18DES 9.3	PE	Elective-II	Architecture	2	0	2	4	3	20	80	-	-	100	-
TECHNOLOGY	18TEC 9.1	PE	Elective-III	Architecture	2	0	2	4	3	20	80	-	-	100	-
HUMANITIES	18HUM 9.2	PAECC	Professional Practice-II	Architecture	3	0	0	3	3	10	40	-	50	100	3 hrs
Total					10	4	8	22	20	70	280	100	50	500	

L-Lecture **CIE- Continuous Internal Evaluati** **CP-Class Participation**

S-Studio **SEE- Semester End Examination** **PA-Progressive Assessment** **CA-Compulsory Audit**

P-Practical PC - Professional Core; BS- Building Science and Applied Engineering; PE- Professional Elective; OE- Open Elective

SE - Studio Exercise PAECC - Professional Ability Enhancement Compulsory Courses; SEC - Skill Enhancement Courses.

Minimum Marks for passing: Theory, Studio and Lab Marks (CIE) : 40%, Term Work/ Viva/Lab(SEE) : 40% Theory Marks (SEE) : 40%,

BATCH _2018

Karnatak Law Society's

GOGTE INSTITUTE OF TECHNOLOGY, BELAGAVI-08

Bachelor of Architecture

SCHEME OF TEACHING AND EXAMINATION

Department :Architecture **Semester: X**

Subject Stream	Subject Code	Course Type	Subject Title	Teaching Department	Contact Hrs				Credits	Marks					Duration of Exam
					L	S	P/SE	Total		CIE		SEE		Total	
										CP	PA	VIVA	EXAM		
DESIGN	18DES10.1	PC	Architectural Design	Architecture	0	10		10	15	10	40	50	-	100	-
HUMANITIES	18HUM10.1	SEC	Constitutional Law	Architecture	2	0	-	2	2	20	80	-	-	100	-
		OE	Open Elective		-	-	-	-	2	-	-	-	-	-	-
				Total	2	10		12	19	30	120	50		200	-

L-Lecture **CIE- Continuous Internal Evaluat CP-Class Participation**

S-Studio **SEE- Semester End Examination PA-Progressive Assessment** **CA-Compulsory Audit**

P-Practical PC - Professional Core; BS&AE- Building Science and Applied Engineering; PE- Professional Elective; OE- Open Elective

SE - Studio Exercise PAECC - Professional Ability Enhancement Compulsory Courses; SEC - Skill Enhancement Courses.

Minimum Marks for passing: Theory, Studio and Lab Marks (CIE) : 40%, Term Work/ Viva/Lab(SEE) : 40% Theory Marks (SEE) : 40%,

DISSERTATION (Thesis Part-I)

Course Code	**18DES9.1**	**Credits**	**8**
Course type	**PAECC**	**CIE Marks**	**50**
Hours/week: L-T-P	**6 HRS (2 Lectures +4 Studios)**	**SEE Marks**	**50**
Total Hours:	**84 Hrs**	**SEE Duration**	**Viva Voce**

Course learning objectives:

1. To understand what is `Research', various methods of research and its applications.
2. To understand the role of research/study in defining the Issue/Phenomenon while dealing with an Architectural project.
3. To identify the Thesis topic based on Architectural Issue/Phenomenon, discuss its relevance in the present context and present it in the form of Synopsis.
4. To illustrate the process of research through documentation, analysis and representation with the help of Literature study and Case studies.

UNIT 1: Introduction **5 Hours**

Introduction to `Research' in general, various Research methods and its applications in the field of design, Research in the Architectural context, various methods of research influencing and defining Architectural projects.

UNIT 2: Synopsis **15 Hours**

Introduction to the Thesis project by identifying /emphasizing the Issue or Phenomenon which should become focus/aim of the study. Write Architectural Synopsis that shall constitute the Title of Thesis, Elaborations on the Topic, Objectives of Thesis, Hypothesis and Methodology.

