KLE Technological University | Creating Value, Leveraging Knowledge

Curriculum Structure and Curriculum Content for the Academic Batch 2019-24
School of Architecture
Program: Bachelor of Architecture

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School of Architecture

Table of Contents

Vision

KLE Technological University will be a national leader in Higher Education–recognised globally for innovative culture, outstanding student experience, research excellence and social impact.

Mission

KLE Technological University is dedicated to teaching that meets highest standards of excellence, generation and application of new knowledge through research and creative endeavors.

The three-fold mission of the University is:

- To offer undergraduate and post-graduate programs with engaged and experiential learning environment enriched by high quality instruction that prepares students to succeed in their lives and professional careers.

- To enable and grow disciplinary and inter-disciplinary areas of research that build on present strengths and future opportunities aligning with areas of national strategic importance and priority.

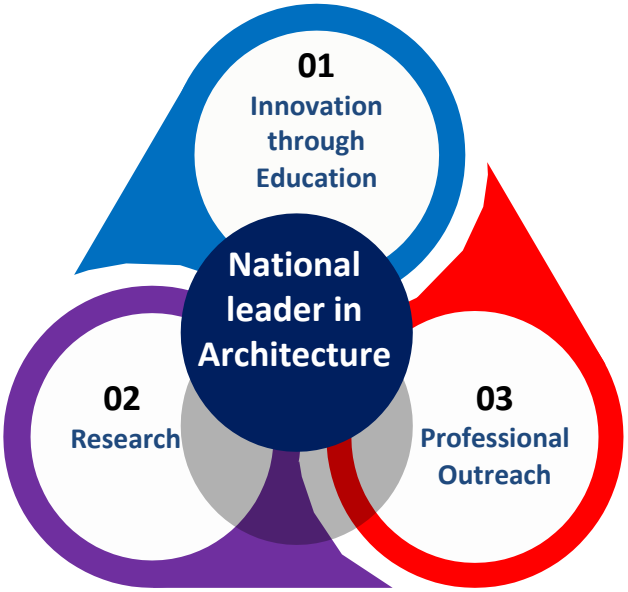
- To actively engage in the Socio-economic development of the region by contributing our expertise, experience and leadership, to enhance competitiveness and quality of life.

As a unified community of faculty, staff and students, we work together with the spirit of collaboration and partnership to accomplish our mission.

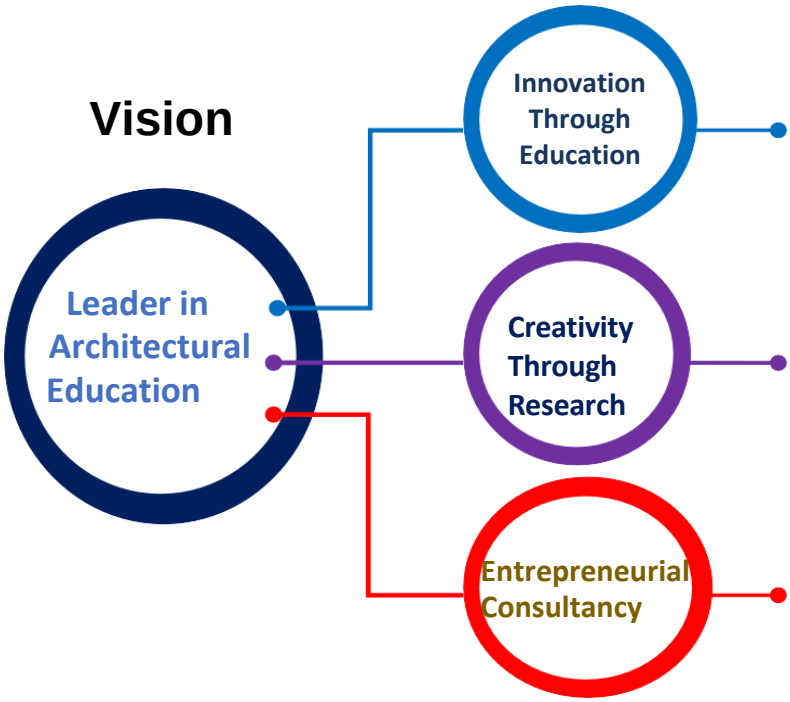
Vision and Mission Statements of the School of Architecture

Vision

KLE Tech – School of Architecture aspire to be one of the nation's premier institutes offering quality education in the domain of architecture and achieve the highest order of excellence by engaging in innovation through education, research and consultancy.



Mission



Offers a learning experience through rigorous curriculum of theory and practice that **develops students technical and professional skill** to succeed in a wide rage carrier.

Pursue advance research through a **culture of discovery, creativity, and innovation** to benefit the humankind.

Contribute as an asset to society, the profession **through professional organization, consultancy** and continuing education.

KLE Tech School of Architecture shall accomplish its mission byworking in a team, with the spirit of collaboration and partnership

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School of Architecture

Program Educational Objectives/Program Outcomes and Program-Specific Objectives

Program Educational Objectives -PEOs
The School of Architecture is dedicated to graduating architects
PEO1 - Have artistic sensitivity and creative powers to plan, execute designs with socio cultural, environmental and technological aspects of architecture.
PEO2 -Will have intellectual growth along with the capacity to develop creative and responsible design solutions to unique problems.
PEO3 -Will acquire the individual capabilities necessary for the competent practice of architecture and lifelong learning
PEO4 -Are well acquainted with a wide range of contemporary design approaches.
PEO5 Understand architecture as a creative, productive, innovative and responsible practice.
PEO6--Will have the ability to critically analyses building designs, built forms, built environment and conduct post occupancy evaluation studies.
PEO7 -Have the skill to work and manage collaboratively with teams of architects and other experts involved in the building industry
PEO8 – Can understand and recognize the diversity of user needs, values, behavioral norms, social patterns as they relate to the creation of the built environment.
Program Outcomes -POs
PO1. Professional Communication Skills: Ability to write and speak effectively and use representational media appropriate for both the profession & the general public at large
PO2. Design Thinking Skills: Ability to raise clear and precise questions, use abstract ideas to interpret information, consider diverse points of view, reach well-reasoned conclusions, and test
PO3. Investigative Skills: Ability to gather, assess, record, and comparatively evaluate relevant information and performance to support conclusions related to a specific project or assignment alternative outcomes against relevant criteria & standards
PO4. Architecture design skills: Ability to effectively use basic formal, organizational & environmental principles & the capacity of each to inform two and three-dimensional design
PO5. i) Pre-Design: Ability to prepare a comprehensive program for an architectural project that includes an assessment of client and user needs; an inventory of spaces and their requirements; an analysis of site conditions (including existing buildings); a review of the relevant building codes and standards, including relevant sustainability requirements, and an assessment of their implications for the project; and a definition of site selection and design assessment criteria. ii)Site Design: Ability to respond to site characteristics, including urban context and developmental pattern, historical fabric, soil, topography, ecology and climate in the development of a project design. iii)Codes and Regulations: Ability to design sites, facilities, & systems that are responsive to relevant codes & regulations including the principles of life-safety & accessibility standards
PO6.i) Ordering systems: Ability to apply the fundamentals of both natural and formal ordering systems and the capacity of each to inform two & three-dimensional design. Use of case studies: Ability to examine and comprehend the fundamental principles present

in relevant precedents and to make informed choices about the incorporation of such principles into architecture design projects
PO7. I) Socio cultural study: History and Global Culture: Understanding of the parallel and divergent histories of architecture and the cultural norms of a variety of indigenous, vernacular, local, and regional settings in terms of their political, economic, social, ecological, and technological factors
PO8. Environmental systems: Ability to demonstrate the principles of environmental systems design, how design criteria can vary by geographic region, and the tools used for performance assessment. This demonstration must include active and passive heating and cooling, solar geometry, day lighting, natural ventilation, indoor air quality, solar systems, lighting systems, and acoustics
PO9 I) Building Technology: Understanding of the basic principles involved in the appropriate selection and application of building envelope systems relative to fundamental performance, aesthetics, moisture transfer, durability, and energy and material resources. Building Materials & Assemblies: Understanding of the basic principles used in the appropriate selection of interior and exterior construction materials, finishes, products, components, and assemblies based on their inherent performance, including environmental impact and reuse
PO10 Financial Considerations: Construction - estimating, scheduling, financing, feasibility Operational – Life cycle costs Financial Considerations: Construction - estimating, scheduling, financing, feasibility Operational – Life cycle costs architect, user groups, local community and the architect's role to reconcile stakeholder needs
PO11 Project Management: Understanding of the methods for selecting consultants and assembling teams; identifying work plans, project schedules, and time requirements; and recommending project delivery methods Business practices: Understanding of the basic principles of a firm's business practices, including financial management and business planning, marketing, organization, and entrepreneurship.
PO12 I Financial Considerations: Construction - estimating, scheduling, financing, feasibility Operational – Life cycle costs architect, user groups, local community and the architect's role to reconcile stakeholder needs ii) Project Management: Understanding of the methods for selecting consultants and assembling teams; identifying work plans, project schedules, and time requirements; and recommending project delivery methods iii) Business practices: Understanding of the basic principles of a firm's business practices, including financial management and business planning, marketing, organization, and entrepreneurship. IV) Legal responsibilities: Understanding of the architect's responsibility to the public and the client as determined by regulations and legal considerations involving the practice of architecture and professional service contract rofessional Conduct: Understanding of the ethical issues involved in the exercise of professional judgment in architectural design and practice and understanding the role of the COA Code of Ethics in defining professional conduct.
PO13 Integrated Evaluations: Integrated Evaluations and Decision-Making Design Process: Ability to demonstrate the skills associated with making integrated decisions across multiple systems and variables in the completion of a design project. This demonstration includes problem identification, setting evaluative criteria, analyzing solution.

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Curriculum Structure-Overall

Semester: 1 to 10 (2019-24 Batch) **Total Program Credits : 220**

Course with course code	I	II	III	IV	V	VI	VII	VIII	IX	X
	Architectural Design – I (0-4-0)	Architectural Design – II (0-5-0)	Architectural Design III (0-6-0)	Architectural Design IV (0-6-0) Climate responsive	Architectural Design V (0-6-0) Services/site planning	Architectural Design VI (0-6-0) Housing	Architectural Design VII (Campus planning) (0-7-	Professional Training 0-22-0	Architectural Design 1X (Urban Insert) (O-10-0)	Architectural Design - IX (Thesis Project) (0-18-0)
	Building Construction & Materials – I (0-4-0)	Building Construction & Materials – II (0-4-0)	Building Construction & Materials – III (0-4-0)	Building Construction t & Materials - I V (0-4-0)	Building Construction & Materials - V (0-4-0)	Building Construction & Materials - VI (0-4-0)	Building Construction & Materials - VII (0-4-0)	-	Pre-thesis 0-4-0	Green Building Studio (0-2-0)
	Graphics – I (0-4-0)	Graphics – II (0-4-0)	Services – I (water supply & sanitation) (2-0-0)	Services II (Electricity & Illumination) (2-0-0)	Services III (HVAC) (2-0-0)	Services IV (Acoustic) (2-0-0)	Research methodology and Dissertation (0-3-0)	-	Construction Management (3-0-0)	Elective VI (0-2-0)
	Structures – I (3-0-0)	Structures – II (3-0-0)	Structures – III (3-0-0)	Structures – IV (3-0-0)	Structures – V (3-0-0)	Structures – VI (3-0-0)	Structures – VII (0-2-0)	-	Professional Practice - II (3-0-0)	-
	Pre-history of Architecture (2-0-0)	History of Architecture- I (2-0-0)	History of Architecture- II (2-0-0)	History of Architecture III (2-0-0)	Modern Architecture (2-0-0)	Contemporary Architecture (2-0-0)	Professional Practice-I (2-0-0)	-	Elective IV (0-2-0)	-
	Basic Design (0-3-0)	Digital Tool-I (0-0-1)	Measure Drawing (0-2-0)	Quantity survey & specification 2-0-0	Landscape Design (0-2-0)	Interior Design (0-2-0)	Online Portfolio 1-0-0	-	-	-
	Skill Development Workshop I (0-2-0)	Skill Development Workshop II (0-1-0)	Climatology (2-0-0)	Theory of Architecture (2-0-0)	Working Drawing (0-2-0)	Settlement Planning (2-0-0)	Digital tool Revit 0-0-1	-	-	-
	-	Surveying (2-0-0)	Digital Tool-II (0-0-1)	Elective-I (0-1-0)	Elective-II (0-1-0)	Elective-III (0-1-0)	-	-	-	-
	Theory = 02 Studio = 05 Lab = 00	Theory = 03 Studio = 04 Lab = 01	Theory = 04 Studio=03 Lab = 01	Theory = 05 Studio = 03 Lab = 00	Theory = 03 Studio's=05 Lab = 00	Theory = 04 Studio's=04 Lab = 00	Theory = 02 Studio's=05 Lab=01	-	Theory=02 Studio's=02	Theory=00 Studio's=03
Credits	**22**	22	22	22	22	22	22	22	22	22

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Curriculum Structure-Semester wise

Semester –I ←

No	Code	Course	Category	L-T-P	Credits	Contact Hours	ISA	ESA	Total	Exam Duration (in hrs)
1	18AATC101	Architectural Design – I	Design	0-4-0	4	6	50	50	100	NA
2	18AATC102	Building Construction & Materials – I	Construction	0-4-0	4	6	50	50	100	NA
3	18AATC103	Graphics – I	Communication	0-4-0	4	6	50	50	100	NA
4	18AATC104	Skill development workshop-I	Design	0-2-0	2	3	50	50	100	NA
5	18AATC105	Prehistoric Architecture	Design	2-0-0	2	2	50	50	100	3 HOURS
6	18AATC106	Basic Design	Design	0-3-0	3	4	50	50	100	NA
7	18AATC107	Structures – I	Construction	3-0-0	3	3	50	50	100	3 HOURS
			TOTAL	5-17-0	22	30	350	350	700	

ISA: Internal Semester Assessment ESA: End Semester Assessment, P: Practical, S: Studio, L: Lecture,

Credit	Lecture Hours	Studio Hours	Practical Hours
1	1	1.5	2

Semester –II

No	Code	Course	Category	L-T-P	Credits	Contact Hours	ISA	ESA	Total	Exam Duration (in hrs.)
1	18AATC108	Architectural Design – II	Design	0-4-0	4	6	50	50	100	NA
2	18AATC109	Building Construction & Materials – II	Construction	0-4-0	4	6	50	50	100	NA
3	18AATC110	Graphics – II	Communication	0-4-0	4	6	50	50	100	NA
4	18AATC111	History of Architecture I	Design	2-0-0	2	2	50	50	100	3 HOURS
5	18AATC112	Skill Development Workshop II	Design	0-2-0	2	3	50	50	100	NA
6	18AATP108	Digital Tool-I	Communication	0-0-1	1	2	50	50	100	NA
7	18AATC114	Structures – II	Construction	3-0-0	3	3	50	50	100	3 HOURS
8	18AATC113	Surveying	Construction	2-0-0	2	2	50	50	100	3 HOURS
			TOTAL	7-14-1	22	30	400	400	800	

ISA: Internal Semester Assessment, ESA: End Semester Assessment, P: Practical, S: Studio, L: Lecture,

Credit	Lecture Hours	Studio Hours	Practical Hours
1	1	1.5	2

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Semester- III

No	Code	Course	L	T	Credits	Contact Hours	ISA	ESA	Total	Exam Duration (in hrs.)
1	18AATC201	Architectural Design III	0	6	6	9	50	50	100	NA
2	18AATC202	Building Construction & Materials III	0	4	4	6	50	50	100	NA
3	18AATC203	Services – I (w s & sanitation)	2	0	2	2	50	50	100	3 HOURS
4	18AATC204	Climatology	2	0	2	2	50	50	100	3 HOURS
5	18AATC205	History of Architecture II	2	0	2	2	50	50	100	3 HOURS
6	18AATC206	Measure Drawing	0	2	2	4	50	50	100	NA
7	18AATC207	Structures – III	3	0	3	3	50	50	100	3 HOURS
8	18AATP201	Digital Tool-II	0	0	1	2	50	50	100	NA
TOTAL			9	12	1	22	400	400	800	

ISA: In-semester Assessment ESA: End Semester Assessment L: Lecture T: Tutorials P: Practical

Credit	Lecture Hours	Studio Hours	Practical Hours
1	1	1.5	2

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Semester- IV ←

No	Code	Course	L	T	Credits	Contact Hours	ISA	ESA	Total	Exam Duration (in hrs.)
1	18AATC208	Architectural Design IV	0	6	6	9	50	50	100	NA
2	18AATC209	Building Construction & Materials IV	0	4	4	6	50	50	100	NA
3	18AATC210	Services II (Electricity & Illumination)	2	0	2	2	50	50	100	3 HOURS
4	18AATC211	History of Architecture III	2	0	2	2	50	50	100	3 HOURS
5	18AATC212	Theory of Architecture	2	0	2	2	50	50	100	3 HOURS
6	18AATC213	Quantity survey & specification	2	0	2	4	50	50	100	3 HOURS
7	18AATC214	Structures – IV	3	0	3	3	50	50	100	3 HOURS
8	18AATE201 18AATE202 18AATE203 18AATE204	Elective-I Apace Culture & Architecture Human Centered Design Bio Mimicry in Architecture Digital Rendering	0	1	1	2	50	50	100	NA
TOTAL			11	11	22	30	400	400	800	

ISA: In-semester Assessment ESA: End Semester Assessment L: Lecture T: Tutorials P: Practical