UNIT 3: Literature Study **49 Hours**

Introduction of the topic and Intention of Thesis, Dictionary meanings of the key words,
a) Elaboration on the Issue/Phenomenon: Characteristics and Historical Aspects.
b) Architecture dealing with the Issue/Phenomenon: Chronological documentation of Architecture dealing in those phenomena, Opinions of Experts on the phenomenon on the issue and architecture dealing with the issue.

UNIT 4: Selection of Case Studies (2 Literature and 2 Live Case Studies) **15 Hours**

1. To identify and present appropriate Literature Case studies that shall demonstrate design techniques dealing with the Issue/Phenomenon.

2. To identify appropriate Live case studies that shall determine the programme of Architectural Project.

Reference Books:

1. **Groat Linda N. and Wang David, Architectural Research Methods, 2013, John Wiley & Sons.**
2. **Lucas Raymond, Research Methods for Architecture,2016,Laurence King Publishing.**
3. **Lang Jon, Creating Architectural Theory: The Role of the Behavioral Sciences in Environmental Design 1987, Van Nostrand Reinhold Company.**
4. **Unwin Simon, Analyzing Architecture 2003, Psychology Press.**

Course delivery methods	**Assessment methods**
1. Lectures and Presentations	**1.Reviews evaluation.**
2.Presentation of Case studies	**2. Semester End Evaluation and Assessment**

Scheme of Continuous Internal Evaluation (CIE):

Components	**Progressive Marking**	**Average of assignments (Two) /activity**	**Quiz/ Seminar/ Project**	**Class Participation**	**Total Marks**
Maximum Marks:50	40	-	-	10	50
➢ **Minimum marks required to qualify for SEE: 20 out of 50**					

Scheme of Semester End Examination (SEE):

1. It will be conducted as 50 marks viva-voce exam and same will be considered for the calculation of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**

ENERGY EFFICIENT ARCHITECTURE

Course Code	**18DES9.2**	**Credits**	**03**
Course type	**BS&AE**	**CIE Marks**	**50**
Hours/week: L-T-P	**5 Hrs (1 Lecture + 4 Studio exercise) per Week**	**SEE Marks**	**50**
Total Hours	**70 Hrs**	**SEE Duration**	**Viva**

Course learning objectives:

1. To introduce students to the techniques of reading and understanding the strategies of Energy Efficient Architecture.
2. To enable students to apply the concepts of energy efficient Architecture to building design.

UNIT I: Introduction to Energy Efficient Architecture and Building Rating Systems 15 Hours

1. Introduction to Energy Efficient Architecture, need for Energy Efficient Architecture, components of Energy Efficient Architecture like Energy Efficient Materials, efficient building systems, Energy Efficient solar passive / active systems, efficient use of resources. Energy demand of a building, impact of building industry on ecology, carbon footprint, ecological footprint.

2. Introduction to rating systems like BREEAM, ASHRAEE, LEED, GRIHA and national codes like NBC, ECBC

UNIT II: Design Exercise and Methodology 55 Hours

1. Design shall explore few components / strategies of Energy Efficient Architecture like Energy Efficient Materials and their assembly, Solar passive shading strategies for design of critical facade and roof. This exercise shall be demonstrated through design of critical facade for buildings designed in the earlier semesters with requisite climatic context.
2. The exercise shall comprise of various stages like site selection and analysis, reading the context, case study analysis, data collection, conceptual design sketches, design drawings and final design submission.The design shall be explored through softwares like Climate Consultant, Ecotect, Sketchup and others.

Course Delivery Methods **Assessment Methods**

1. **Lectures** **1. Case Study Assessment**

2. **CasestudyPresentation** **2.DesignReviews**
3. **Site Study**
4. **Design Discussions** **3. Design Viva**

Reference Books:

1. **Koenigsberger O.H., Ingersoll T.G., Mayhew Alan, Szokolay S.V., "Manual of Tropical Housing and Building",Universities Press, Hyderabad, Telangana, 1975 and onwards.**
2. **Majumdar Mili, "Energy Efficient Buildings in India", The Energy and Resources Institute (TERI), 2001and onwards.**
3. **Givoni Baruch, "Passive and Low Energy Cooling of Buildings", Van Nostrand Reinhold, New York, 1994.**
4. **Sodha, M., Bansal, N. K., Bansal, P. K., KuMEB, A., and Malik, M. A. S., "Solar Passive Buildings", Pergamon Press, Oxford, 1986.**
5. **Bansal Narendra, K., Hauser Gerd and Minke Gernot, "Passive Buildings Design: A Handbook of Natural Climatic Control", Elsevier Science, Amsterdam, 1994.**
6. **Goulding, John, R., Lewis, Owen, J., and Steemers, Theo, C., "Energy in Architecture'', Bastford Ltd., London, 1986**
7. **Day lighting in Buildings Source Book; LBNL and International Energy Agency; 2008. Millet, M; Light Revealing Architecture; Van Nostrand Reinhold, 1996.**
8. **Hopkinson, R.G.; Daylighting; Heinemen; 1966.**
9. **Lam, William M.C.; Perception and Lighting as Form Givers for Architecture, 1968.**
10. **National Building Code of India 2005, Bureau of Indian Standards, Govt. of India, New Delhi, 2005 onwards**
11. **Energy Conservation Building Code Rules, 2018, Bureau of Energy Efficiency, Govt. of India, New Delhi, 2018.**

Scheme of Continuous Internal Evaluation (CIE):

Components	**Portfolio Marking**	**Average of assignments (Two) /activity**	**Quiz/ Seminar /Project**	**Class Participation**	**Total Marks**
Maximum Marks:50	**40**	**-**	**-**	**10**	**50**
➢ **Minimum marks required to qualify for SEE: 20 out of 50**					

Scheme of Semester End Examination (SEE):

1. It will be conducted as 50 marks viva-voce exam and same will be considered for the calculation of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**

Elective II

Course Code	**18DES9.3**	**Credits**	**3**
Course type	**PE**	**CIE Marks**	**50**
Hours/week: L-T-P	**4 HRS (2 Lectures +2 Studio Exercises)**	**SEE Marks**	**100**
Total Hours:	**56 HRS**	**SEE Duration**	**-**

18DES9.31 INTERIOR DESIGN

Course learning objectives:

1. To introduce the concept of interior design.

2. To understand the various components of interior space, treatment and finishes for the same.

Introduction to Interior Design . Definition and process of interior design- principles and elements like space, line, forms, light, color, texture and pattern –introduction to the design of interior spaces as related to function, themes, concepts and anthropometry.

Students shall explore an interior space and analyze the principles and elements. Components of Interior space-Interior Treatment and Finishes

Treatment of components such as floors, ceilings, walls, partitions, window treatments, accessories,etc., in terms of their choice and design related to materials, methods of construction, color and texture based on functional, aesthetic and psychological criteria.

The students shall prepare a material palette to understand the application of materials.

Components of Interior space Lighting and Interior Landscape - Understanding various types of lighting and lighting fixtures, their effects and application in different contexts. Interior landscape elements: rocks, plants, water, paving and artifacts. Students are expected to do a literature case study to understand the ambience created by lighting and landscape in interior spaces as well as in exterior spaces.

Design Exercise:A functional space is introduced to students as a design problem. Students are required to do the live case study to understand the design process. Further the study culminates into a detailed interior design project.

Reference Books:

1. Francis .D.K. Ching, Interior Design Illustrated, V.N.R. Pub., NY 1987.

2. John Kurtich & Garret Eakin, Interior Architecture, VNR, New York, 1993

3. Rezmikoff, Interior Graphic and Design Standards, Whitney Library of Design, New York,1986

4.Zelnik, M.,Panero, Time-saver Standards for Interior Design , Mcgraw-Hill, Austin, TX, U.S.A,2001

18DES9.32 FURNITURE DESIGN

Course learning objectives:

The course provides a historical underpinning to the student's understanding of the furniture field.

To familiarize the students about the knowledge of furniture design and various aspects involved in the Design of furniture for various spaces.

To enable the students to learn about the types and importance of furniture, know about the selection, care and arrangement of furniture.