Credit	Lecture Hours	Studio Hours	Practical Hours
1	1	1.5	2

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Semester- V ←

No	Code	Course	L	T	Credits	Contact Hours	ISA	ESA	Total	Exam Duration (in hrs.)
1	18AATC301	Architectural Design V	0	6	6	9	50	50	100	NA
2	18AATC302	Building Construction & Materials V	0	4	4	6	50	50	100	NA
3	18AATC303	Services III (HVAC)	2	0	2	2	50	50	100	3 HOURS
4	18AATC304	Modern Architecture	2	0	2	2	50	50	100	3 HOURS
5	18AATC305	Working Drawing	0	2	2	4	50	50	100	NA
6	18AATC306	Landscape Design	0	2	2	2	50	50	100	NA
7	18AATC307	Structures – V	3	0	3	3	50	50	100	3 HOURS
8	18AATE301 18AATE302	Elective- II Vernacular Architecture Bio Inspired Architecture	0	1	1	2	50	50	100	NA
TOTAL			7	15	22	30	400	400	800	

ISA: In-semester Assessment ESA: End Semester Assessment L: Lecture T: Tutorials P: Practical

Credit	Lecture Hours	Studio Hours	Practical Hours
1	1	1.5	2

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Semester- VI

No	Code	Course	L	T	Credits	Contact Hours	ISA	ESA	Total	Exam Duration (in hrs.)
1	18AATC308	Architectural Design VI	0	6	6	10	50	50	100	NA
2	18AATC309	Building Construction & Materials VI	0	4	4	6	50	50	100	NA
3	18AATC310	Services IV (Acoustic)	2	0	2	2	50	50	100	3 HOURS
4	18AATC311	Contemporary Architecture	2	0	2	2	50	50	100	3 HOURS
5	18AATC312	Settlement Planning	2	0	2	2	50	50	100	3 HOURS
6	18AATC313	Interior Design	0	2	2	3	50	50	100	NA
7	18AATC314	Structures – VI	3	0	3	3	50	50	100	3 HOURS
8	18AATE308	Elective- III Analyzing Architecture	0	1	1	2	50	50	100	NA
TOTAL			9	13	22	30	400	400	800	

ISA: In-semester Assessment ESA: End Semester Assessment L: Lecture T: Tutorials P: Practical

Credit	Lecture Hours	Studio Hours	Practical Hours
1	1	1.5	2

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Semester- VII

No	Code	Course	L	T	Credits	Contact Hours	ISA	ESA	Total	Exam Duration (in hrs.)
1	18AATC401	Architectural Design VII (Campus Planning)	0	7	7	10	50	50	100	NA
2	18AATC402	Building Construction and Materials-VII	1	3	4	6	50	50	100	NA
3	18AATC403	Research Methodology and Dissertation	0	3	3	4	50	50	100	NA
4	18AATC404	Structure-VII	0	3	3	4	50	50	100	NA
5	18AATC405	Professional Practice I	3	0	3	3	50	50	100	3 HOURS
6	18AATC406	Online Portfolio	0	1	1	2	50	50	100	NA
7	18AATC407	Digital tool III (Revit)	0	1	1	2	50	50	100	NA
TOTAL			4	18	22	35	350	350	700	350

ISA: In-semester Assessment ESA: End Semester Assessment L: Lecture T: Tutorials P: Practical

Credit	Lecture Hours	Studio Hours	Practical Hours
1	1	1.5	2

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Semester- VIII

No	Code	Course	L	T	Credits	Contact Hours	ISA	ESA	Total	Exam Duration (in hrs.)
1	18AATT401	Professional Training	0	22	22	34	50	50	100	NA
TOTAL			0	22	22	34	50	50	100	

ISA: In-semester Assessment ESA: End Semester Assessment L: Lecture T: Tutorials P: Practical

Credit	Lecture Hours	Studio Hours	Practical Hours
1	1	1.5	2

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Semester- IX ←

No	Code	Course	L	T	Credits	Contact Hours	ISA	ESA	Total	Exam Duration (in hrs.)
1	18AATC501	Architectural Design VIII (Urban Insert0	0	10	10	15	50	50	100	NA
2	18AATC502	Pre thesis	0	4	4	6	50	50	100	NA
3	18AATC503	Professional Practice II	3	0	3	3	50	50	100	3 HOURS
4	18AATC504	Construction And Project Management	3	0	3	3	50	50	100	3 HOURS
5	18AATE501 18AATE502 18AATE503 18AATE504	Elective VI Architectural Film Making Architectural Lighting Transit Oriented Development Architectural Entrepreneurship	0	2	2	3	50	50	100	NA
TOTAL			6	16	22	30	250	250	500	250

ISA: In-semester Assessment ESA: End Semester Assessment L: Lecture T: Tutorials P: Practical

Credit	Lecture Hours	Studio Hours	Practical Hours
1	1	1.5	2

.

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Semester- X ←

No	Code	Course	L	T	Credits	Contact Hours	ISA	ESA	Total	Exam Duration (in hrs.)
1	18AATC505	Architectural Design - IX (Thesis Project)	0	18	18	24	50	50	100	NA
2	18AATC506	Green Building Studio	0	2	2	3	50	50	100	NA
3	18AATE505 18AATE506 18AATE507	Elective –VII Documentation and Technical writing Architecture and human behavior Adobe Illustrator	0	2	2	3	50	50	100	NA
TOTAL			0	22	22	30	150	150	300	

ISA: In-semester Assessment ESA: End Semester Assessment L: Lecture T: Tutorials P: Practical

Credit	Lecture Hours	Studio Hours	Practical Hours
1	1	1.5	2

Curriculum Content- Course wise

←BACK TO SEMESTER-I

Program : Architecture		
Course Title: ARCHITECTURAL DESIGN - I		**Course Code: 18AATC101**
L-S-P: 0-4-0	**Credits: 4**	**Contact Hours: 6**
ISA : 50	**ESA: 50**	**Total Marks: 100**
Teaching Hours: 84	**Examination Duration : NA**	

UNIT I

Introduction to Human proportions, Anthropometry and space standards

Detailed study of spaces requirements with respect to single unit dwellings such as living, dining, bedrooms, kitchen, toilet etc. minimum standards for movements and vehicular data expression of design using the following.
Spatial perception of spaces
Study of anthropometrics
Circulation
Forms and integrity
Space planning
Architectural expression

UNIT II

Introduction to Space making elements.

Defining the core space making elements like wall, openings, column, floors, roofs, stairs etc. its usage and importance in designing spaces of various needs. Measuring and plotting existing buildings to understand element and its role in space creation.

UNIT III

Designing a multi room space.

Designing and organizing spaces of various purposes with respect to movement, circulation, furniture layout, aesthetical relation of traditions, culture etc. expression of creativity in form making
The design issues to be addressed are
Various basic human functions and their spatial implications
Formulation of concepts
Anthropometry and furniture layout
Movement and circulation diagram
Interior volumes and space articulation through different materials.
Integration of form and function.
Study models.
The design projects could be, my dream house, guest house, farm house, tree house, cottage, etc.

Reference Books:

Ching, Francis DK, Architecture: Form, Space and Order, 2nd ed.Van Nostrand Reinhold, New York, 1999

Scheme for Internal semester assessment (ISA) The Portfolio covering the given topics and the study models shall be presented. The evaluation shall be through periodic internal reviews. The students have to present the entire semester work for assessment along with Models. Term work Evaluation of Portfolio, assignments by internal examiner
Scheme for End Semester Assessment (ESA) Term work: Evaluation of Portfolio and assignments by internal and external examiners/Viva
Mode of assessment : Portfolio, Models
Text Books: NIL

Program: Architecture		
Course Title: BUILDING CONSTRUCTION & MATERIALS - I		**Course Code: 18AATC102**
L-S-P: 0-6-0	**Credits: 4**	**Contact Hours: 6 / week**
CIE Marks: 50	**SEE Marks: 50**	**Total Marks: 100**
Teaching Hours: 84	**Examination Duration: NA**	

UNIT I

Basic building components, material convention, brick work & mortar building components - Introduction to and their functions in brief, like foundation, plinth, coping, DPC, floor, walls, lintels, D&W, weather shade, roof, parapet etc.

Material convention- Convention of construction materials, like brick & stone masonry, timber, ply wood, steel, glass, concrete, mortar, metal etc., used for representing, in plan, section and elevations

Tools- Introduction to various tools commonly used for excavation, masonry and carpentry works

Bricks and blocks- Introduction to burnt clay bricks, properties of good bricks, molding methods, and application. Blocks used as an alternative to bricks, such as i) adobe (stabilized mud), ii) hollow clay, iii) cement concrete iv) fly ash v) autoclaved aerated concrete (AAC), etc.

Brick masonry- Types of bonds used in brick masonry, for walls & pilasters of varying thickness.

Mortar- Types, uses, & properties of bonding materials like clay, lime, cement, gypsum etc. Sources and qualities of good sand & alternatives in preparing mortars.

UNIT II

Stone, stone masonry, foundation, plinth formation, lintels & arches

Stones – Geological classification, types, properties and uses of stones for building. By-products of stones such as ballast, aggregate, graded crushed stone & powder (M- sand).

Stone masonry- Types of bonds used in stone masonry.

Foundation: Introduction to excavation- types & behavior of soil. Types of shallow foundations in brick and stone & purpose, for load bearing structure.

Plinth formation- Construction and formation of plinth for building with masonry walls, using i) bricks ii) stones iii) CC blocks including refilling in and consolidation.

Lintel and arches- Introduction to, types and functions for spanning of openings in building. Method of construction using various materials like stone slab, timber, metal, brick and stone masonry, concrete etc.

UNIT III

:

Coping, dpc, plastering, grunting & cladding

Coping & dpc- Introduction to and use of coping & DPC in building using various materials.

Plastering – Types, preparation and application in interior & exterior, like i) mud ii) lime iii) cement iv) gypsum with different finishes.

Grunting & grouting– To fill in cracks, voids in masonry, concrete and for repairs.

Cladding – Using tiles such as clay, stone, decorative cement, etc. for walls & roof

Note – The Portfolio covering the above topics shall be presented for Term work. Site visits shall be arranged by studio teacher. Study of material application shall be submitted in the form notes, sketches and photo brief as a part of portfolio

Scheme for Internal semester assessment (ISA)

Regular Assignments, models.

Term work: Evaluation of Portfolio, assignments by internal examiner

Scheme for End Semester Assessment (ESA) –

Term work: Evaluation of Portfolio, assignments by internal and external examiners

Mode of assessment : Portfolio .

Text Books - Nil

Reference Books:

McKay J.K Building Construction Metric Vol 1-4, 4th edi Orient Longman Pvt. Ltd, Mumbai,2002

“Construction Technology” Volume-I by R Chudley, ELBS & Longman group Ltd.

Barry R, “The construction of buildings” , Vol-2, 5th Edi, East West Press, New Delhi 1999.

Bindra S.P and Arora S.P, Building Construction-Planning Techniques and Method of Construction, 19th edi, Dhanpat Rai Pub ,NewDelhi, 2000

“Building Construction” by Janardhan Jha, Khanna New-Delhi.

Rangawal S.C ,“Building Construction” 22nd Edi, charotar Publishing house, Anand, 2004

“Engineering Materials” by Surendra Singh, Vikas Delhi.

“Building Materials” by S K Duggal, IBH New Delhi.

Sushil Kumar T.B of Building Construction 19th edi, Standard Pub House, NewDelhi, 2003.

Chowdhary K.P. Engineering Materials used in India, 7th Edi, Oxford and IBH Pub ltd New Delhi, 1990.

Building Construction Hand book : By R Chudly & R Greeno, Bullerworth Heinemann, New-Delhi.

←BACK TO SEMESTER-I

←BACK TO SEMESTER-I

Program : Architecture		
Course Title: GRAPHICS - I		**Course Code: 18AATC103**
L-S-P: 0-4-0	**Credits: 4**	**Contact Hours: 6**
ISA: 50	**ESA: 50**	**Total Marks: 100**
Teaching Hours: 84	**Examination Duration: NA**	

UNIT I

1: Introduction to the basic principles of drawing

Introduction to the basic principles of drawing, introduction to drawing equipment's and their uses, sign conventions, Lettering and Dimensioning, Architectural Scale

2: Plane geometry – Lines, Angles, Curves and regular Polygons

Construction of triangles, quadrilaterals, curves and regular polygons

3: Solid Geometry – Points and Lines

Introduction to solid geometry, Orthographic projections of points and lines

4: Solid Geometry – Planes and Solids

Problems on Orthographic projections of planes and solids

UNIT II

5: Three Dimensional Representation – Oblique, Axonometric & Isometric

Problems on Oblique, axonometric & Isometric projection of solids

6: Technical drawing

Simple floor plans, elevation, sections, of simple building.

UNIT III

7: Architectural Detailing

Reading and representing building components details such as door frames fixing, chejja, plinth formation, steel joinery etc.

Scheme for Internal semester assessment (ISA)
Regular Assignments, models.
Term work: Evaluation of Portfolio, assignments by internal examiner

Scheme for End Semester Assessment (ESA) –
Term work: Evaluation of Portfolio, assignments by internal and external examiners

Mode of assessment : Portfolio.

Text Books:

Bhat N.D. and Panchal V.M, Engineering Drawing, Plane and solid geometry, Charotar Publishing house, Anand 2002.

Francis D.K. Ching, Architectural Graphics, 4th Edition, John Wiley & Son, New York

←BACK TO SEMESTER-I

Program : Architecture		
Course Title: Skill Development Workshop- I		**Course Code: 18AATC104**
L-S-P: 0-2-0	**Credits: 2**	**Contact Hours: 3**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 42	**Examination Duration : NA**	

Unit-I

Course contents:

Free hand and objects drawing: Observation and recording through free hand drawing by using various drawing and sketching tools like pencil, pen, charcoal crayons etc.

Architectural Model Making :Introduction to Basics of the Model making skills like cutting, pasting etc.

Unit-II

Architectural sketching: Drawing of human figures, vehicles, small buildings, furniture, simple and complex geometrical objects with an emphasis on the perception of details and expressing them in lines, colour texture etc.

Architectural Model Making: Introduction to Basics of the following associated skills to enhance and understand spatial, scale, material, and aesthetical requirements of design, construction and presentation.

Unit-III

PAINTING: Understanding of colour wheel, components , types of colour, colour schemes, value and intensity by using painting tools and materials like brushes, paper, water color, poster colour etc.

Sessional Work (Internal semester assessment)

Regular Assignments, Architectural sketches, drawings and models

Scheme for Semester End Assessment (ESA)

Term work: Evaluation of Portfolio, assignments by internal and external examiners

Mode of assessment: Portfolio / Models.

References: Book: Robert Gill: Rendering with pen & ink, Thames & Hudson New York 1984. Robert Gill: Basic Rendering, Thames & Hudson New York 1991. John Chen: Architecture in pen & ink, McGraw-Hill Inc- USA 1995. Colin Saxton: Art School, Chart well Books Inc. New Jersey.

←BACK TO SEMESTER-I

Program : Architecture		
Course Title: Prehistoric Architecture		**Course Code: 18AATC105**
L-S-P: 2-0-0	**Credits: 2**	**Contact Hours: 2**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours:28	**Examination Duration: 3 Hours**	

Course contents:
Focuses on study of evolution of various styles of architecture, methods of construction and influence of art and culture on architecture.
Evolution of mankind-its impact – on primitive arts and crafts in various countries.
Evolution of shelter forms in different regions.
Growth of Human settlements and cultural influences.
Influence of religion and culture on domestic and civil architecture.

Unit-1

Pre-Historic world
Primitive man – Shelters, Settlements, religious and burial systems
Ex: Oval Hut, Nive, Dolmen Tomb, Gallery Grave, Passage Grave, Houses at Catal Huyuk, Lepensiki Vir settlements, stone Hinge.

Unit-II

River valley cultures-
Study of political systems, concept of settlement, impact of climate, socio culture and their related shelter types, planning types, method of building structures and detailing. Study of building materials used.
Indus valley civilization-
Layout of Mohenjo-Daro, House Plans, Community well, Great Bath, Granary.
Egyptian-
Tombs, Pyramids, & Temples- Mastaba Tombs, Pyramid of Cheops, Temple of Khons, Karnak.

Unit-III

River Valley Cultures-
Tigris and Euphrates
Ziggurats at Warka, Ur and Tchoga Zanbil, Palace of Sargon, Mastaba Tombs.

Sessional Work (Internal semester assessment)
Students will be assessed by 2 theory minor exams of 20 marks each and 10 marks for sketch book submission.

Scheme for Internal semester assessment (ISA)
Regular Assignments, models.
Term work: Evaluation of Portfolio, assignments by internal examiner

Scheme for End Semester Assessment (ESA)
External examination-3 hrs

Mode of assessment:
Portfolio & Theory Exam

Text Books : NIL

References:
“History of Architecture in India “byTadgell Christopher.
Sir Banister Fletcher’s “History of Architecture

Scheme for End Semester Assessment (ESA)

Sl.No	8 Questions to be set of 20 Marks Each	Chapter Number	Instructions
I	Q.No.-1, Q.No.-2, Q.No.-3	1, 2,3	Solve Any 2 out of 3
II	Q.No.-4, Q.NO – 5 Q.No.-6,	4, 5,6	Solve Any 2 out of 3
III	Q.No.-7, Q.No.-8	7,8	Solve Any 1 out of 2

←BACK TO SEMESTER-I

Program : Architecture		
Course Title: Basic Design		**Course Code: 18AATC106**
L-S-P: 0-3-0	**Credits: 3**	**Contact Hours: 4**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 56	**Examination Duration: NA**	

Unit-I

Elements of Visual Composition: Understanding role of the following basic elements of visual design existing in paintings, compositions, murals, sculptures, building and in a nature – Dots, Lines, Planes, Patterns, Shapes, Forms, Spaces, Colour, Texture, Levels, Light, Fenestration's. Study of Textures and Textures Schemes.

Unit-II

Principles of Visual Compositions : Understanding and using principles like Repetition, Rhythm, Radiation, Focal point, Symmetry, Asymmetry, Background, Foreground, Sense of Direction, Harmony, Balance and Proportion.

Unit-III

EXPLORATION OF ART FORMS- study of traditional and contemporary art forms, relation between art and architecture from earliest times to present.

Sessional Work (Internal semester assessment)
Regular Assignments, Architectural models, rendered sheets and photos

Scheme for Semester End Assessment (ESA)
Term work: Evaluation of Portfolio, assignments by internal and external examiners

Mode of assessment : Portfolio , Model .

References:

Robert Gill: Rendering with pen & ink , Thames & Hudson New York 1984
Robert Gill : Basic Rendering ,Thames & Hudson New York 1991
John Chen : Architecture in pen & ink, McGraw-Hill Inc- USA 1995
Colin Saxton : Art School, Chartwell Books Inc New Jersy.

←BACK TO SEMESTER-I

Program : Architecture		
Course Title: Structures-I		**Course Code: 18AATC107**
L-S-P: 3-0-0	**Credits: 3**	**Contact Hours: 3**
ISA: 50	**ESA: 50**	**Total Marks: 100**
Teaching Hours: 42	**Examination Duration: 3 Hours.**	

UNIT I

Evolution of Structures: Historical perspective and definition of structure as a device for channeling loads that result from the use or presence of the building in relation to ground.
Structural systems and its elements overview: Vertical/lateral systems: wall, cantilever, moment frame, braced frame, horizontal one-way and two-way systems: truss, arch, vault, dome, shell, cable stayed, suspended, membrane.
Experiment with Structures: Example-1: Build a structure using drawing sheet paper having three and four supports to carry a weight of 2 to 3 kg on it. Example-2: Make a column of height 30mm to carry a weight of 3kg. Example-3: Build a beam of span 450mm simply supported to carry a weight of 1kg at mid span.
Basic structural Materials: Qualities of building materials Mechanical properties of Structural materials: wood, masonry, steel, concrete, fabric; energy use and rupture length. Advantages and disadvantages of Structural Materials and choice of Structural Material for domestic buildings, Industrial buildings, Tall buildings and Long Span buildings.
Loads on Structures: Dead load (DL), live load (LL), static, dynamic, impact, and thermal loads. Principle of transmissibility of forces. Understanding load flow by tributary load and load path (slab, beam, and girder) and vertical members (post, wall, and footing); load path.
Sectional properties: Centroid, difference between centroid and center of gravity, role of symmetry in locating centroid, moment of inertia, obtaining moment of inertia of unsymmetrical by applying parallel and perpendicular axis theorems.

UNIT II

Equilibrium of Forces: Force, characteristics of a force, Reaction, Moment of a force and Principle of Support conditions and their significance in resistance to forces and to maintain equilibrium.
Basic principles of mechanics: Tension, compression, shear, bending, torsion; symbols and notations; force and stress.
Stress/strain relations (Hooke's Law): Material response to applied loads, intensity of stress, strain and types. Stress strain diagrams for major building materials, Modulus of Elasticity, linear and non-linear materials, elastic, plastic, and elastic-plastic materials; Poisson's Ratio; Thermal stress and strain.
Graphic vector analysis: Resultant and equilibrant of coplanar, concurrent and non-concurrent force systems. Parallelogram, force polygon, resultant, equilibrant, components; numeric method.

UNIT III

Truss: Truss concept of triangulation, common truss configurations, innovative forms for truss of given span.
Truss loads and reactions: For a given configuration of the trusses and center to center spacing, calculations of the dead weight of the truss and the dead weight of the roof cover and support reaction loads analysis of simple trusses by method of joints..

Scheme for Internal semester assessment (ISA)
Regular Assignments

Scheme for End Semester Assessment (ESA) - External examination-3 hrs.

Mode of assessment: Portfolio & Theory Exam.

Text Books: Egg Mechanics by S.S.Bhavikatti III-edition .Vikas publications New Delhi.
Reference Books STRUCTURES - Martin Bechthold, Daniel L Schodek, and PHI Learning Private limited, Sixth Edition 2) Structure in Architecture, the building of buildings, by Mario Salvadori 3) Structure and Design, by G. G. Schierle 4) Engg Mechanics – R K Bansal & Sanjay Bansal, Laxmi publications, New Delhi, 3rd ed 5) Engg Mechanics, Ferdinand L Singer, Harper Collins publications, 3rd ed.

Scheme for Semester End Examination (ESA)

Sl.No	8 Questions to be set of 20 Marks Each	Chapter Number	Instructions
I	Q.No.-1, Q.No.-2, Q.No.-3	1,2,3,4,5	Solve Any **2** out of **3**
II	Q.No.-4, Q.NO – 5 Q.No.-6,	6,7,8,9	Solve Any **2** out of **3**
III	Q.No.-7, Q.No.-8	10,11	Solve Any **1** out of **2**

←BACK TO SEMESTER-I

II SEMESTER

Program : Architecture		
Course Title: ARCHITECTURAL DESIGN – II		**Course Code: 18AATC108**
L-S-P: 0-4-0	**Credits: 4**	**Contact Hours: 6**
ISA: 50	**ESA: 50**	**Total Marks: 100**
Teaching Hours: 84	**Examination Duration : NA**	

UNIT I

Introduction to Design theory
Principles of architectural composition:
General principles like unity, Balance, Proportion, Scale, Contrast, Harmony, Accentuation, and Restraint.
Repose, Vitality, Strength in the built environment
Underlying Ordering Principles Symmetry, hierarchy, datum, axis, scale and proportion rhythm in the built environment.

UNIT II

Introduction Multiuser/ public spaces
Defining and understanding various design aspects needed for multi /semipublic/public user spaces.

UNIT III

Designing a multi user multi-level room space.
To develop skills for comprehensive understanding and dealing with Architecture Provide skills for designing multi-user and multi-level spaces.
The design issues to be addressed are
Multi user and multi-level space formation
Integration of material and form.
Integrate the horizontal and vertical circulation.
Develop skills to correlate the materials and the resulting form.
Details pertaining to the disabled, aged people and children.
The tentative list of suggested projects to be covered as design problems: Architectural Exhibition / display spaces Multi level museum, academic spaces, kindergarten school, Recreational spaces fast food/ restaurant

Scheme for Internal semester assessment (ISA)
The Portfolio covering the given topics and the study models shall be presented.
The evaluation shall be through periodic internal reviews.
The students have to present the entire semester work for assessment along with Models.
Term work Evaluation of Portfolio, assignments by internal examiner

Scheme for End Semester Assessment (ESA)
Term work: Evaluation of Portfolio and assignments by internal and external examiners/Viva

Mode of assessment : Portfolio, Models,Reviws.

Text Books: NIL

RETURN TO SEM II

Program: Architecture		
Course Title: BUILDING CONSTRUCTION & MATERIALS - II		**Course Code: 18AATC109**
L-S-P: 0-4-0	**Credits: 4**	**Contact Hours: 6/ week**
CIE Marks: 50	**SEE Marks: 50**	**Total Marks: 100**
Teaching Hours: 84	**Examination Duration: NA**	

UNIT I

Timber, bamboo & its products.

TIMBER- Introduction to, qualities of good timber used in building. Timber based products like i) veneer, ii) plywood iii) block board iv) chip / particle board v) fiber board (MDF) vi) Engineered timber, finger-joint boards. Introduction of bamboo and its products used in building.

TIMBER DOORS – Study of timber doors in building. Components of a door. Various types & joinery details of doors i.e. i) battened & ledged ii) battened, ledged & braced iii) framed & battened iv) framed & paneled v) framed & glazed. Flush doors using timber products & detailing there on. Study of fixtures used for doors.

UNIT II

Timber windows

Study, types & construction details of glazed timber windows, i.e. i) casement ii) corner iii) bay iv) dormer v) clerestory vi) lantern vii) skylight viii) louvered etc. Components of window. Construction, joinery details, & study of fixtures, for i) casement ii) bay & iii) louvered windows.

TIMBER ROOFS- Introduction to, evolution, classification & study of conventional timber roofs for small to moderate spans like i) flat (*madagi*) ii) Lean to iii) couple iv) collar beam v) king post vi) queen Post. Construction & joinery details for King post roof truss.

UNIT III

Roofing materials, paints

Identifying & working out fixing details of various common roofing materials like i) clay tiles ii) asbestos cement, aluminum, galvanized iron, SS, profiled, PVC, polycarbonate sheets etc.

PAINTS- Study & use of paints, polishes and protective coatings, including preparation of for new and old, surfaces, of interior and exterior like: wood work, steel work, plastered work, exposed masonry & cladding work etc.

Scheme for Internal semester assessment (ISA)
Regular Assignments, models.
Term work: Evaluation of Portfolio, assignments by internal examiner

Scheme for End Semester Assessment (ESA) –
Term work: Evaluation of Portfolio, assignments by internal and external examiners

Mode of assessment : Portfolio .

Text Books – Nil

Reference Books:

12. McKay J.K Building Construction Metric Vol 1-4, 4th edi Orient Longman Pvt. Ltd, Mumbai,2002
13. "Construction Technology" volume-I by R Chudley, ELBS & Longman group Ltd.
14. Barry R, "The construction of buildings" , Vol-2, 5th Edi, East West Press, New Delhi 1999.
15. Bindra S.P and Arora S.P, Building Construction-Planning Techniques and Method of Construction, 19th edi, Dhanpat Rai Pub ,NewDelhi, 2000
16. "Building Construction" by Janardhan Jha, Khanna New-Delhi.
17. Rangawal S.C ,"Building Construction" 22nd Edi, charotar Publishing house, Anand, 2004
18. "Engineering Materials" by Surendra Singh, Vikas Delhi.
19. "Building Materials" by S K Duggal, IBH New Delhi.
20. Sushil Kumar T.B of Building Construction 19th edi, Standard Pub House, NewDelhi, 2003.
21. Chowdhary K.P. Engineering Materials used in India, 7th Edi, Oxford and IBH Pub ltd New Delhi, 1990.
22. Building Construction Hand book : By R Chudly & R Greeno, Bullerworth Heinemann, New-Delhi.

RETURN TO SEM II

Program : Architecture		
Course Title: GRAPHICS - II		**Course Code: 18AATC110**
L-S-P: 0-4-0	**Credits: 4**	**Contact Hours: 6**
ISA: 50	**ESA: 50**	**Total Marks: 100**
Teaching Hours: 84	**Examination Duration: NA**	

UNIT I

Section of Solids - section of simple and composite objects.
Perspective View- Parallel and Angular perspective projection.
Principles and visual effects of three dimensional objects.
Study of picture plane, station point, vanishing point, eye level, ground level etc., their variation and their resultant effects.

UNIT II

Perspective view drawings of simple geometrical forms by office method and by measuring point method
Sociography - Introduction of basic principles of sociography and its application to the field of architecture.
Sociography of line and plane in plan and elevation.
Sociography of three dimensional objects in perspective views.

UNIT III

Perspective drawing including (one point & two point) of building exteriors including rendering.
Perspective drawing including (one point & two point) of building interiors including rendering.

Scheme for Internal semester assessment (ISA)
Regular Assignments, models.
Term work: Evaluation of Portfolio, assignments by internal examiner

Scheme for End Semester Assessment (ESA) –
Term work: Evaluation of Portfolio, assignments by internal and external examiners

Mode of assessment : Portfolio .

Text Books: NIL

Reference Books:

Perspective Drawing, Shah Patki Kale
Geometrical Drawing for Art students, I H Morris,
Engineering Drawing, Prof, VeeEss, MSRIT, V.K.Publishers, BNG-10,1990
Basic Perspective" by Robert Gill, Rendering with Pen & Ink by Robert Gill.
"Perspective and Sciography" by S.H.Mullik.
Perspective for Interior Desingners by John Pile.
Applied perspective by John Holmes.
Building Drawing by M.G.Shah, C.M.Kale & S.Y.Patk

RETURN TO SEM II

Program : Bachelor of Architecture			
Course Title: Skill Development - II		**Course Code:24AATC111**	**Teaching Hours**
L-S-P : 0-3-0	**Credits: 3**	**Contact Hours: 05**	
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**	
Teaching Hours: 80	**Examination Duration: NA**		
Course Overview - The course is designed to equip students with the fundamental concepts and practical skills necessary for building design process and assessment. As the architectural industry majorly depends on these digital essential skill sets, which can enable the student to come up with quick professional solutions. This course provides the comprehensive understanding of professional Digital skills which an Architect should posses			
UNIT I			
Auto Cad Working on AutoCAD basic tools. Learning different types drafting parameters. Get acquainted with CAD software environment by working on various categories of drawing tools, editing tools, modifying tools, layering tools, dimension and text tools. Produce and plot to scale Digital architectural drawings, (Plans, Elevations and Sections			**20**
Sketch Up Digital architectural 3D view, (isometric views Sectional views), rendered perspective views and details using Trimble Sketch Up software. Drawing tools, editing tools, modifying tools, layering tools, Dimensioning and text tools in Sketch up.			**20**
UNIT II			
Adobe Photoshop Architectural Digital Rendering, Color Correction and Pixel Re touch up, digital painting using Adobe Photoshop. Image manipulation and composition for Architectural Presentation.			**20**
UNIT III			
Adobe Illustrator Creating Architectural Vector Design, presentation and illustrations using Adobe Illustrator. Architectural Digital Rendering , creating illustrations , text effects , textures , patterns for Architectural Vector Rendering and Presentation			**20**
Scheme for Internal semester assessment (ISA) Regular Assignments drafting of sheets, rendered sheets, models and photos			
Scheme for End Semester Assessment (ESA) **Term work:** Evaluation of Portfolio, assignments by internal and external examiners			
Mode of assessment: Portfolio			
Text Books : NIL			
Reference Books : NIL			

RETURN TO SEM II

Program : Architecture		
Course Title: HISTORY OF ARCHITECTURE - I		**Course Code: 18AATC111**
L-S-P: 2-0-0	**Credits: 2**	**Contact Hours: 2**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 28	**Examination Duration: 3 Hours**	
Unit-I:		
Pre-Classical Architecture – Persian, Mycenaean, Etruscan Characteristics, The Palace of Persepolis, The Palace Tiryns, The Temple of Juno Sospita, Lanuvium. **Greek Architecture** Characteristics, Orders of Greek, The Acropolis: Athens, Parthenon, Theatres and Temples		
Unit-II		
Roman Architecture Characteristics, Orders, Colosseum, Pantheon, Forums, Temples, Theatres, Amphitheaters, and Aqueducts **Early Christian Architecture & Byzantine Architecture** Characteristics, Basilica churches, St Peter's Church Rome, Evolution of Byzantine Churches, Hagia Sophia		
Unit-III		
Romanesque Architecture New Construction Methods, Pisa Cathedral, The Abbey Church, Cluny **Gothic Architecture** Cathedrals, Gothic Churches with construction of pointed arch, Rose windows, etc.		
Scheme for Internal semester assessment (ISA) Regular Assignments, models. Term work: Evaluation of Portfolio, assignments by internal examiner		
Scheme for End Semester Assessment (ESA) External examination-3 hrs.		
Mode of assessment: Portfolio & Theory Exam		
Text Books : NIL		
References: Sir Banister Fletcher - History of Architecture F.D K Ching, Mark Jarzombek and Vikramaditya Prakash – A Global History of Architecture		

RETURN TO SEM II

Program : Architecture		
Course Title: Digital Tool –I (CAD)		**Course Code: 18AATP108**
L-S-P: 0-0-1	**Credits: 1**	**Contact Hours: 2**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours:28	**Examination Duration: NA**	

UNIT I

Introduction to CAD Environment: Introduction to The world space, user co-ordinate system (us). Command line and menus, to learn basic commands like, units, limits, line, circle, arc. Etc. Use editing commands like trim, extend, erase, and offset to create basic shapes.

Unit-II

2D Drafting: Use basic drawing and editing commands to create 2d architectural plans, elevations, and sections, adding text and dimensions creating layers using advance editing commands.

Unit-III

Composing and printing: Creating detail sanction drawings, using plot for output, saving drawings in different file formats. Creating 2d drawings from Google earth and importing images in cad.

Sessional Work (Internal semester assessment)
Students will be assessed by 2 theory minor exams of 15 marks each and 20 marks for portfolio submission.

Scheme for Semester End Assessment (ESA)
Evaluation of Assignments in form of soft copy & hard copy worked during the course by internal and external examiners.

Mode of assessment : Portfolio .

References:

AutoCAD 2007 for Dummies. By David Byrnes, Mark Middle brook.
Publisher: For Dummies; Revised edition (May 8, 2006)
ISBN-10: 0471786497, ISBN-13: 978-0471786498
2.) Enhancing CAD Drawings with Photoshop by Scott On Stott
Publisher: Syrex (January 21, 2005) Language: English
ISBN-10: 0782143865 ISBN-13: 978-0782143867

RETURN TO SEM II

Program : Architecture		
Course Title: Structures - II		**Course Code: 18AATC114**
L-S-P: 3-0-0	**Credits: 3**	**Contact Hours: 3**
ISA: 50	**ESA: 50**	**Total Marks: 100**
Teaching Hours: 42	**ExaminationDuration:3 Hours**	

Unit I

1. **Determinate and indeterminate structures:** Difference between determinate and indeterminate structures, implication of indeterminacy, obtaining the redundancy of beams and frames.
2. **Bending moment and shear force:** Concept of shear force and bending moment, types of beams, concept of concentrated load, uniformly distributed load, uniformly varying load and couple. Construction of SFD and BMD for simple cases of cantilever and simply supported beams. Bending moment and shear force diagrams for two and three span continuous beams.
3. **Stresses in beams:** Concept of pure or simple bending, bending equation, section modulus and moment of resistance, obtaining bending stress distribution for simple cases of beams. Shear stress distribution across the symmetrical and unsymmetrical beam cross sections.

Unit II

4. **Deflection of beams:** Relation between deflection, bending moment, shear force and rate of loading, deflection equation, obtaining slope and deflections for cantilever and simply supported beams using standard formulae.
5. **Torsion in structures:** Concept of torsion, torsion equation, elements subjected to torsion in structural system.

Unit III

6. **Columns and struts:** short and long columns, buckling of column, boundary conditions for columns, effective length, slenderness ratio and critical load. Euler's and Rankine's theories.