1) Study of origins: modern design and the major schools and philosophies of 20th Century furniture design. This ranges from the 19th century roots of the Industrial Revolution, the Arts and Crafts movement, European design movements such as the Vienna Werkstatte and the Bauhaus, the development of the first international styles such as Art Nouveau, Art Deco and Modernism. Study of furniture forms by contemporary artists and designers.
2) Emphasis and discussions of the social, economic and cultural context of furniture on the evolution of the domestic realm and the role of furniture within it.
3) Study of Anthropometry and Ergonomics in relation to various furniture, diagrammatic representation through charts.
4) Furniture Forms and Their Influence on Our Emotional Responses .
5) Importance of furniture in relation to Interiors: study of shapes, forms and patterns of furniture.
6) Study of various design technologies and materials used to manufacture furniture.
7) Environmental conditions influencing furniture designs such as : Climatic, social, economic.

8) Techniques of finishing the Surfaces: Wood and Metal Paints, Polishes and varnishes etc: hand painting, brush painting, roller, spray .

Reference Books:

1. **Stuart Lawson, Furniture Design: An Introduction to Development, Materials, Manufacturing, Laurence King Publishing, London 2013 .**
2. **Jerryl Habegger , Sourcebook of Modern Furniture , W. W. Norton & Co.Pennsylvania 2005.**
3. **Andrea Mehlhose, Modern Furniture: 150 Years of Design, H.F.Ullmann Publishing, Germany 2009.**

18DES9.33 PARAMETRIC DESIGN

Parametric design is a process based on algorithmic thinking that enables the expression of parameters and rules that, together, define, encode and clarify the relationship between design intent and design response.

This course aims to introduce and give an overview of:

1. Introduction to Parametric design modeling in Architecture.
2. Introduction to elements of Parametric design- Programming, Geometry, Patterns and Design space exploration.
3. Introduction to parametric design software - Mc-Neel Rhinoceros and Grasshopper 3D.
4. Exploration of parametric modeling techniques with the basic Architectural design problems and finding family of solution outcomes. eg.: Elements of Architecture, facade solutions, Form finding, etc.
5. Post-production - Digital fabrication techniques- Sectioning, Tessellating, Folding, Contouring and Forming
6. Physical Model building.

Reference Books:

1. **Woodbury Robert: Elements of Parametric design, Routledge, UK, 2010**
2. **Iwamoto Lisa: Digital Fabrications- Architecture and Material Techniques, Princeton Architectural Press, New York, USA, 2009**
3. **Khabazi Zubin: Generative Algorithms, Morphogensisim, E-Book, 2010**
4. **Payne Andrew and Rajaa Issa: Grasshopper Primer, e-book, 2009**

Scheme of Continuous Internal Evaluation (CIE):

Components	Portfolio Marking of all the Modules	Average of assignments (Two) /activity	Quiz/Seminar/ Project	Class Participation	Total Marks
Maximum Marks:100	80	-	-	20	100

- **Note: This subject does not have Semester End Examination (SEE).**
- **Minimum marks required to pass CIE: 40 out of 100**

Elective -III

Course Code	**18TEC9.1**	**Credits**	**3**
Course type	**PE**	**CIE Marks**	**50**
Hours/week: L-T-P	**4 HRS (2 Lectures +2 Studio Exercises)**	**SEE Marks**	**100**
Total Hours:	**56 HRS**	**SEE Duration**	**-**

18TEC9.11 INTRODUCTION TO BASICS OF DESIGN AND CONSTRUCTION TECHNOLOGY OF HIGHRISE ARCHITECTURE.

The major metropolitan cities around the world are unimaginable without High Rise Structures. The stacked area development in these megacities is inconceivable and would be impossible to organize in layers with only a few floor levels. Increasing acceptance and need in Europe, Middle East and Asia of high-rise development has led to the need to understand the complex task of planning this typology.

Various planning processes, belonging to different disciplines go into building of high rise- from project management to site supervision, from foundations and load bearing structures to effects of wind, Façade structures to building systems, fire protection, Elevator installation etc.