REFERENCES:

1) Structures - Martin Bechthold, Daniel L Schodek, and PHI Learning Private limited, Sixth Edition 2) Structure in Architecture, the building of buildings, by Mario Salvadori 3) Structure and Design, by G. G. Schierle 4) Engg Mechanics – R K Bansal & Sanjay Bansal, Laxmi publications, New Delhi.

Scheme for Internal semester assessment (ISA)
Regular Assignments

Scheme for End Semester Assessment (ESA)
External examination-3 hrs.

Mode of assessment : Portfolio & Theory Exam.

Scheme for Semester End Examination (ESA)

Sl.No	8 Questions to be set of 20 Marks Each	Chapter Number	Instructions
I	Q.No.-1, Q.No.-2, Q.No.-3	1,2,3,4,5	Solve Any **2** out of **3**
II	Q.No.-4, Q.NO – 5 Q.No.-6,	6,7,8,9	Solve Any **2** out of **3**
III	Q.No.-7, Q.No.-8	10,11	Solve Any **1** out of **2**

RETURN TO SEM II

Program : Architecture		
Course Title: Surveying		**Course Code: 18AATC113**
L-S-P: 2-0-0	**Credits: 02**	**Contact Hours: 02**
CIE Marks: 50	**SEE Marks: 50**	**Total Marks: 100**
Teaching Hours: 48	**Examination Duration: 3 Hours**	

UNIT I

Surveying- definition, scope of surveying, applications of surveying in architecture projects, principles, classification and character of work. Shrunken scale. Direct and reciprocal ranging, offsets types. Basic problems in chaining, well-conditioned triangle and chain triangulation. Errors in chain surveying.
Principles of plane table surveying, accessories and methods of plain tabling. Merits and demerits of plane table survey as compared to chain survey.

UNIT II

Leveling, terms used, instruments, classification of leveling, Temporary adjustments of dumpy level. Plane of collimation and rise and fall methods. Booking and reduction of levels related numerical on the topics. and errors in leveling.
Introduction to contouring, definitions contour interval, factors affecting contour interval. Characteristics of contours, location of contours, direct and indirect methods of contouring, interpolation of contours. Application of contour maps in architecture field.

UNIT III

Introduction to Theodolite temporary adjustments and field work.
Introduction to Geographical Information systems and Total station.

Scheme for Internal semester assessment (ISA)
Regular Assignments

Scheme for End Semester Assessment (ESA)
External examination-3 hrs.

Mode of assessment: Portfolio & Theory Exam.

Text Books:

B.C. Punmia, Surveying and Levelling, Vol-I Chirator Publications.

Kanetkar T. P. and Kulkarni S.V, Surveying and Levelling Part-

Reference Books: Duggal, Surveying and Levelling. Vol-I

RETURN TO SEM II

III- SEMESTER

Program : Architecture		
Course Title: ARCHITECTURAL DESIGN – III		**Course Code: 18AATC201**
L-S-P: 0-6-0	**Credits: 6**	**Contact Hours: 9**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 126	**Examination Duration: NA**	

Course contents:

To develop skills for comprehensive understanding and dealing with Socio Cultural aspects of Architecture. To develop the ability to create spaces and corresponding form. Provide skills for designing multi-user and multi-level spaces.
The design issues to be addressed are Socio Cultural Aspects of smaller scale community.

- Contextual Based Design
- Multi user and multi-level space formation
- Integration of material and form.
- Develop skills to correlate the materials and the resulting form.

The list of suggested spaces to be covered as design projects: Architectural Exhibition / display spaces, museums, cultural centers, higher level academic spaces, multi activity Recreational spaces, Neighborhood Community spaces, Healthcare Centers etc.
Necessary theoretical inputs to be given highlighting the norms and design issues. At least one major exercise and one minor design/ time problem should be given.

Scheme for Internal semester assessment (ISA)
Regular assignments, Models, Reviews.
Term work: Evaluation of Portfolio and assignments by internal examiner.

Scheme for End Semester Assessment (ESA)
Term work: Evaluation of Portfolio and assignments by internal and external examiners/Viva

Mode of assessment: Portfolio, Physical models ,manual hand drafted drawings.

Text Books: NIL

Reference Books:

1. Time Saver Standard for Architectural Data by John Hancock.
2. Architectural Graphic Standards by Ramsey and Sleeper.
3. Magazines and Design related books
4. Architecture: Form, Space and Order, Ching, Francis DK
5. Design and Form: The basic course at the Bauhaus, Itten, Johannes.
6. Elements of space forming, Yatin Pandya.
7. Architectural Composition, Krier, Rob

RETURN TO SEM III

Program : Architecture		
Course Title: BUILDING CONSTRUCTION&MATERIALS- III		**Course Code: 18AATC202**
L-S-P: 0-4-0	**Credits: 4**	**Contact Hours: 6**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 84	**Examination Duration: 3 hrs.**	

UNIT I

RCC foundation, columns and beams
shallow foundation- Types, with reinforcement arrangements for i) isolated ii) combined
iii) Combined with strap beam iv) eccentric v) raft, etc.
Deep foundation- Introduction to and study of pile, grouping of piles & pile cap.
Materials, formwork, stairs
Reinforcement - Types, properties & uses of plain, ribbed, twisted, TMT, weld mesh, HT wires etc.
Concrete- Ingredients, grades of concrete, properties of concrete, proportioning, mixing, transporting, placing, compaction & curing.
Special concrete - RMC, concreting under water, light and heavy weight, dense, etc.
Form-work- Purpose of form work in concrete works. Various materials used, precautions to be taken and removal time
RCC COLUMNS - Various shapes of columns and types of reinforcement arrangements.
BEAMS – Reinforcement arrangement for i) simply supported ii) continuous iii) cantilever iv) brackets.

UNIT II

Stairs - Introduction to, types & calculation of stairs. Study of stairs in 1) RCC. Construction details for timber, fabricated steel & RCC, including fixing of handrail in various materials

UNIT III

Joints in RCC.
Study, necessity & construction details of construction joint and expansion joints

Scheme for Internal semester assessment (ISA)
Regular Assignments, models.
Term work: Evaluation of Portfolio, assignments by internal examiner

Scheme for End Semester Assessment (ESA)
External examination-3 hrs.

Mode of assessment:
Portfolio Theory Exam.

Text Books: NIL

Reference Books:

23. McKay J.K Building Construction Metric Vol 1-4, 4th edi Orient Longman Pvt. Ltd, Mumbai,2002
24. "Construction Technology" volume-I by R Chudley, ELBS & Longman group Ltd.
25. Barry R, "The construction of buildings" , Vol-2, 5th Edi, East West Press, New Delhi 1999.
26. Bindra S.P and Arora S.P, Building Construction-Planning Techniques and Method of Construction, 19th edi, Dhanpat Rai Pub ,NewDelhi, 2000
27. "Building Construction" by Janardhan Jha, Khanna New-Delhi.
28. Rangawal S.C ,"Building Construction" 22nd Edi, charotar Publishing house, Anand, 2004
29. "Engineering Materials" by Surendra Singh, Vikas Delhi.
30. "Building Materials" by S K Duggal, IBH New Delhi.
31. Sushil Kumar T.B of Building Construction 19th edi, Standard Pub House, NewDelhi, 2003.
32. Chowdhary K.P. Engineering Materials used in India, 7th Edi, Oxford and IBH Pub ltd New Delhi, 1990.
33. Building Construction Hand book : By R Chudly & R Greeno, Bullerworth Heinemann, New-Delhi.

Scheme for End Semester Assessment (ESA)

Sl.No	8 Questions to be set of 20 Marks Each	Chapter Number	Instructions
I	Q.No.-1, Q.No.-2,	1, 2	Solve Any **1** out of **2**
II	Q.No.-3, Q.NO – 4,	3, 4	Solve Any **1** out of **2**
III	Q.No.-5, Q.No.-6	4,5	Solve Any **1** out of **2**

RETURN TO SEM III

Program : Architecture		
Course Title: SERVICES – I (WATER SUPPLY & SANITATION)		**Course Code: 18AATC203**
L-S-P: 2-0-0	**Credits: 2**	**Contact Hours: 2**
ISA Marks:50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 28	**Examination Duration: 3HOURS**	

UNIT I

1: Sources and purification of water
Surface and underground sources of water supply, pollution and preventive measures.
Purification ----filtration, disinfection, softening, miscellaneous methods of water treatment.
2: Domestic water supply
Water requirement for different types of buildings, pipes, valves, wash basins, sink, bath tubs, flushing cisterns, showers, jets, faucets. Cold and hot water supply for ground and multi-storied buildings. Provision for firefighting, solar heating systems, geysers.

UNIT II

3: Sanitation
Importance of sanitation, definitions, types of refuse, collection and disposal systems. Rural sanitation. Types of fixtures and materials. Sanitary requirements for various types of buildings.
4: Drainage systems
Principles, location of sanitary units, separate and combined systems, septic tanks, aqua privy. Drainage system for ground and multistoried buildings including. storm water drainage, rain water harvesting.

UNIT III

5: Recycling
Sewage pumping stations, waste water treatment, oxidation. recycling of sewage water.
6: Site planning
Roads and pavements, drainage of roads, drainage on sloping sites, sub soil drainage. Site planning from drainage and water supply point of view.

Scheme for Internal semester assessment (ISA)
Regular Assignments.

Scheme for End Semester Assessment (ESA)
External examination-3 hrs.

Mode of assessment: Portfolio& Theory Exam.

Text Books: NIL

Reference Books:

1. Husain, S. K. T. B. of water Supply and Sanitary Engineering, 3rd ed. Oxford and IBH Pub. Ltd. New Delhi, 1994.
2. Kshirsagar,S.R. Water Supply Engineering, 6th ed. Roorkee Pub, Roorkee, 1980.
3. Rangawala, S.C. Water Supply and Sanitary Engineering; Environmental Engineering, 19th ed. Charotar Pub. House, Anand, 2004.
4. S.C. Rangawala, fundamentals of water supply and sanitary engineering. Charotar Pub. House, Anand,
5. Iussain S. K. water supply and sanitary engineering, Dhanapat Rai and Sons, Delhi Relevant I.S. Codes
6. Basic Plumbing techniques, Orthobooks, Chevron Chemical Company, Consumer products Div., Box 5047, San Ramon, CA 94583
7. G.M. Fair, J.C. Geyer and D.A. Oku, Water and Waste Water Enineering, vol.II, John Wiley and Sons, Inc. New York, 1968
8. Manual of water Supply and Treatment, 2nd edition, CPHEEO, Ministry of works and HOUSING New DELHI, 1980
9. Manual ON sewage Treatment , CPHEEO, Ministry of works And HOUSING New DELHI , 1977

Scheme for End Semester Assessment (ESA)

Sl.No	8 Questions to be set of 20 Marks Each	Chapter Number	Instructions
I	Q.No.-1, Q.No.-2,	1, 2	Solve Any **1** out of **2**
II	Q.No.-3, Q.NO – 4,	3, 4	Solve Any **1** out of **2**
III	Q.No.-5, Q.No.-6	4,5	Solve Any **1** out of **2**

RETURN TO SEM III

Program : Architecture		
Course Title: CLIMATOLOGY		**Course Code: 18AATC204**
L-S-P: 2-0-0	**Credits: 2**	**Contact Hours: 2**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 28	**Examination Duration: 3hrs**	

UNIT I

Introduction – Elements of Climate, Enumerating and representing climatic data. Classification of Climate, major Climatic Zones of the World, tropical Climate Further Classification. Climatic Zones of India, Classifications, case study of one city within each Zone.

UNIT II

Thermal Comfort, effect of Climatic Elements on thermal Comfort, Heat Exchange Process, Effective Temperature Natural Ventilation, effect of openings in internal and external features, Design Considerations etc. Effect of Landscape elements and site topography, reading climate data, climate analysis and data validation through climate consultant software.

UNIT III

Bioclimatic chart, Design Consideration for various climatic zones of INDIA, with respect to Shading devices, Day Lighting Factors, Components of day light factor and its design considerations, Rainfall considerations etc. Construction Techniques for Improving Thermal Performance of Walls and roofs at various climatic Zones in India. Climate data representation through flow design and exotic software. Design project of not more than 500sqm. built up incorporating all the components of climate responsive architecture.

Scheme for Internal semester assessment (ISA)
Regular Assignments, Architectural models, rendered sheets and photos

Scheme for End Semester Assessment (ESA)
External examination-3 hrs.

Mode of assessment:
Portfolio& Theory Exam.

Reference Books : NIL

Text Books:

1. Arvind Kishan , Baker & Szokolay, Climate Responsive Architecture.
2. Manual of Tropical Housing & Buildings (PartII)" Koenigsberger.
3. Buildings in the tropics by Maxwell Fry
4. Housing , Climate and Comfort by Martin Evans

Scheme for End Semester Assessment (ESA)

Sl.No	8 Questions to be set of 20 Marks Each	Chapter Number	Instructions
I	Q.No.-1, Q.No.-2,	1, 2	Solve Any **1** out of **2**
II	Q.No.-3, Q.NO – 4,	3, 4	Solve Any **1** out of **2**
III	Q.No.-5, Q.No.-6	4,5	Solve Any **1** out of **2**

RETURN TO SEM III

Program : Architecture		
Course Title: HISTORY OF ARCHITECTURE - II		**Course Code: 18AATC205**
L-S-P: 2-0-0	**Credits: 2**	**Contact Hours: 2**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 32	**Examination Duration: 3 hrs.**	

UNIT I

1: Evolution of Buddhist Architecture
Characteristic features of Buddhist Architecture, Sanchi Stupa, Viharas and Chaitya Halls
2: Introduction to temple architecture
Essential characteristics of Indian temple,different types of temple architecture
Evolution of Hindu Temple
Temples at Udayagiri, Tigawa, ,Bhitargoah
3. Evolution of Indo Aryan Temples
Orissa Group of Temples - The Sun temple of Konark , The Lingraja Temple at Bhubaneswar ,
Khajuraho Group of Temples - Kandariya Mahadev Temple, Laksmanan Temple

UNIT II

4 -Early Chalukyan Architecture –
Aihole , Pattadakal and Badami
5: Rastrakuta Architecture
Rockcut Temple, Elephanta , Kailasa Temple Ellora
6: Evolution of Pallava , Cholla and Pandya style
Pallava Style - Rathas at Mamallapuram , Shore temple, Kailasanath temple
Kanchipuram, Vaikunthaperumal temple at Kanchipuram,
Chola Style – Brihadeshwar Temple & Gangaikondacholapuram Temple
Pallava Style – Characteristics, Gopuram

UNIT III

7-Later Chalukyan or Hoyasala style
Chennakeshwa Temple, Belur, Hpysaleshwar Temple, Halebidu and Keshava Temple, Somnathpur
8- Evolution of later Dravidian Temples
Vijaynagar Architecture - Vithala temple complex at Vijaynagar , Hazara Ram Temple
Meenakshi Temple at Madurai. Srirangam Temple

Scheme for Internal semester assessment (ISA)
Regular Assignments, models.
Term work: Evaluation of Portfolio, assignments by internal examiner

Scheme for End Semester Assessment (ESA)
External examination-3 hrs

Mode of assessment:
Portfolio& Theory Exam

Text Books: NIL

Reference Books:

1. Satish Grover: The Architecture of India
2. Percy Brown: Indian Architecture (Buddhist and Hindu Period0
3. Tadgell Christopher:The History of Architecture in India
4. Rowl Benjamin. Art and Architecture of India
5. Vistara . The Architecture of India
6. Yatin Pandya: Concept of space making in Indian traditional Architecture

RETURN TO SEM3

Scheme for End Semester Assessment (ESA)

Sl.No	8 Questions to be set of 20 Marks Each	Chapter Number	Instructions
I	Q.No.-1, Q.No.-2, Q.No.-3	1, 2,3	Solve Any 2 out of 3
II	Q.No.-4, Q.NO – 5 Q.No.-6,	4, 5,6	Solve Any 2 out of 3
III	Q.No.-7, Q.No.-8	7,8	Solve Any 1 out of 2

Program : Architecture		
Course Title: MEASURE DRAWING		**Course Code: 18AATC206**
L-S-P: 0-2-0	**Credits: 2**	**Contact Hours: 4**
ISA: 50	**ESA: 50**	**Total Marks: 100**
Teaching Hours: 32	**Examination Duration: NA**	
UNIT I		
. Detailed plans with all measurements to be compiled and submitted including site plan. The report comprising of historic evolution, climatic influence, construction techniques, materials applications to be prepared along with drawings.		
UNIT II		
Detailed sectional drawings, elevation drawings along with details of individual elements to be submitted. Study the construction techniques		
UNIT III		
Digital documentation in the form of photography, videography & analysis of the entire project.		
Scheme for Internal semester assessment (ISA) Regular Assignments, Architectural models, rendered sheets and photos		
Scheme for End Semester Assessment (ESA) Term work: Evaluation of Portfolio, assignments by internal and external examiners		
Mode of assessment: Portfolio		
Text Books : NIL		
Reference Books : NIL		

RETURN TO SEM3

Program : Architecture		
Course Title: STRUCTURES - III		**Course Code: 18AATC207**
L-S-P: 3-0-0	**Credits: 3**	**Contact Hours: 03**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 48	**Examination Duration: 3 HOURS**	

UNIT I

1.Reinforced cement concrete, grades of concrete, water cement ratio and its effect on strength of concrete, admixtures, retarders and use of high strength concrete in building structures.
2. Introduction to working stress method, assumptions, theory of singly reinforced sections. Moment of resistance and design of a section for flexure. Related elementary numerical.

UNIT II

3. Design philosophy of limit state method. Limit state for collapse for flexure.
4. Analysis of continuous beam by using IS 456-2000 and design by using SP16.
5.Design of beams by using SP 16
6. Analysis of one way continuous slabs by using IS 456-2000and design by using SP16.
7.Design of columns axial load and axial load plus uniaxial moment by using SP 16

UNIT III

8. Case study of ongoing RC building structures to correlate knowledge to on site during construction.
9. Typical reinforcement detail for beams isolated column with footing, slabs (one way and two way), staircases.

Scheme for Internal semester assessment (ISA)
Regular Assignments.

Scheme for End Semester Assessment (ESA)
External examination-3 hrs.'

Mode of assessment : Portfolio& Theory Exam.

Text Books:

1. A.K. Jain, Reinforced concrete: Limit state design, 5th edition, New Chand and brothers, Roorkee.
2. S.N. Sinha, Reinforced concrete design, Tata McGraw Hill Publications, New Delhi.

Reference Books

1. Karve S. R. and Shah V. L: Limit state Theory and design of Reinforced Concrete, Structures Publishers, Pune
2. S.N. Sinha, Reinforced Concrete Tata Mc.Graw Hill Companies. Second Revised Edition.
3.Ashok Kumar Jain, Arun kumar Jain, Reinforced Concrete Structures Laxmi Publications Pvt. Ltd. New Delhi
4. Ashok K. Jain. Reinforced Concrete Limit State Nemchand & Bros.Roorkee

Scheme for End Semester Assessment (ESA)

Sl.No	8 Questions to be set of 20 Marks Each	Chapter Number	Instructions
I	Q.No.-1, Q.No.-2, Q.No.-3	1, 2,	Solve Any 2 out of 3
II	Q.No.-4, Q.NO – 5 Q.No.-6,	3,4, 5,6,7	Solve Any 2 out of 3
III	Q.No.-7, Q.No.-8	8,9	Solve Any 1 out of 2

RETURN TO SEM3

Program : Architecture		
Course Title: DIGITAL TOOL - II		**Course Code: 18AATP201**
L-S-P: 0-0-1	**Credits: 1**	**Contact Hours: 2**
ISA Marks:50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 32	**Examination Duration: NA**	
UNIT I		
I: Introduction to Sketch Up: File formats, Page setups, User interface, Types of tools Drawing and editing tools in Ketchup Basic drawing and editing tools to develop the basic forms		
UNIT II		
Dimensioning tools and navigation. Measuring, Dimensioning, Lettering, Navigation tools, etc. Introduction to Advance Sketch up Advance tools for developing and creating architectural design using advanced features, shadows, Sand box tools, etc.		
UNIT III		
Rendering techniques with Sketch Upsetting up Lights, camera, foreground and background, adding landscaping elements like trees, human figures, introduction to rendering and animation. Importing and exporting to other software. Explore Plug-in like V Ray, etc.		
Scheme for Internal semester assessment (ISA) Regular Assignments by internal examiner.		
Scheme for End Semester Assessment (ESA) Evaluation of Assignments in form of soft copy & hard copy worked during the course by internal and external examiners.		
Mode of assessment : Portfolio		
Text Books : NIL		
Reference Books: Online Sketch Up Manual.		

RETURN TO SEM3

KLE Technological University | Creating Value, Leveraging Knowledge

IV SEMESTER

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KLE Technological University | Creating Value, Leveraging Knowledge

Program : Architecture		
Course Title: Architectural Design – IV		**Course Code: 18AATC208**
L-S-P:0-6-0	**Credits: 6**	**Contact Hours:9**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 126	**Examination Duration: NA**	

Course contents:

To develop skills for comprehensive understanding and dealing with Climate Responsive Architecture. Provide skills for designing multi-user and multi-level spaces.
The design issues to be addressed are

- Climate Responsive
- Integration of environment & built form.
- Integration the horizontal and vertical circulation
- Correlation of the materials and the resulting form.

The list of suggested spaces to be covered as design Public Libraries, Public and Semipublic Office Spaces, Resorts, Recreational Clubs, Automobile Showrooms etc.

Necessary theoretical inputs to be given highlighting the norms and design issues. At least one major exercise and one minor design/ time problem should be given. The topics covered as design projects will have to be covered by the studio faculty members through lecture/slide show session and site visits.

Scheme for Internal semester assessment (ISA)
The Portfolio covering the given topics and the study models shall be presented.
The evaluation shall be through periodic internal reviews.
The students have to present the entire semester work for assessment along with Models.
Regular Assignments, Architectural models, rendered sheets and photos

Scheme for Semester End Assessment (ESA)
Term work: Evaluation of Portfolio, assignments by internal and external examiners/ Viva

Mode of assessment:
Portfolio

Text Books: NIL

Reference Books:

1. Joseph De Chiara & John Hancock Calendar, Time Saver Standards for Building Types
2. Various books and magazines about architectural design
3. Architecture: Form, Space and Order, Ching, Francis DK

RETURN TO SEM4

Program : Architecture		
Course Title: BUILDING CONSTRUCTION & MATERIALS - IV		**Course Code: 18AATC209**
L-S-P: 0-4-0	**Credits: 4**	**Contact Hours: 6**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 84	**Examination Duration: 3 Hrs.**	

UNIT I

RCC SLABS

Introduction to, types & selection criteria of slabs like i) spanned in one direction ii) spanned in both directions i.e. iii) continuous iv) cantilever v) slope vi) ribbed vii) coffered vii) filler, showing construction & reinforcement arrangements

UNIT II

RCC FLAT SLAB, VAULTS & DOMES AND RETAINING WALLS

Flat slab- Introduction to, advantages over regular slabs, including construction details & reinforcement arrangements for i) solid slab ii) drop panel iii) flared column top.

Vaults and domes - Introduction to, types, construction details with reinforcement arrangement.

Retaining walls – Introduction to and study of walls for retaining earth & water, with i) brick masonry ii) stone masonry iii) RCC. Construction details & reinforcement arrangements there in.

UNIT III

FLOOR FINISHES

Various types, method of laying & maintenance for floor finishes using, Naturally available - i) clay &Murom ii) stone slab & tiles iii) timber: Timber products - i) parquet tiles ii) plywood/ block board & engineered wood (plain & laminated) etc. Cement concrete - i) rough and rendered (IPS, oxide, epoxy) surface ii) VDC (vacuum de-watered concrete) Cement concrete products - marble mosaic, terrazzo, designer tiles & in-situ work Mineral products – clay, ceramic & vitrified tiles. Other products – i) metal ii) glass. paving - Various types, preparation of base, method of laying using i) burnt bricks ii) flag stone iii) stone slabs iv) cobbles v) in-situ concrete vi) precast concrete slabs vii)concrete designer tiles viii) interlocking blocks etc.

Note – The Portfolio covering the above topics shall be presented for Term work. Site visits shall be arranged by studio teacher. Study of material application shall be submitted in the form notes, sketches and photo brief as a part of portfolio

Scheme for Internal semester assessment (ISA)

Regular Assignments, models.

Term work: Evaluation of Portfolio, assignments by internal examiner

Scheme for Semester End Assessment (ESA)

External examination-3 hrs.'

Mode of assessment:

Portfolio& Theory exam.

Text Books:

1. McKay J.K Building Construction Metric Vol 1-4, 4th edi Orient Longman Pvt. Ltd, Mumbai,2002
2. "Construction Technology" Volume-I by R Chudley, ELBS & Longman group Ltd.
3. Barry R, "The construction of buildings" , Vol-2, 5th Edi, East West Press, New Delhi 1999.
4. Bindra S.P and Arora S.P, Building Construction-Planning Techniques and Method of Construction, 19th edi, Dhanpat Rai Pub ,NewDelhi, 2000
5. "Building Construction" by Janardhan Jha, Khanna New-Delhi.
6. Rangawal S.C ,"Building Construction" 22nd Edi, charotar Publishing house, Anand, 2004
7. "Engineering Materials" by Surendra Singh, Vikas Delhi.
8. "Building Materials" by S K Duggal, IBH New Delhi.
9. Sushil Kumar T.B of Building Construction 19th edi, Standard Pub House, NewDelhi, 2003.
10. Chowdhary K.P. Engineering Materials used in India, 7th Edi, Oxford and IBH Pub ltd New Delhi, 1990.
11. Building Construction Hand book : By R Chudly & R Greeno, Bullerworth Heinemann, New-Delhi.

Scheme for End Semester Assessment (ESA)

Sl.No	8 Questions to be set of 20 Marks Each	Chapter Number	Instructions
I	Q.No.-1, Q.No.-2, Q.No.-3	1, 2,3	Solve Any **2** out of **3**
II	Q.No.-4, Q.NO – 5 Q.No.-6,	4,5, 6	Solve Any **2** out of **3**
III	Q.No.-7, Q.No.-8	7,8	Solve Any **1** out of **2**

RETURN TO SEM4

Program : Architecture		
Course Title: SERVICES – II (ELECTRICITY & ILLUMINATION)		**Course Code: 18AATC210**
L-S-P:2-0-0	**Credits: 2**	**Contact Hours: 3**
ISA Marks:50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 48	**Examination Duration: 3 hrs.'**	

UNIT I

1. Brief Introduction to electricity, its uses in everyday life and as an architectural application. Terminology used in electricity.
2. Supply and distribution of electricity to the end user (consumer) - generators and overhead and underground distribution systems, high tension and low tension cables, substations, transformers, service connections, panel board, energy meter. Internal supply and distribution.
3. Systems of wiring in building and their merits. Types of conduits, wires and cables. Accessories used in wiring. Branch circuits, calculation of electrical load for a residential building.

UNIT II

4. Various devices used to protect shock, over loading, leakages and short circuits. (Fuses-definition and types, ELCB, Earthling-definition and its types, MCB'S). Electrical symbols and Indian electricity rules-relevant codes of practice (NBC).
5. Electrical layout for different buildings.
6. Alternative sources of electricity and its implementation in building. Ways and methods of saving electricity in buildings.

UNIT III

7. Introduction and terminologies, quality and quantity of light. Necessity of artificial lighting, combination of day light and artificial lighting. Methods of lighting- accent, ambient and task lighting.
8. Various types (incandescent, fluorescent/CFL, HID's, neon lamps) and selection criteria considering their temperament for residential, commercial, industrial, public buildings, for street and landscape lighting. Criteria's for selecting lamps for different occupancies.
9. Lighting design for different types of occupancies - landscape, parking areas, different tasks, street lighting, commercial building, residence.

Scheme for Internal semester assessment (ISA)
Regular Assignments, models.
Term work: Evaluation of Portfolio, assignments by internal examiner

Scheme for End Semester Assessment (ESA)
External examination-3 hrs.

Mode of assessment:
Portfolio& Theory exam.

Reference books:

1. H Cotton, Electrical Technology
2. L. Uppal, Electrical wiring, Estimating & Costing
3. Anwari., Electrical Engg.
4. M.S.N. Swamy, Lighting, MSN Marketing, Bangalore.
5. Torquil Barker,Concepts in Practice lighting, 1997, B.T. Batsford Ltd, 583,fullham Road, London.
6. Dr. Frith Abnwos and others. Electrical Engineering handbook.
7. S.L.Uppal and G.C. Garg. Electrical wiring (Estimating & Costing), Khanna Publishers, New Delhi.
8. Manufacturers catalogues and journals.

Scheme for End Semester Assessment (ESA)

Sl.No	8 Questions to be set of 20 Marks Each	Chapter Number	Instructions
I	Q.No.-1, Q.No.-2, Q.No.-3	1, 2,3	Solve Any **2** out of **3**
II	Q.No.-4, Q.NO – 5 Q.No.-6,	4,5, 6	Solve Any **2** out of **3**
III	Q.No.-7, Q.No.-8	7,8	Solve Any **1** out of **2**

RETURN TO SEM4

Program: Architecture		
Course Title: HISTORY OF ARCHITECTURE - III		**Course Code: 18AATC211**
L-S-P: 2-0-0	**Credits: 2**	**Contact Hours: 2**
ISA Marks:50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 32	**Examination Duration: 3 HOURS**	

UNIT I

Evolution of Imperial Indian Islamic Architecture in the following dynastic rule of Imperial style (Slave, Khilji, Tughlaq, Sayyid and Lodi) – 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, Tomb of Ghiyas-ud-din Tughlaq, Khirki Masjid, Shish Gumbad, Tomb of Mubarak Shah Sayyid and Tomb of Sikandar Lodi.Provincial Style –I (Bengal and Jaunpur) -– E.g. Adina Masjid, Pandua and Eklakhi Tomb, Pandua; Atala Masjid, Jaunpur and Jami Masjid, Jaunpur.Provincial Style -II (Gujarat and Malwa) E.g. Jami Masjid, Ahmedabad and Teen Darwaza, Ahmedabad , Jahaz Mahal, Mandu, Hindola Mahal, Mandu.

UNIT II

Evolution of provincial Indian Islamic Architecture in the following provinces of Provincial Style –III (Bijapur)- E.g. GolGumbaz, Ibrahim Rauza and Jami Masjid, BijapurMughal Architecture-Phase I - E.g. Humayun's Tomb, Delhi; Fatehpur Sikri (Layout and Diwan-i-khas, Jodhabai Palace, Jami Masjid, Tomb of Salim Chisti and Buland Darwaza)Mughal Architecture-Phase II - E.g. Akbar's tomb, Sikandra, TajMahal, Agra - Layout of the Tomb and the concept of Charbagh

UNIT III

Evolution of Indian British Colonial architecture in the dynastic rule of Early British Colonial Style - E.g. St Paul's Cathedral, Calcutta, Victoria Memorial, Calcutta, Bombay Town Hall, Bombay.
Late British Colonial Style - E.g. Layout of New Delhi, Rashtrapati Bhavan and Parliament House.

Scheme for Internal semester assessment (ISA) Tests, Quiz, Assignments by internal examiner

Scheme for Semester End Assessment (ESA)External examination-3 hrs

Mode of assessment: Portfolio& Theory exam.

Text Books: NIL

Reference Books:

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.
Brown Percy, Indian Architecture (Islamic Period) Vol II; DB Taraporevala and Sons Co.Pvt. Ltd., Bombay, 1983 and subsequent publications.
Grover Satish, Islamic Architecture in India, Galgotia Publications, India, 1996 onwards.
Stierlin Henri, Stierlin Anne, Islamic Art and Architecture, Thames & Hudson, 2002 onwards.
Ferguson, J.A., Encyclopedia of World Architecture (Islamic Architecture), Aryan books, 1998 onwards.
Fletchers Banister, A History of Architecture, C.B.S.Publishers, 1996 onwards.
Tillotson, G.H.R. , The Tradition of Indian Architecture: Continuity, Change and the Politics of Style since 1850, Oxford University Press, Delhi, 1989 onwards.
Tomory Edith, A History Of Fine Arts In India And The West, Orient Blackswan Pvt Ltd.-(New Delhi), 2009 onwards.
Asher Catherine B., Architecture of Mughal India, Cambridge, 1995 onwards

Scheme for End Semester Assessment (ESA)

Sl.No	8 Questions to be set of 20 Marks Each	Chapter Number	Instructions
I	Q.No.-1, Q.No.-2, Q.No.-3	1, 2,3	Solve Any **2** out of **3**
II	Q.No.-4, Q.NO – 5 Q.No.-6,	4,5, 6	Solve Any **2** out of **3**
III	Q.No.-7, Q.No.-8	7,8	Solve Any **1** out of **2**

RETURN TO SEM4

Program : Architecture		
Course Title: THEORY OF ARCHITECTURE		**Course Code: 18AATC212**
L-S-P: 2-0-0	**Credits: 2**	**Contact Hours: 2**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 32	**Examination Duration: 3 HOURS**	

UNIT I

1. Underlying Organizing Principles: Linear, centralized, radial, Clustered, Grid.

2. Underlying Spatial Organizing Principles: Space within space, Adjacent space and Interlocked space.

UNIT II

1. Theory in Antiquity of Vitruvius
2. Theory in Renaissance of Leon Alberti and Andrea Palladio.
3. Theory in 18th century Violet-le-Duc , Gottfreied Semper

UNIT III

1. Theories on built environment.
2. Architectural Criticism.

Text Books: NIL

Reference Books:

1. Francis D K Ching, Form Space and Order
2. Parmar V S, Design Fundamental in Architecture
3. J.M.Zunde ,Design Procedures – level 4
4. Vitruvious :Ten Books on Architecture
5. Alberti Leon: Ten Books on Architecture
6. Christian Norberg Shulz, Genius Locii
7. William: Modern Architecture since 19th century
8. Alexander Christopher: Timeless way of Building
9. Rappoport Amos: House Form and Culture
10. Rappoport Amos: Meaning of the built environment
11. Geoffrey Broadbent: Design in Architecture
12. Geoffrey Baker: Design strategies in architecture: An approach to analysis of form
13. Attoe Wayne: Architectural and critical imagination
14. Lynch Kevin:City Sense
15. Lynch Kevin: Image of the City
16. Alexander Christopher; Urban Pattern
17. Alexander Christopher: New Theory of Urban Design
18. Alexander Christopher: Nature of Order, vol.1,2,3
19. Alexander Christopher: Synthesis of Form
20. Alexander Christopher: City is not a Tree

RETURN TO SEM4

Program : Architecture		
Course Title: Quantity survey and specifications.		**Course Code: 18AATC213**
L-S-P: 2-0-0	**Credits: 2**	**Contact Hours: 4**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 56	**Examination Duration: 3 Hours**	
Unit - I		
1)Types of Estimates 2) Detailed estimates for load bearing buildings.		
Unit - II		
3) Detailed estimates for R C C frame structure buildings. 4) Introduction to Schedule of Rates. 5) Rate analysis.		
Unit - III		
6) Abstract Specifications for building constructions. 7)Schedule of rates.		
Scheme for Internal semester assessment (ISA) Term work: Evaluation of Portfolio, assignments by internal examiner		
Scheme for End Semester Assessment (ESA) External examination-3 hrs.		
Mode of assessment: Portfolio& Theory exam.		
Text Books: NIL		
Reference Books: 1. Datta B N		

Scheme for Semester End Examination (ESA)

Sl.No	8 Questions to be set of 20 Marks Each	Unit Number	Instructions
1	**Question Numbers 1, 2 & 3**	I	Solve Any **2** out of **3**
2	**Question Numbers 3, 5 & 6**	II	Solve Any **2** out of **3**
3	**Question Numbers 7 & 8**	III	Solve Any **1** out of **2**