This course aims to introduce and give an overview of:

1. The brief History of the High-rise and it as Unique Typology.
2. Socio-Economic Factors influencing High Rise architecture - Rise in Urban population and Density, vehicular Congestion,
3. Economic and Urban factors influencing High-rise buildings–Profitability, construction and maintenance costs, Renting and rent estimate, FSI and other Development guidelines.
4. High Rise Building Types and their typical Spatial Organisations, Office organisation and building grid. Advantages and disadvantages of tall buildings, Essential Amenities.
5. Types of High-rise foundations and load bearing structures/systems (direct and indirect load transfer systems).
6. Effects of Wind on high-rise towers like wind loads, ventilation, pedestrian comfort and wind noise, smoke extraction
7. Properties of High-rise façade and façade types.
8. Fire Protection.
9. Elevator Installation.

Reference Books:

1. Eisele, Johann,.Cloft,Ellen,. "High-Rise Manual; Typology and Design, Construction and Technology". Birkhauser, Boston.

2. Mehta,B,Jashwant,. "High-Rise buildings" Bombay, 1978.

3. Watson, Donald,."Time-Saver Standards for Urban Design". McGraw Hill Education, 2017

4.Gallion A. B,. "The Urban Pattern City Planning And Design".Cbs. 2005

18TEC9.12 GEOGRAPHIC INFORMATION SYSTEM GIS

Geographic information system is a software environment system which comprises the holistic approach towards the representation, recording as well as management of spatial data for analysis and planning. Its application varies largely from urban, ecological, soil, water and resource management. Also the tools and resources available in GIS system can widely used in analysis of terrain landforms and water flow analysis.

1) Introduction to GIS and its applications
2) Introduction to various types of maps and map analysis and elements of cartography and its concepts viz. coordinate systems and various types of GIS package systems.
3) Introduction types of data, spatial and non-spatial data, data structures, points, lines, polygon, vector and raster, files and file organization, database, data entry, digitizer, scanner, Dbase, files and data formats, data compression.
4) Spatial analysis, data retrieval, query, simple analysis, recode, overlay, vector data analysis, raster data analysis, modelling in GIS, digital elevation model, DTM, cost and path analysis.
5) Types of output data, display on screen, printer, plotter, other output devices, sources of errors, types of errors, elimination, accuracies.
6) Resource management, agriculture, soil, water, resources management, cadastral records and LIS, integration of Remote Sensing in GIS, knowledge based techniques.
7) Representation of small GIS project by actual application to familiarize the students with the concepts and application of GIS in database management and real world applications.

Reference Books:

1. **Heywood Ian, Cornelius Sarah, Carver Steve.,. "An Introduction to geographical Information Systems ". New Delhi Pearson 2000**
2. **R.Ram Mohan rao, Afzal Sharieff ,. "Geographic Information Systems Theory and Practice ". New Delhi Rawat Publication 2005**
3. **Pandey Jatin, Pathak Darshana , "Geographic Information System",TERI 2017**

18TEC9.13 COST-EFFECTIVE ARCHITECTURE.

Cost – effective architecture is all about design and construction that optimizes the various aspects of construction without reducing the quality of the final product. Cost –effectiveness does not mean sub-standard or poor quality structure. It involves strategies intended to optimize resources, technology, material utilization and maximum efficiency of the structure.

This course aims to introduce and give an overview of :

1) Meaning of Cost-effectiveness in architecture.
2) Costs involved during building construction.
3) Factors influencing application of cost-effective techniques in construction.
4) Cost-effective design strategies and construction techniques.
5) Cost-effective building materials.
6) Contributions of organizations like Hunnarshala Foundation, COSTFORD, Dharmalay Institute and others in propagating cost – effectiveness in architecture.
7) Case Studies of cost-effective buildings.

Reference Books:

1. **Laurie Baker, Houses: How to Reduce Building Costs, COSTFORD : Center Of Science and Technology For Rural Development.**
2. **Laurie Baker, A Manual For Cost Cuts For Strong Acceptable Housing, COSTFORD : Center Of Science and Technology For Rural Development.**
3. **Environment Friendly Indian Building Material Technologies for Cost Effective Housing,Society For Excellence In Habitat Development, Environment Protection and Employment Generation (SHEE)**
4. **Demonstrating Cost Effective Technologies (A Case Study of Bawana Industrial Workers Housing Project) Building Materials & Technology Promotion Council (BMTPC)Ministry of Housing and Urban Affairs, Government of India.**
5. **Utilisation of Recycled Produce of Construction & Demolition Waste : A Ready Reckoner,Building Materials & Technology Promotion Council (BMTPC)Ministry of Housing and Urban Affairs, Government of India.**

Scheme of Continuous Internal Evaluation (CIE):

Components	Portfolio Marking of all the Modules	Average of assignments (Two) /activity	Quiz/Seminar/ Project	Class Participation	Total Marks
Maximum Marks:100	80	-	-	20	100

- **Note: This subject does not have Semester End Examination (SEE).**
- **Minimum marks required to pass CIE: 40 out of 100**

PROFESSIONAL PRACTICE-II

Course Code	**18HUM9.1**	**Credits**	**3**
Course type	**PAECC**	**CIE Marks**	**50**
Hours/week: L-T-P	**3 Hrs. (Lectures) per Week**	**SEE Marks**	**50**
Total Hours	**42 Hrs**	**SEE Duration**	**3 Hours for 100 marks**

Course learning objectives:

1) To understand the process of Contract Administration and supervision
2) To understand Arbitration, Valuation and dilapidation
3) To understand the Building byelaws and Easements.
4) To understand the General Laws

UNIT I: Contract Administration and Supervision 08 Hours

a) Meaning and purpose of supervision, site visits, site office, site meetings, coordination with various agencies, site book, site instructions and clerk of works.
b) Execution of contract - Joint measurements, checking running bills with reference to measurement book, different certificates by architect—interim, penultimate, virtual completion and final certificate; defects liability period, latent and patent defects, prime cost and provisional sum.
c) Contract administration: Overview of procedures in contract administration including financial aspect, bar chart and CPM chart.

UNIT II: Arbitration 12 Hours

a) Introduction, definition, advantages and disadvantages of Arbitration, Conciliation Act 1996, difference between Arbitration and Conciliation.
b) Arbitrator, umpire, order of reference, selection of arbitrator, powers and duties of arbitrators.
c) Conduct of Arbitration proceedings,Arbitration award and its implementation.

UNIT III: Valuation and Dilapidation **12 Hours**

a) Introduction to valuation, definitions,essential characteristics, classification of value,purpose of valuation.Various terms used in valuation, study of valuation tables.
b) Various methods of valuation, factors affecting valuation, specimen valuation report based on land and building method and on rental method.
c) Dilapidation—definition, schedule of dilapidation report of typical load bearing mangalore tiled ground floor building and three storied R.C.C. building. Physical, economic life of buildings and obsolescence

UNIT IV: Building Byelaws and Easements **07 Hours**

a) Building bye laws: Introduction, importance of building bye-laws, various definitions, building license, foundation and supervision certificate, colour codes plans and site plan, Completion certificate (CC), setbacks and F.A.R. height limitations, parking, details for residential and commercial buildings, division of plots and plot coverage.
b) National building code, purpose of NBC, building line, accessibility, residential lay-outs, zoning regulations. Emerging Bye Laws :Environmental laws, Firefighting laws,Water Harvesting, Solar energy, Wind energy.
c) Easements: various easement rights, protecting client's interest with reference to easement rights laws related to property and land: tenure of land, types of land holdings, land registration, covenants, trespass and nuisance.

Self-Learning Topic: Line diagram of residential building in a standard plot indicating open spaces, F.A.R, plot coverage drainage lines with colour codes as per building bye laws.

UNIT V: General Laws **09 Hours**

a) Understanding of common law, statute law, equity,criminal law, civil law, etc.
b) Consumer Protection Act 1986.
c) Professional Indemnity Insurance- Insurance against Professional liability, performance bonds, insurance warranties, estoppels.
d) Fire protection and Fire Insurance: Architect's responsibility after fire hazard in any building, Fire Insurance Premium, Reinstatement Clause, Typical Report by Architect on fire Loss.