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Program : Architecture		
Course Title: STRUCTURES - IV		**Course Code: 18AATC214**
L-S-P: 3-0-0	**Credits: 3**	**Contact Hours: 3**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 48	**Examination Duration: 3 HOURS**	
UNIT I:		
Structural steel properties, available steel grades in India, loads on steel structures as per IS 875- 1987 (Part I and II) and standers rolled steel sections. Fasteners – welded, bolt and nut connections in steel structures, to find the strength of a joint may subjected to axial load and eccentric load. Merits and demerits as compared to each other.		
UNIT II		
3. Design of roof truss elements strut and tie. 4. Design of elements of braced steel structural system, compression members of single and built up sections. Design of compression members using SP 6-part I. 5.Design of slab base and foundation subjected to axial load.		
UNIT III		
6.Design of laterally restrained beams. 7.Moment resisting frames, comparison with braced frames, different types, composite structures. 8.Case study of steel building structures.		
Scheme for Internal semester assessment (ISA) Regular assignments by internal examiner		
Scheme for End Semester Assessment (ESA) External examination-3 hrs		
Mode of assessment: Portfolio& Theory exam.		
Text Books: 1. *Ram Chandra Design of Steel Structures Vol I Standard Publishers New Delhi*		
Reference Books: 1. P Dayaratnam Design of Steel Structures S Chand Publications New Delhi. !999 2. Vaziranzi & Ratwani Design of Steel Structures Khanna Publications New Delhi. !998 3. Duggal. Design of Steel Structures Tata McGraw Hill Publications New Delhi. !999 4. I.S.875-1978 5. S.P.6 (6) 6. IS 800 - 1984		

Scheme for End Semester Assessment (ESA)

Sl.No	8 Questions to be set of 20 Marks Each	Chapter Number	Instructions
I	Q.No.-1, Q.No.-2, Q.No.-3	1, 2	Solve Any **2** out of **3**
II	Q.No.-4, Q.NO – 5 Q.No.-6,	3, 4, 5	Solve Any **2** out of **3**
III	Q.No.-7, Q.No.-8	6, 7, 8	Solve Any **1** out of **2**

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Program : Architecture		
Course Title: Elective – Space, Culture & Architecture		**Course Code: 18AATE201**
L-S-P: 0-1-0	**Credits: 1**	**Contact Hours: 2**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 28	**Examination Duration: NA**	
UNIT I		
Introduction to Space, Culture & Architecture Sociological theories and cultural theories in relation to architecture Critical thinking – its basis and intent		
UNIT II		
Study and analysis of few Important Architectural Spaces of Cultural Significance Study and Documentation of Cultural Landscape.		
UNIT III		
Research Paper on Space, Culture & Architecture		
Scheme for Internal semester assessment (ISA) Field work Ideation, Concept design, Final Design Periodic reviews presentations of finding , concerns, Development stage of product and justification		
Scheme for End Semester Assessment (ESA) Final Report Prototype design		
Mode of assessment: Field work attendance Assignment		
Text Books: NIL		
Reference Books: 1) J Habraken *Sociologic of space* 2) Rappoport Amos*: House Form and Culture*		

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Program : Architecture		
Course Title: Elective – Human Centered Design - I		**Course Code: 18AATE202**
L-S-P: 0-1-0	**Credits: 1**	**Contact Hours: 2**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 28	**Examination Duration: NA**	
Course Contents: Understanding Design as a very old human capability that has been forgotten by the mainstream educational system and traditionalist alike. A modern human activity that can help the products, services and policies of the future within the constraints of our contexts.		
UNIT I		
What is Design? Multiple Dimensions of Design, Processes and Applications What is Human Centered Design? 1 Looking: Observing Human Experience 2 Understanding: Analyzing challenges and opportunities 3 Making: Envisioning Future Possibilities		
UNIT II		
HCD to identify problem.		
UNIT III		
Field Work, Define, Ideate, Prototype (Concept design, Detailed Design) ,Test, Feedback		
Scheme for Internal semester assessment (ISA) Field work Ideation, Concept design, Final Design Periodic reviews presentations of finding , concerns, Development stage of product and justification		
Scheme for End Semester Assessment (ESA) Final Report Prototype design		
Mode of assessment: Field work attendance Assignment		
Text Books: NIL		
Reference Books: 1. Harold Nelson: The Design Way Intensions /Compositions/Value 2. John Heskett: Toothpicks and Logos Objects/Communication/Environments/Identities/Systems/Contexts/Future *3.* Klaus Krippendorff:The Semantic Turn ,Meaning of Artifact in :Use/Language/Life Cycle/Ecology		

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Program : Architecture		
Course Title: Elective – Biomimicry in Architecture		**Course Code: 18AATE203**
L-S-P: 0-1-0	**Credits: 1**	**Contact Hours: 2**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 28	**Examination Duration: NA**	
Unit-I		
Introduction, History, characteristics, Types and approaches to Biomimicry.		
Unit-II		
Introduction of Biomimicry principles and Technology towards sustainable development in architecture, Case studies.		
Unit-III		
Application of Biomimicry Principles in Architecture		
Scheme for Internal semester assessment (ISA) Field work Ideation, Concept design, Final Design Periodic reviews presentations of finding, concerns, Development stage of product and justification Term work: Evaluation of Portfolio, assignments by internal examiner		
Scheme for End Semester Assessment (ESA) Final Report Prototype design Evaluation of Portfolio, assignments by internal and external examiners		
Mode of assessment: Field work attendance Assignment		
Text Books: NIL		
Reference Books: 1. Michael Pawlyn, “Biomimicry in Architecture”,Riba Publishing, 2nd Edition, 2016 **2.** Janine M Benyus ,Biomimicry: Innovation Inspired by Nature, ISR Journal,		

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Program : Architecture		
Course Title: Elective – Digital Rendering		**Course Code: 18AATE204**
L-S-P: 0-1-0	**Credits: 1**	**Contact Hours: 2**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 28	**Examination Duration: NA**	
Unit-I		
Digital Rendering Techniques Rendering techniques of plans, elevations sections using digital tool.		
Unit-II		
Detail Rendering Adding details like human figures, furniture, trees, vehicles etc.		
Unit-III		
Publish to various media Various print and web file formats		
Sessional Work (Internal semester assessment) Regula Assignments and Rendered Drawings		
Scheme for Semester End Assessment (ESA) Term work: Evaluation of Portfolio, assignments by internal and external examiners		
Mode of assessment: Soft copy and printed version.		
References:		

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V SEMESTER

Program: Architecture		
Course Title: Architectural Design – V		**Course Code: 18AATC301**
L-T-P – 0-6-0	**Credits: 6**	**Contact Hours: 9 hrs.**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours:126 hrs.	**Examination Duration: NA**	

Course contents:

To develop skills for comprehensive understanding and dealing with Architecture and to provide skills for designing multi-user and multi-level spaces. To emphasize upon the role of construction in evolving expression. To focus on design detail as vital part of architectural expression in the urban context. To integrate building systems and effective communication of legible drawings.

The design issues to be addressed are
• Multi user and multi-level space formation
• The integration of design, structure, services, etc.
• Integrate the horizontal and vertical circulation.
• Develop skills to correlate the materials and the resulting form.
• Integration of material, form and the appropriate building envelope.
• The architectural details of the building materials and assemblies.
• Details pertaining to the disabled, aged people and children.

The list of suggested spaces to be covered as design problems: Architectural Exhibition / display spaces Multi level Accommodation spaces, higher level academic spaces, multi activity Recreational spaces, Neighbor hood Community spaces, Healthcare Centers etc.

Necessary theoretical inputs to be given highlighting the norms and design issues. At least one major exercise and one minor design/ time problem should be given. The topics covered as design problems will have to be covered by the studio faculty members through lecture/slide show session and site visits.

Unit I

Design Analysis: Research of the given design project, Analysis of precedents
Site analysis / Concept Development: Site plan, Site analysis, site synthesis and zoning, Metaphors in design process and formulation of design brief, conceptual sketches, design development.
Preliminary Design Development stage: Schematic drawings of plans with furniture Layout, sections, elevations and study models. Parametricism for form finding, by changing the variables. 3D modeling and various types of surface modeling.

Unit II

Secondary Design Development stage: Development of detail plans, elevations and sectional details, Models, Development of Three dimensional massing with corresponding fenestrations, etc. through visual programming language (VPL) Grasshopper that is a plug-in running within Rhinoceros 3D modeling software.

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Unit III

Finalization of design: Presentation (computer aided) and rendering
Suisse: Given design topic to be completed within the time limit.
Model Making: Final three dimensional model/views Parametric design with the powerful visual programming languages. Grasshopper that is a plug-in running within Rhinoceros.

Text Books: NIL

Reference Books:

1. Time Saver Standard for Architectural Data by John Hancock.
2. Architectural Graphic Standards by Ramsey and Sleeper.
3. Magazines and Design related books
4. Architecture: Form, Space and Order, Ching, Francis DK
5. Design and Form: The basic course at the Bauhaus, Itten, Johannes.
6. Elements of space forming, Yatin Pandya.
7. Architectural Composition, Krier, Rob
8. Le Corbusier- An analysis of form. Geoffrey Baker.
9. Design Thinking process and methods. Rob Curedale.

Scheme for Semester End Examination (ESA)
Evaluation of Portfolio, assignments by internal and external examiners
The students have to present the entire semester work for assessment along with Models.
A viva-voce (Approximate 15 minutes /student) shall be conducted by a jury comprising of an external examiner and an internal examiner. The drawings, models and shall be presented by the student.

Program : Architecture		
Course Title: BUILDING CONSTRUCTION&MATERIALS- V		**Course Code: 18AATC302**
L-S-P: 0-4 -0	**Credits: 4**	**Contact Hours: 6**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 84	**Examination Duration: NA**	

UNIT I:

DOORS FOR LARGER OPENINGS

Folding Door in Timber. Sliding Door in Aluminum and PVC

Various types of Doors in steel vie Rolling shutter, fabricated in Pressed M.S. Sheet panel.

UNIT II:

METAL AND PVC WINDOWS

Various types of Windows in steel fabricated pressed metal (box) sections.

Sliding windows in Aluminum and UPVC including safety arrangement.

UNIT III:

PARTITIONS AND FALSE CEILINGS

Partition systems using various materials like Timber, metal, UPVC, various boards, glass etc.

False ceiling system with Timber, metal framing and various panel materials.

False flooring systems.

Materials: -

Properties, types, manufacturing in brief and architectural uses of glass, and glass products and Plastics.

Note – The Portfolio covering the above topics shall be presented for Term work. Site visits shall be arranged by studio teacher. Study of material application shall be submitted in the form of notes, sketches and photo brief as a part of portfolio.

Text Books: NIL

Reference Books:

12. McKay J.K Building Construction Metric Vol 1-4, 4thedi Orient Longman Pvt. Ltd, Mumbai,2002
13. “Construction Technology” Volume-I by R Chudley, ELBS & Longman group Ltd.
14. Barry R, “The construction of buildings”, Vol-2, 5th Edi, East West Press, New Delhi 1999.
15. Bindra S.P and Arora S.P, Building Construction-Planning Techniques and Method of Construction, 19thedi, Dhanpat Rai Pub, New Delhi, 2000
16. “Building Construction” by JanardhanJha, Khanna New-Delhi.
17. Rangawal S.C, “Building Construction” 22nd Edi, charotar Publishing house, Anand, 2004
18. “Engineering Materials” by Surendra Singh, Vikas Delhi.
19. “Building Materials” by S K Duggal, IBH New Delhi.
20. Sushil Kumar T.B of Building Construction 19thedi, Standard Pub House, New Delhi, 2003.
21. Chowdhary K.P. Engineering Materials used in India, 7th Edi, Oxford and IBH Pub ltd New Delhi, 1990.

Building Construction Hand book : By R Chudly& R Greeno, Bullerworth Heinemann, New-Delhi

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Program: Architecture		
Course Title: SERVICES – III (HVAC)		**Course Code:** 18AATC303
L-T-P: 2 – 0 - 0	**Credits:2**	**Contact Hours: 2 Hrs**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 28 hrs.'	**Examination Duration: 3 Hours**	

Unit I

Introduction to Passive and Mechanical ventilation:

1. **Passive & Mechanical ventilation** - Need for mechanical ventilation in buildings, Applications in different situations. Air conditioning – Definition, Refrigeration cycle, Compressor, Condenser, Evaporator in Air-Conditioning system.
2. **Different types of Air Conditioning system** – Duct able and non-duct able air conditioners, Location analysis of different equipment's in different types of buildings. Air distribution systems- ducts, diffusers etc.
3. Factors responsible for calculation of air conditioning load. Application of appropriate AC system for different types of occupancies like Residential, commercial, industrial etc.

Unit II

4. **Elevators**: Introduction, different types of elevators like traction, hydraulic, double deck elevators, sky lobby, structure and interiors of lifts. Passenger handling capacity, space and physical requirement and layout. Locational analysis of elevators, grouping of elevators.
5. **Escalators**: Definition, structure and different parts of escalator, application, Location and arrangement in different types of buildings.

Unit III

6. **Fire safety of buildings:** Safety Measures against fire role of architect in providing fire safety to buildings and fire resisting materials. Passive fire protection in different categories of buildings. Importance of fire hazards, fire load, fire precaution and fire prevention. Provision of smoke detectors and fire alarms. Difference between firefighting and fire prevention.
7. **Active fire protection:** Extinguishers, sprinklers, firefighting lobby etc.; Systems adopted in various buildings against fire. Case studies: Case studies of some fire disasters and their reasons: Fire Norms by NBC, Calculation of Occupant load and min. doorway width, Calculation of Fire exits, Concept of Pressurization, Fire lifts and Fire Staircases regulations etc as per bye-law.

Reference Books:

1). P. N. Anant Narayana., *Refrigeration and Air conditioning,* Third edition, Tata McGraw-Hill publishing Company Ltd, New Delhi.

2). Manohar Prasad., *Air conditioning and Refrigeration Data Hand book*.

3). Blue star ltd*: Blue star Guide to Comfort Air conditioning*. India Published by Packaged Air conditioning division.

4). Roy J Dosat., *Principles of Refrigeration*.

5). Dagostino, F. R:(1982) *"Mechanical and Electrical systems in Building"* Varginia, Reston Publishing Co.

Scheme for Semester End Examination (ESA)

UNIT	8 Questions to be set of 20 Marks Each	Chapter numbers	Instructions
I	**Question Numbers 1, 2 & 3**	I	Solve Any **2** out of **3**
II	**Question Numbers 3, 5 & 6**	II	Solve Any **2** out of **3**
III	**Assignment**	III	Design application Solve **1** OUT OF **1**

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Program : Architecture		
Course Title: Modern Architecture		**Course Code:** 18AATC304
L-S-P: 2-0-0	**Credits: 02**	**Contact Hours: 02 Hrs**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 28 hrs.'	**Examination Duration: 3 hrs.'**	

UNIT I:

- Transitional period and Revival architecture
- Early Industrial buildings.
- The Chicago school and Italian Futurism

UNIT II:

- De Style and Bauhaus
- Ideas and Works of Frank Llyod wright and Mies Van Der Rohe,
- Ideas and Works of Le Corbusier and Louise Kahn in India.

UNIT III:

Post-independence Modern Architecture in India.

- Ideas and Works of architects Achyut Kanvinde, B. V. Doshi and Charles Correa
- Ideas and Works of architects Raj Rewal, Uttam Jain and Laurie Baker.

NOTE:
The architects and ideas mentioned above are indicative only
The course teacher may choose the ideas and works of architects to explain modern architecture.

Text Books: Nil

Reference Books:

1. Kenneth Frampton, Modern Architecture- A Critical History
2. Bannister Fletcher, History of Architecture William Curtis, Modern Architecture since 1900
3. William Curtis, Modern Architecture since 1900
4. Bannister Fletcher, History of Architecture

Scheme for Semester End Examination (ESA)

Sl.No	8 Questions to be set of 20 Marks Each	Unit Number	Instructions
1	**Question Numbers 1, 2 & 3**	I	Solve Any **2** out of **3**
2	**Question Numbers 3, 5 & 6**	II	Solve Any **2** out of **3**
3I	**Question Numbers 7 & 8**	III	Solve Any **1** out of **2**

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Program : Architecture		
Course Title: Working Drawing		**Course Code: 18AATC305**
L-S-P: 0-2-0	**Credits: 2**	**Contact Hours: 4 hrs.**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 56Hrs	**Examination Duration: NA**	
UNIT I: Introduction and importance of detailed working drawings in architectural practice. Creating working details for a residential / commercial project starting with foundation/footing and wall details		
UNIT II: Introduction to creating working details of doors, windows, staircase and floors		
UNIT III: Introduction to creating working details of interior, bathrooms, electrical & plumbing.		
Text Books: NIL		
Reference Books: Architectural Working Drawings: Residential and Commercial Buildings by William P. Spence Publisher: Wiley; ISBN-10: 0471574880 ISBN-13: 978-0471574880 Architectural Drawing: A Visual Compendium of Types and Methods (3rd edition) by Reendow Yee Publisher: Wiley; 3 editions (July 20, 2008) ISBN-10: 0471793663 ISBN-13: 978-0471793663 AutoCAD 2008 For Dummies. by David Byrnes, Mark Middle brook. Publisher: For Dummies; Revised edition (May 8, 2006) ISBN-10: 0471786497, ISBN-13: 978-0471786498		
Scheme for Semester End Examination (ESA) Assignments, Checking of Portfolio of Term Work / Viva.		