Reference Books:

1. **Namavati Roshan: Professional Practice for Architects and Engineers, Lakhani Book Depot, Mumbai (2001 and onwards)**
2. **Deobhakta Madhav: Architectural Practice in India, Pragati offset, Hyderabad (2007 and onwards)**
3. **K G Krishnamurthy and Ravindra S. V.: Professional Practice, Bangalore (2004 and onwards)**
4. **Council of Architecture, Handbook of Professional Documents 2015, AP India, New Delhi**
5. **Ar. Apte Vasant S.: Architectural Practice and Procedure, Mrs. Padmaja Bhide, Pune (2008 and onwards)**

Scheme of Continuous Internal Evaluation (CIE):

Components	Total of best two tests out of three	Average of assignments (Two)/Activities	Quiz/Seminar/ Project	Class Participation	Total Marks
Maximum Marks:50	40	-	-	10	50

- **Writing two IA tests is compulsory.**
- **Minimum marks required to qualify for SEE: 20 out of 50**

Scheme of Semester End Examination (SEE):

1 It will be conducted for 100 marks of 3 hours duration. It will be reduced to 50 marks for the calculation of SGPA and CGPA.

2 **Minimum marks required in SEE to pass: 20 (40%)**

3 Question paper contains 08 questions each carrying 20 marks. Students have to answer FIVE full questions. The SEE question paper will have two compulsory questions (any 2 modules) and choice will be given in the remaining three modules.

ARCHITECTURAL DESIGN PROJECT(Thesis)

Course Code	**18DES10.1**	**Credits**	**15**
Course type	**PC**	**CIE Marks**	**50**
Hours/week: L-T-P	**10Hrs (Studio)**	**SEE Marks**	**50**
Total Hours:	**140 Hrs**	**SEE**	**Viva**

Course learning objectives:

1. To present detailed documentation and analytical study of approved Case-studies and present the findings with the help of live and literature study.
2. To identify appropriate context and Site, present detailed Site study, present feasibility of Site to demonstrate the Architectural Design Project.
3. To formulate design program evolved out of case-study, site study and design intent.
4. To present conceptual process and comprehensive Architectural Design with the help of Sketches, Study-models, detailed architectural drawings, physical model and three dimensional models.

UNIT I: C**ase-Study presentations** **20 Hours**

To present two Live and two Literature Case studies with the help of detailed documentation and analytical drawings presenting the details with regards to program, concept, and design.

UNIT II: Site study **20 Hours**

Identify appropriate context and Site that is feasible to demonstrate the Architectural Project. Discuss the context its features and issues, understand the Site and its relation with surrounding context and present the influencing factors. Present detailed analysis of Site with respect to its Location, Surroundings, Edge conditions and other physical features like topography and landscape elements.

UNIT III: Program Formulation **15 Hours**

Project design programme shall be formulated based on the outcome of various Case studies, Context and site study and intentions in design.

UNIT IV: Design Demonstration **85 Hours**

Demonstrate the process of design from understanding of Issue, evolving design solutions and demonstrating its implementation through final design.

Demonstrate detail Architectural project with the help of Sketches, Study-models, Detailed drawings, Physical model and three dimensional models.

Reference Books:

1. **Groat Linda N. and Wang David, Architectural Research Methods, 2013, John Wiley & Sons.**
2. **Lucas Raymond, Research Methods for Architecture,2016,Laurence King Publishing.**
3. **Lang Jon, Creating Architectural Theory: The Role of the Behavioral Sciences in Environmental Design 1987, Van Nostrand Reinhold Company.**
4. **Unwin Simon, Analyzing Architecture 2003, Psychology Press.**

Course delivery methods	**Assessment methods**
1. Lectures and Presentations	**1.Reviews evaluation.**
2.Presentation of Case studies	**2. Semester End Evaluation and Assessment**

Scheme of Continuous Internal Evaluation (CIE):

Components	**Progressive Marking**	**Average of assignments (Two) /activity**	**Quiz/ Seminar /Project**	**Class Participation**	**Total Marks**
Maximum Marks:50	40	-	-	10	50
➢ **Minimum marks required to qualify for SEE: 20 out of 50**					

Scheme of Semester End Examination (SEE):

1. It will be conducted as 50 marks viva-voce exam and same will be considered for the calculation of SGPA and CGPA.
2. **Minimum marks required in SEE to pass: 20 out of 50**

CONSTITUTIONAL LAW

Course Code	**18HUM10.1**	**Credits**	**2**
Course type	**SEC**	**CIE Marks**	**100**

Hours/week: L-T-P	**2 Hrs. (Lectures) per Week**	**SEE Marks**	**-**
Total Hours	**28 Hrs**	**SEE duration**	**-**

Course learning objectives:

1. To understand the constitutional values and objectives written in the Indian Constitution
2. To understand the Fundamental rights and duties of an Indian citizen

UNIT I: Indian Constitution **04 Hours**

a) Preamble to the Constitution of India
b) Evolution of Constitutional Law

UNIT II: Rights and Duties **06 Hours**

a) Scope and extent of Fundamental Rights under Part III
b) Details of exercise of rights, limitations and important cases.
c) Relevance of Directive principles of State Policy Under Part IV
d) Significance of Fundamental Duties under part IV (a)

UNIT III: Executive **06 Hours**

a) Union :President, Vice-President, Prime Minister, Council of Ministers, Parliament and Supreme Court of India

b) State : State Executive, Governor, Chief Minister, Council of Ministers, Legislature and high courts

UNIT IV: Constitutional Provision **06 Hours**

a) Constitutional provisions for scheduled castes and tribes; women and children and backward classes.

UNIT V: Emergency Powers **06 Hours**

a) Emergency powers
b) Major constitutional Amendments.
c) Electoral Process

Reference Books:

1. **Durga Das Basu, "Introduction to the Constitution Of India(student edition)**
2. **VN Shukla, "Constitution of India"**

Course delivery methods	Assessment methods
1. Lectures	1. Assignments assessment
2. Assignments	

Scheme of Continuous Internal Evaluation (CIE):

Components	Portfolio Project	Average of two assignments	Quiz/Seminar/Project	Class participation	Total Marks
Maximum Marks	80	-	-	20	100

- **Note: This subject does not have Semester End Examination (SEE).**
- **Minimum marks required to pass CIE: 40 out of 100**

Open Elective

Course Code	**18HUM10.1**	**Credits**	**2**
Course type	**OE**	**CIE Marks**	**100**
Hours/week: L-T-P	**2 Hrs. (Lectures) per Week**	**SEE Marks**	**-**
Total Hours	**28 Hrs**	**SEE duration**	**-**

18TEC9.11 RAPID PROTOTYPING , REVERSE ENGINEERING AND 3D PRINTING (OPEN ELECTIVE)

Objective:

To familiarize the students about the emerging field of Rapid Prototyping and 3d printing technology and its application in architectural modelling.

1) Introduction to Rapid Prototyping (Additive Manufacturing)
2) Additive Manufacturing Techniques: SLA, SLS, FDM, LOM, LENS - Principle of operation, Process parameters and Applications, Concept Modellers – 3DP – Principle of operation and application.
3) Reverse Engineering: Definition, Importance, Application, Steps involved in a Scanning process
4) Introduction to Software used in RP:
5) Practical demonstration of the steps involved in printing a component in the FDM printer.
6) Hands-on experience on 3D printing a complex component starting from creating a sketch,3D modelling it by modelling software and then printing it in the FDM printer.
7) Practical demonstration of the general steps involved in reverse engineering by scanning a component using a 3D scanner.
8) Study the effect of process parameters and post processing techniques on the Dimensional Accuracy (Using a 3D scanner) of a 3D printed component.

Reference Books:

1. **Gibson Ian, David Rosen, Bent Stucker, Additive Manufacturing Technologies, 3D printing, Rapid Prototyping, and Direct Digital Manufacturing, Springer, 2015, 2nd Edition, 2015.**
2. **Ramesh S, Rapid Prototyping, Ane books Pvt. Ltd., 2016.**