RETURN TO SEM 5

Program: Bachelor of Architecture.			**Teaching Hours**
Course Title: Landscape Design		**Course Code: 21AATC306**	
L-T-P: 0-2-0	**Credits: 02**	**Contact Hours: 3Hrs /week**	
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**	
Teaching Hours:42	**Examination Duration: viva**		
Course overview The students must be acquainted with basics of architectural design in terms of built and open space designs. It provides an overview of development of landscape design, site studies, plant studies and application of the knowledge at various levels of design., .			
Unit I			
Chapter No. 1 Introduction definition of landscape design, landscape architecture, man-made elements, natural elements, Hardscapes and Softscapes A brief review of landscape design in various regions of the world like France, England, New york, Persia Japan, India etc. Examples of contemporary landscape architects like Martha Schwartz,Maya lin,Peter Walker and associates ,Sasaaki,Van Valkenburgh ,etc Indian landscape architects like Ravindra Bhan.Shaheer associates ,etc			04 hrs
Chapter No. 2. Landscape elements-land forms, water and vegetation. Principles of landscape design, and built environment. Selection and management of plant material in relation to built environment, taxonomy and classification of plants. Study and analysis of existing landscaped areas. Site visits and studio exercise of residential landscape design.			12 hrs
Unit II			
Chapter No. 3. Site planning and site analysis with reference to different characteristics like topography, vegetation, hydrology, access, surroundings etc.			04 hrs
Chapter No. 4. Philosophical and design issues related to site development-spatial and contextual relationships of built and outdoor space and circulation, site and its relationship to surroundings, importance of climate and social factors in development of site			04 hrs
Unit III **Chapter No. 5** Natural and manmade landscape in urban and rural landscape. Contemporary attitude to development and design of open spaces-like urban spaces, courtyards, gardens, parks, Streetscape, street furniture, lampposts, pavements and other architectural elements in relation to architectural design			06 hrs
Chapter No. 6. Studio exercises emphasizing relationship between built form and outdoor areas and site planning issues for industrial, commercial, any public building.			12 hrs

Reference Books 1. Blane Alan, Landscape Construction and detailing , 1, B T Batsford Ltd, London , 1996 2. Lynch, Kevin, Site Planning, , 1, IT Press, Massachusetts, , 1962 3. Laurie, Michael, , An introduction to Landscape, , 1, II Ed, Prentice Hall, New Jersey, 1986 4. Santapau. H, Common Trees, 1, National Book Trust, New Delhi, , 1981	
Scheme for End Semester Assessment (ESA) Evaluation of Portfolio of Term Work / Viva	

RETURN TO SEM 5

Program : Architecture		
Course Title: STRUCTURES – V		**Course Code: 18AATC307**
L-S-P: 3-0-0	**Credits: 3**	**Contact Hours: 3**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 42	**Examination Duration: 3 HOURS**	

UNIT I:

1. Introduction to the structural design project: Design of airport terminal building of dimension 50m X 100m as horizontal structural system.

2. Structural analysis and design: Determining the loads on structure as per IS 875-1984.Design of roofing system

3. Analysis and Design of continuous beams and slabs using IS:456-2000. Design of column and isolated foundation for axial load.

UNIT II:

4. Structural behavior, classification and application of folded plates, shells, domes, pneumatic structures and tensile structures.
5. Study of typical reinforcement details of Refolded plates, shells and domes.
6. Long span industrial building: Triangular and vierendeel roof truss structural system, general configuration of industrial building, spacing of trusses and design. Dead load, live load and wind load as per IS 875:1984
7. Cable and suspension structures: Design of long span system using cable and suspension system

UNIT III:

8. Concept of pre stressed concrete; merits and demerits of PSC as compared to the RCC. Need of high strength concrete and steel for PSC. pre stressing systems, materials, behavior of pre stressed concrete beams and losses in pre stress

9. Analysis of pre stressed concrete for self-weight, concentric tendons, eccentric tendon.

Text Books:

Reference Books:

1. S.R. Karve and V. L. Shah, Limit state theory and design of reinforced concrete structures publications Pune
2. Pre stressed concrete by Krishnaraju

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Program : Architecture		
Course Title: Vernacular Architecture (Elective)		**Course Code: 18AATE301**
L-T-P – 0 – 1 – 0	**Credits: 1**	**Contact Hours: 2 hrs.**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 28 hrs.	**Examination Duration: NA**	

Unit I

Introduction to Vernacular Architecture.
Definitions and theories, Categories, Contextual responsiveness: Climatic, Geographical, Anthropological and Cultural influences, Environment and Materials, Typical building materials, Built form & elements, Construction techniques & environmental performance.

Regional Variations in Built Form
Tribal Architecture Settlement Pattern, Dwelling Typology, Symbolism, Typical features, Construction materials and techniques. Illustrated case studies of vernacular settlements/building typology from various regions in India and abroad

Unit II

Documentation and Analysis of Vernacular built form
Documentation of Regional vernacular typology. Analysis of typology w.r.t Climate, Building materials & construction techniques, Geography, Anthropology, culture, etc.

Unit III

Adaptations in Contemporary Architecture
Sustainable building materials and construction techniques, Works of Laurie Baker, Hasan Fathy, Gerard Da Cunha, etc.

Internal semester assessment (ISA)
Field work Ideation, Concept design, Final Design
Periodic reviews presentations of finding , concerns, Development stage of product and justification

Text Books: Nil

Reference Books:

1. Paul Oliver (Ed), Encyclopedia of Vernacular Architecture of the world, vol 1,2,3, , Cambridge University Press, Cambridge, 2001
2. Paul Oliver, Dwellings; The vernacular House worldwide, Cambridge University press, Cambridge, 2003
3. Bernard Rudofsky , Architecture without architects, Great British, 1981
4. Jain K,Jain M, Mud architecture of Indian desert, 2000
5. Asquith l and Vellinga M, Vernacular Architecture in the Twenty first century , Taylor and Francis Oxon, 2006
6. Tipnis Aishwarya, Vernacular traditions in contemporary architecture, Teri Press New Delhi, 2012
7. Udamale. s., Architecture for Kutch, English Edition, Mumbai, 2003
8. Brunskill, R. W. (1987). Illustrated Handbook of Vernacular Architecture. Castle Rock : Faber & Faber.
9. Carmen, K. (1986). VISTARA – The Architecture of India. The Festival of India Publications.
10. Cooper, I and Dawson, B. (1998). Traditional buildings of India. London : Thames & Hudson.
11. Kenneth, F. (1983). Towards a Critical Regionalism: Six points for an architecture of resistance, In The Anti-Aesthetic: Essays on Postmodern Culture. (Ed.) Hal, F. Seattle : Bay Press.
12. Muthiah, S., Meyappan, M., Ramswamy, V. and Muthuraman, V. (2000). The Chettiar Heritage. Chennai : Chettiar Heritage.
13. Pramar, V. S. (1989). Haveli-Wooden Houses and Mansions of Gujarat, Ahmadabad : Mapin Publishing.
14. Rapoport, Amos. (1969). House, Form & Culture. Eaglewood: Prentice Hall Inc.

Tillotsum, G. H. R. (1989). The tradition of Indian Architecture: Continuity, Controversy and Change since 1850. Delhi: Oxford University Press.

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Program : Architecture		
Course Title: Bio-inspired Architecture		**Course Code:** 18AATE302
L-S-P: 0-1-0	**Credits:** 01	**Contact Hours:** 2 hrs.
ISA Marks: 50	**ESA Marks:** 50	**Total Marks: 1**00
Teaching Hours: 28 hrs.	**Examination Duration:** NA	
Unit-I:		
What is bio-inspired architecture		
Unit-II:		
How bio-inspired architecture can solve design problems Examples of bio-inspired architecture		
Unit-III:		
How bio-inspiration can lead to sustainable architecture		
Sessional Work (Internal semester assessment) Evaluation of assignments in three stages		
Scheme for Semester End Assessment (ESA) Evaluation of assignments		
Mode of assessment: Evaluation of Portfolio, assignments by internal and external examiners		
References : Architectural design books, periodicals & websites		

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VI SEMESTER

Program: Architecture		
Course Title: Architectural Design VI (Housing)		**Course Code:** 18AATC308
L-T-P : 0 -6-0	**Credits:6**	**Contact Hours:**9 hrs.
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 126 hrs.	**Examination Duration: 60min**	

Course contents:

Housing Studio aligns with state and national policy for housing for all, which is inclusive in nature. Mass housing, Issues related to housing shortages, incremental housing, sites and service schemes, slums and squatter settlements. Design in a climate responsive and environment friendly way while planning medium sized housing complexes. Apply the appropriate technology for Low cost housing, self-help housing, Co-operative housing, Housing based on income groups, density patterns and arrangement of units, temporary housing for disaster mitigation, rehabilitation housing, slum upgradation.

Studio project can also make decisions towards low-rise high-density housing or high-rise high density housing project. While designing socio-economic determinants, regulatory and technological alternatives shall be studied in detail. Exercises in simulation and conceptual modeling shall be conducted. Application of concepts of project phasing, financing and construction planning are to be applied in low-rise high-density housing or high-rise high density housing. The design shall be sensitive to the needs of disabled, aged people and children

The students are expected to carry out detailed site analysis, documenting physical features, vegetation, land forms soil characteristics, slope analysis and natural drainage patters. Site planning exercise should depict understanding of vehicular and pedestrian movement patterns, land grading and conservation of ecologically sensitive features. They are also expected to be conscious about the need for energy conservation through passive design. They will apply advanced simulation and modeling techniques to orient their buildings and decide energy performance parameters. Sample quantity estimates and specifications are to be prepared.

Housing projects can be attempted with added complexities for example, dense context, occupation based, traditional urban fabric, social status and prevalent social strata. Details from the dwelling cell to immediate shared space to communal space shall be emphasized and worked out. Socio cultural layer of the occupants shall form a strong fabric in the ultimate weave of the design. Projects shall aim at developing a sensitive attitude towards micro level human habitation and role of architecture in enhancing or curbing the quality of living.

Unit I

Design Analysis:

Research of the given design project, Analysis of precedents.

Site analysis / Concept Development:

Site plan, Site analysis, site synthesis and zoning,
Formulation of design brief, conceptual sketches,
Design development.

Preliminary Design Development stage:

Schematic drawings of Master Plan sections , elevations and study models

Unit II

Design of Prototype to ensure interrelationship between the building codes, efficiency metrics, urban design issues and architectural approaches.

Development of detail plans, elevations and sectional details, Models, Development of Three dimensional massing with corresponding fenestrations, details of services and structural system. Detailing of Public/open spaces and amenities.

UNIT III:

Finalization of design:

Report and portfolio in computer aided Architectural Presentation and rendered drawings

Text Books
Reference Books: 1. Brooks, R. G. (1988). Site Planning: Environment, Process and Development. Michigan. 2. Clapham, D., Clark, W. A. V. and Gibbs, K. (2012). The Sage Handbook of Housing Studies. London: Sage Publications. 3. Correa, C. (2010). A Place in the Shade: The New Landscape and Other Essays. New Delhi: Penguin Books. 4. Ferre, A. and Tihamer, S. H. (2010). Total Housing: Alternatives to Urban Sprawl. New York: ACTAR Publishers. 5. Greater London Council. (1978). An Introduction to Housing Layout: A GLC Study. London. 6. Lee, K. E. (1984). Time Saver Standards for Site Planning. McGraw-Hill Ryerson. 7. Levitt, D. and Levitt, B. (2010). The Housing Design Handbook. New York: Routledge. 8. Root, B. J. (1985). Fundamentals of landscaping and site planning. AVI Publications. 9. Untermann, R. and Small, R. (1977). Site Planning for Cluster Housing. Van No strand Reinhold 10. HUDCO publications: Housing for Low income, Sector Model. 11. “Saxena A.K., Sociological Dimensions of Urban Housing and Development” Wealth publications. 2004 12. Leuris S, Front to Back: “A design Agenda for Urban Housing”, Architectural Press, 2006. 13. Richard Kintermann and Robert Small, “Site Planning for Cluster Housing”, Van Nastrand Reinhold company, Jondon/ New York 1977.
Scheme for Semester End Examination (ESA) Evaluation of Portfolio, assignments by internal and external examiners The students have to present the entire semester work for assessment along with Models. A viva-voce (Approximate 15 minutes /student) shall be conducted by a jury comprising of an external examiner and an internal examiner.

RETURN TO SEM 6

Program : Architecture		
Course Title: BUILDING CONSTRUCTION & MATERIALS - VI		**Course Code: 18AATC309**
L-S-P: 0-4-0	**Credits: 4**	**Contact Hours: 6 hrs.**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 84 hrs.	**Examination Duration: NA**	

UNIT I

a) **Ferrous & Non Ferrous Metals:** Types, Properties & Application in Architecture. CI, MS & WI, Different Steels, Alloys (Brass & Bronze). (Sheet – 1no.)

b) **Steel Structures:** Standard & Built up Sections, Various Types of Joints & Brackets (Lap, Butt, Lozenzo's, Concentric & Eccentric Joints) Shear, Moment & both Shear-Moment Types. Bolted & Welded Connections for Components. (Sheet – 2 nos.)

c) **Foundation & Bearing Units for Steel Structures:**
For Columns – Flexible & Rigid, Slab based, Gusset based, Rocker Bearing & Roller Bearing.
For Beams – For Columns, Beams, Frames. Pin / Hinged / Fixed / Rocker & Roller. (Sheet – 1no.)

d) **Splicing for Steel Members:** Columns / Beams / Frames. Different Types with Joinery. (Sheet – 1no.)

UNIT II

a) **Flexural Components for Steel Structures**: Purlins, Beams, Girders, Castellated Beam, Vierendeel Girder & Lattice Girder. Joinery Components & Erection. (Sheet – 2no.)

b) **Roofing System for Steel Structures**: Types, Forms & Components like Girders, Trusses, Purlins Braces, Eaves, Storm Water Drains, Ridge, Hip, Valley & Roofing Materials. (Sheet – 2no.)

c) **Protection of Ferrous & Non Ferrous Metals**: Pre & Post Treatments, Anti Corrosive Paints. Powder Coating & Anodizing. (Sheet – 1no.)

UNIT III

a) **Framed & Steel Structures**: Portal Frames, Concept of Pre-Engineered Buildings. Types of Frames / Components / Spans. (Sheet – 2nos.)

Note – The Portfolio covering the above topics shall be presented for Term work. Site visits shall be arranged by studio teacher. Study of material application shall be submitted in the form notes, sketches and photo brief as a part of portfolio

Text Books:

22. McKay J.K Building Construction Metric Vol 1-4, 4thedi Orient Longman Pvt. Ltd, Mumbai,2002
23. "Construction Technology" Volume-I by R Chudley, ELBS & Longman group Ltd.
24. Barry R, "The construction of buildings" , Vol-2, 5th Edi, East West Press, New Delhi 1999.
25. Bindra S.P and Arora S.P, Building Construction-Planning Techniques and Method of Construction, 19thedi, Dhanpat Rai Pub, NewDelhi, 2000
26. "Building Construction" by JanardhanJha, Khanna New-Delhi.
27. Rangawal S.C ,"Building Construction" 22nd Edi, charotar Publishing house, Anand, 2004
28. "Engineering Materials" by Surendra Singh, Vikas Delhi.
29. "Building Materials" by S K Duggal, IBH New Delhi.
30. Sushil Kumar T.B of Building Construction 19thedi, Standard Pub House, NewDelhi, 2003.
31. Chowdhary K.P. Engineering Materials used in India, 7th Edi, Oxford and IBH Pub ltd New Delhi, 1990.
32. Building Construction Hand book: By R Chudly& R Greeno, Bullerworth Heinemann, New-Delhi.

Scheme for internal Assessment (ISA): Evaluation of term work regularly and tests conducted
Scheme for Semester End Examination (ESA): Evaluation of term work portfolio & Viva

RETURN TO SEM 6

Program: Architecture		
Course Title: SERVICES – IV(Acoustic)		**Course Code:** 18AATC310
L-T-P : 2 – 0 - 0	**Credits: 2**	**Contact Hours: 2Hrs**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 28 hrs.	**Examination Duration: 3 Hours**	

Unit I

Introduction and Scope of Acoustics:

1. **Nature and properties of sound, Physics of sound** – Sound propagation basic terminologies – frequency, pitch tone, sound pressure, sound intensity, decibel scale, loudness, threshold of audibility & plain, masking, sound distance- inverse square law.
2. **Acoustics in built environment** - Behavior of sound in enclosed spaces, Reflection of sound, Nature of Reflection from plane, Convex & concave surfaces, sound diffraction, Echoes, Whispering galleries, Dead spots & sound foci. Reverberation, reverberation time, use of Sabine's formulae and its interpretation.

   Sound field of classrooms, offices & studios.
   Auditorium acoustics – Design criteria.
3. **Noise Control** – Classification of Noise, Environmental impact of noise & acceptable noise levels. Principles

   Of noise control – noise sources, airborne & structure borne sound.
   Vibration isolation – Damping of noise, noise barriers, noise transmission through ducts, Design criteria for Industrial noise control, planning considerations, use of unit absorbers, treatment of floor & wall.

Unit II

Study of Acoustical Materials –

1. **Sound Absorbers** (Acoustical Foam, White Printable Acoustical Panel, Fabric wrapped panels, Wall Acoustical Coverings, Ceiling Tile, and Baffles & Banners).
2. **Sound Diffusers** such as (Quadra Pyramids diffusers, Pyramid Diffuser, Double duty Diffusers, Quadric Diffuser) etc. Absorption coefficient of Indigenous acoustical materials method of setting out of raked seating.
3. **Applications of noise control** - Sound proof doors and windows, sound leaks in doors and windows, floating floors, cavity wall construction, discontinuous joints, noise reduction between rooms and floors, resilient hangers.

Unit III

Study and development of ---Auditorium and theaters

Brief about – History of Greek & Roman style theatres, open air theatre concept.

1. Design details of---- audio visual room,
2. Seminar hall, Cinema Theater, auditorium with balcony used for drama, music and speech.
3. Lecture halls, office building

Case study of an auditorium acoustically treated with drawings---acoustical design for any one type of building with RT calculations.

Objective: To acquaint the student with the general guiding principles and procedures on which Acoustical Designing is based and applications of such principles in Architectural cases.

Text Books

Reference Books:

1. “Architectural Acoustics Principles and Design “By David R. Johnson and Madan L. Mehta.

2. “Auditorium Acoustics and Architectural Design” By Michael Barron.

3. “McDavid Egan (1988)-Architectural Acoustics” McGraw hill book co., NY.

4. Parich, Peter (1979) Acoustics: Noise and Buildings, Faber and Faber, London

5. Acoustics and Noise Control: B.J. Smith, R.J. Peters, S Owen, Longman Group Ltd. U.S.A., 1982

6. Acoustical Designing in architecture: Vern o. Knudsen and Cyril M. Harris, John Wiley & Sons, inc. London. 1963

7. Master Hand book of Acoustics: Falcon Everest, 4ed, McGraw-Hill, Two Penn Plaza, New York, NY 10121-2298 (Delhi- India), 1945

8. Acoustics Noise and buildings: P.H. Parkin, H.R. Humphreys and J.R Cowell, 4ed, Ebenezer Balis and Son, Ltd., the Trinity Press, Worcester, and London, 1979

9. Acousics : R. L. Suri, 1ed, Asia Publishing, Mumbai, 1966

Scheme for Semester End Examination (ESA)

UNIT	8 Questions to be set of 20 Marks Each	Chapter numbers	Instructions
I	**Question Numbers 1, 2 & 3**	I	Solve Any **2** out of **3**
II	**Question Numbers 4, 5 & 6**	II	Solve Any **2** out of **3**
III	**Assignment**	III	Design application Solve **1** OUT OF **1**

RETURN TO SEM 6

Program : Architecture		
Course Title: Contemporary Architecture		**Course Code:** 18AATC311
L-S-P: 2-0-0	**Credits: 02**	**Contact Hours: 2 hrs.**
ISA Marks:50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 28 hrs.	**Examination Duration: 3 HOURS**	

UNIT I:

- Ideas and works of late modernism architect's i.e Richard Meier etc,
- Ideas and Works of postmodern architect's i.e., Charles Moore etc
- Ideas and Works of De-construction architect's i.eFrank Gehry etc

UNIT II:

- Contemporary western architecture –
- Ideas and Works of hi-tec architecture i.e. Works Norman Foster, Renzo Piano, Richard Rogers, etc.
- Ideas and Works of artist and architects i.e. Santiago Calatrava etc

UNIT III:

- Contemporary Indian architecture ninety onwards.

NOTE:
The architects and ideas mentioned above are indicative only
The course teacher may choose the ideas and works of architects to explain with examples

Text Books: Nil

Reference Books:

1. **Bahga, Bahga and Bahga**, Modern Architecture in India
2. **Jon Lang**, A Concise History of Modern Architecture in India
3. **Charles Jencks,** Current Architecture
4. **Dennis Sharp,** 20th Century Architecture, A Visual History
5. **James Steel,** Architecture Toda

Internal Semester Assessment (ISA) - 2 Minor test and assignments
Scheme for Semester End Examination (ESA)

Sl.No	8 Questions to be set of 20 Marks Each	Unit Number	Instructions
1	**Question Numbers 1, 2 & 3**	I	Solve Any **2** out of **3**
2	**Question Numbers 3, 5 & 6**	II	Solve Any **2** out of **3**
3	**Question Numbers 7 & 8**	III	Solve Any **1** out of **2**

RETURN TO SEM 6

Program: VI Semester B. Arch		
Course Title: Settlement Planning		**Course Code: 18AATC312**
L-S-P: 2-0-0	**Credits: 2**	**Contact Hours: 2 hrs.**
ISA Marks:50	**ESA Marks:50**	**Total Marks: 100**
Teaching Hours: 28 hrs.	**Examination Duration: 3 hrs.**	

Unit I

1. INTRODUCTION TO HUMAN SETTLEMENTS

Elements of Human Settlements, their functions and Linkages – Anatomy & classification of Human Settlements Historical development of a City as a product of socio-cultural, economic and political ideologies, Urban settlements and rural settlements: Origins, evolution and growth of settlements, characteristics, relation and differences. Principles of settlement planning in various historical periods like Mesopotamian, Egyptian, Greek, Roman, Medieval, Renaissance and Neo-classical, Cities of Vedic period, Indo- Aryan cities, Indus valley, typical Dravidian temple city. Cities of Mughal period and British-Colonial period.

2. PLANNING CONCEPTS:

Role and contribution of the following towards contemporary town planning thought:
Geddesian Triad and outlook Tower by Patrick Geddes, City Beautiful by Daniel Burnham, Garden city by Ebenezer Howard, Neighbourhood by C.A.Perry, Radburn by Henry Wright and Clearance stein, Ekistics by CA Doxiadis, City for three million habitat, Radiant city and Chandigarh by Le Corbusier and F.L.Wright, Soria Y Mata, Kevin Lynch, Ian Mcharg and Jane Jacobs.

Unit II

3. CONTEMPORARY ISSUES IN URBAN PLANNING:

Contemporary problems of settlements, Environmental impact of unplanned growth. Socio-economic aspects of urban housing and problems of slums NHP, rationale of urban regulatory controls. Urban redevelopment and renewal, urban traffic and transportation planning, URDPFI, JNNURM, PMAY

4. URBAN AND REGIONAL PLANNING

Influence of socio-economic factors in the development of human settlements, growth and decay of human settlements. Classification of settlements: Classification based on population, functions, locations, Municipal status. Town and its land uses, graphical representation and colour coding of land use, character of a town, categories of a town, densities of a town, Principles, Advantages and types of Zoning. Scope and purpose of Perspective Plan, Regional Plan, Development Plan, Local Area Plan, Special Purpose Plan, Annual Plan, Project, and Concept of Participatory approach in planning process. Introduction to Urban Design, Basic Definitions and Terminology, elements, principles, Concept of public and private realm

Unit III

5. TOWN PLANNING TECHNIQUES

Data Collection Techniques, Types of Surveys, Data and Map Analytical Techniques, Applying Carrying Capacity for Urban and Regional planning, Threshold Analysis – Factors taken into consideration to assess the most suitable land use & weighted overlay of Land suitability, Projection Techniques - Population Projection and Economic Projection, Plan formulation through Remote Sensing & Geographic Information System, Central business district, other business districts, urban nodes, rest of the city, fringe area and suburbs

6. EMERGING TRENDS IN URBAN PLANNING

Globalization and its impact on cities: Self Sustained Communities, Special Economic Zones (SEZ), Transit Oriented Development (TOD) and Integrated townships, New Urbanism, Smart growth, Transect Future of cities and cities of future - Sustainable cities, Intelligent cities, Livable cities, Resilient cities, Smart Cities, Global city, Eco city, Compact city, Vertical urbanism, Mendacity, Sports city

Scheme for Internal semester assessment (ISA)

Term work: Evaluation of Portfolio, assignments by internal examiner, theory exam

Scheme for End Semester Assessment (ESA)

External examination-3 hrs.

Mode of assessment:

Portfolio& Theory exam.

Text Books: nil

Reference Books:

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 Urbanization, Thames & Hudson, London,2000
6. Rossi Aldo, The Architecture of the City, The MIT Press, New York,1984 and onwards.
7. Keeble Lewis, Principles and Practice of Town and Country Planning, The Estates Gazette Ltd., London,1969
8.Gordon Cullen Thomas, The Concise Townscape, Architectural Press Routledge,1961 and onwards
9.Hough Michael, Cities and Natural process: A Basis for Sustainability,Routledge,1995 and onwards

Scheme for Semester End Examination (ESA)

UNIT	8 Questions to be set of 20 Marks Each	Chapter numbers	Instructions
I	Q.No.-1, Q.No.-2, Q.No.-3	I	Solve Any **2** out of **3**
II	Q.No.-4, Q.NO – 5 Q.No.-6,	II	Solve Any **2** out of **3**
III	Q.No.-7, Q.No.-8	III	Solve Any **1** out of **2**

RETURN TO SEM 6

Program : Architecture		
Course Title: Interior Design		**Course Code: 18AATC313**
L-S-P: 0-2-0	**Credits: 2**	**Contact Hours: 3 hrs.**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 42 hrs.	**Examination Duration: NA**	

UNIT I:

Introduction to Interior Architectural Design

Definition of interior design, Interior architectural design process, vocabulary of design in terms of principles and elements, Introduction to the design of interior spaces as related to typologies and functions, themes and concepts - Study and design.

History of Interior Architectural Design

Brief study of the history of interior architectural design through the ages relating to historical context, design movements and ideas etc. Brief study of folk arts and crafts. (vernacular design in India) with reference to interior design and decoration.

UNIT II:

Elements of Interior Architecture - Enclosing Elements

Introduction to various elements of interiors like floors, ceilings, walls, staircases, openings, interior service elements, incidental elements etc., and various methods of their treatment involving use of materials and methods of construction in order to obtain certain specific functional, aesthetic and psychological effects.

Elements of Interior Architecture – lighting accessories & interior landscaping

Study of interior lighting, different types of lighting their effects types of lighting fixtures. Other elements of interiors like accessories used for enhancement of interiors, paintings, objects-de-art, etc. Interior landscaping, elements like rocks, plants, water, flowers, fountains, paving, artifacts, etc. their physical properties, effects on spaces and design values

UNIT III:

Elements of Interior Architecture - Space Programming

Study of the relationship between furniture and spaces, human movements & furniture design as related to human comfort. Function, materials and methods of construction, changing trends and lifestyles, innovations and design ideas. Study on furniture for specific types of interiors like office furniture, children's furniture, residential furniture, display systems, etc. Design Projects on Residential, Commercial and Office Interiors.

Quantity survey and costing of Interior materials and elements

Study of the basic quantifying and estimation of the interior design items. Market study investigating the material manufacturers, usage, standards available, and thumb rule based costing and quantity calculation for an interior design project.

Scheme for Internal semester assessment (ISA)

The Portfolio covering the given topics and the study models shall be presented.

The evaluation shall be through periodic internal reviews and assignments.

The students have to present the entire semester work for assessment along with Models.

Term work Evaluation of Portfolio, assignments by internal examiner

Scheme for End Semester Assessment (ESA)

Term work: Evaluation of Portfolio and assignments by internal and external examiners/Viva

Mode of assessment : Portfolio, Models, Assignment, Presentation, Reviews

Textbo oks – x

1. John Hancock, Time Saver Standards for Architectural Data.
2. Ramsay and Sleeper, Architectural Graphic Standards
3. Alexander and Mercourt , Design of Interior Environment
4. Panero Julious and Zelink Martin, Human Dimension and Interior Space

Reference Books:

1. Ching, F. D. K. (1987). Interior Design Illustrated. New York : V.N.R. Publications.

2. Doshi, S. (Ed.) (1982). The Impulse to adorn - Studies in traditional Indian Architecture. MargPublications.

3. Kathryn, B. H. and Marcus, G. H. (1993). Landmarks of twentieth Century Design. Abbey VillePress.

4. Penero, J. and Zelnik, M. (1979). Human Dimension and Interior space: A Source Book of Design Reference Standards. New York : Whitney Library ofDesign.

5. Slesin, S. and Ceiff, S. (1990). Indian Style. New York : Clarkson N.Potter.

6. Dorothy, S-D., Kness, D. M., Logan, K. C. and Laura, S. (1983). Introduction to Interior Design. Michigan : Macmillan Publishing.

Scheme for internal Assessment (ISA) : Evaluation of term work regularly andReviews
Scheme for Semester End Examination (ESA) : Evaluation of term work portfolio &Viva

RETURN TO SEM 6

Program : Architecture		
Course Title: STRUCTURES - VI		**Course Code: 18AATC313**
L-S-P: 3-0-0	**Credits: 3**	**Contact Hours: 3**
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**
Teaching Hours: 42	**Examination Duration: 3 HOURS**	

UNIT I:

1. Vertical/lateral structural systems: introduction. Structural design project of a 15 story of 40m X 40m X 32m. Calculation dead load, live load and wind load as per IS 875-1984.
2. Seismic loading calculation as per IS1983-2002 part - I.
3. Introduction to lateral load resisting system, shear wall system and dual system.

UNIT II:

4. Introduction to earthquake resistant system, and effect of an earthquake as a whole on society. Elementary seismology, plate tectonic theory, magnitude and intensity of earthquake and seismic zonal map of India.
5. Earthquake loads on a simple building, vertical load distribution of base shear. Design philosophy of earthquake resistant structures.

UNIT III:

1. Seismic behavior of load bearing structures, in plane and out of plane walls and stiffeners. Shear walls, moment resisting frames and braced frames
2. plan configuration, vertical configuration and infill walls

Text Books:

1. Dr. Ram Chandra, Design of Steel Structures, Vol I, 10th ed. Standard book house, New Delhi, 1999.
2. S. Ramambrutham and R Narayanan, Design of Steel Structures, 4th ed. Dhanpat Rai and Sons, Delhi 1995

Reference Books:

1. Structures Martin Bechthold, Daniel L Schodek. PHI Learning pvt. Ltd

Internal Semester Assessment (ISA) 2 Minor test and assignments

Scheme for Semester End Examination (ESA)

Sl.No	8 Questions to be set of 20 Marks Each	Unit Number	Instructions
I	Q.No.-1, Q.No.-2, Q.No.-3	I	Solve Any **2** out of **3**
II	Q.No.-4, Q.NO – 5 Q.No.-6,	II	Solve Any **2** out of **3**
III	Q.No.-7, Q.No.-8	III	Solve Any **1** out of **2**

KLE Technological University | Creating Value, Leveraging Knowledge

Program : Architecture		
Course Title: Analyzing Architecture		**Course Code:** 18AATE308
L-S-P: 0-2-0	**Credits:** 01	**Contact Hours:** 02
ISA Marks: 50	**ESA Marks:** 50	**Total Marks: 1**00
Teaching Hours: 28	**Examination Duration:** NA	

Course contents:

Unit-I:
Architecture as identification of place, basic elements and modifying the elements.

Unit-II:
Architecture as doing more than one thing, using things that are there and using primitive place types.

Unit-III:
Architecture as making frames and establishing the relationship of space to structure.

Sessional Work (Internal semester assessment)
Evaluation of assignments in three stages

Scheme for Semester End Assessment (ESA)

Evaluation of assignments

Mode of assessment:
Evaluation of Portfolio, assignments by internal and external examiners

References: Architectural design books, periodicals & websites

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VII SEMESTER

<table>
<tr><td colspan="3">Program: Architecture</td><td rowspan="4">Teaching Hours</td></tr>
<tr><td colspan="2">Course Title: Architectural Design – VII (CAMPUS PLANNING)</td><td>Course Code: 18AATC401</td></tr>
<tr><td>L-T-P: 0-7-0</td><td>Credits:7</td><td>Contact Hours: 10 Hrs</td></tr>
<tr><td>ISA Marks: 50</td><td>ESA Marks: 50</td><td>Total Marks: 100</td></tr>
<tr><td>Teaching Hours:140</td><td>Examination Duration: NA</td><td></td><td></td></tr>
<tr><td colspan="4">Course contents:
Understanding design as a process of Planning principles, space standards, formulation of Requirements, evolution of design criteria and development of Design of buildings in Built environment, Phasing and development. To enable the students to integrate design with history, theory, building construction and material science in a more informed way.
The Campus planning design issues to be addressed are:
• Sustainable Campus Planning principles.
• Relationship between Built and Unbuilt Infrastructure development.
• Human Centric design parameters.
• Defining the nature of engagement with the city, through the articulation of the program and its relationship with the context.
• Nature of Contemporary Master plan, correlation to Build Urban structure.
• Development control and urban infrastructure affecting design.
• Integration of function and movement, climate and sound, structure and services into group of Buildings.
• Landscaping and site planning.
• Institutional character – from abstract to detail.
• User behavior and requirements pertaining to the physically handicap.</td></tr>
<tr><td colspan="4">The topics to be covered as design problems may include:
• Institution of learning – colleges with its various departments such as medical, engineering, law, business, music, and dance colleges, vocational training institutes etc.
• Institutions of life such as hospitals, reformatories and rehabilitation institutes for the disabled.
• Institutions of research in various disciplines.
• Local/legal institutions such as the high courts, secretariat, development authorities, directorates etc.</td></tr>
<tr><td colspan="4">Necessary theoretical inputs to be given highlighting the norms and design issues. At least one major exercise and one minor design/ time problem should be given. The topics covered as design problems will have to be covered by the studio faculty members through lecture/slide show session and site visits.</td></tr>
<tr><td colspan="3">Unit I
Design Analysis: Research of the given design project, Analysis of precedents.
Introduction to the initial design parameters which include choice of:
a. Geography/situation (context)
b. Constraints (bye-laws, budget, ideology, attitudes, etc.)
Site analysis / Concept Development: Site plan, Site analysis, site synthesis and zoning, Metaphors in Campus planning design process and formulation of design brief, conceptual sketches, design development.
Mater plan Design Development stage: To understand spatial structuring as a set of logical operations after an analytical understanding of the site, surroundings, program and intent expressing diversity of program and its resulting spatial variety and the relationship between the built and the unbuilt established through movement systems, linkages and nodes etc.</td><td>40 hrs.</td></tr>
</table>

Unit II **Secondary Design Development stage:** Informal structuring, Architecture is an integrative discipline. Establishment of a structure enables reverse integration with other subjects where the students look beyond their studio offering a mechanism to observe the surroundings and document it, understand history and theory analytically, integrate design with building construction, climatic, environmental and material science in a more informed way. The design exercise shall focus on ideas of scale, engagement (social, economic, political, and environmental), hierarchy, public/private space, and challenge the students to reflect on these as part of the design development. The emphasis should be to establish these larger goals as part of the discussion on the nature of an institution. The project and design development should focus on integrating Sustainable Campus design in every aspect and process possible, with an emphasis on reducing thermal locals and integrating ventilation, insulation, thermal mass, shading, cool roofs, passive/natural cooling and low energy, low-carbon active cooling technologies; local materials as much as possible; sustainable systems such as storm water harvesting, water recycling and reusing, waste management systems and renewable energy systems and above all response to site context and existing informal systems.	**60 hrs.**
Unit III **Finalization of design:** Presentation (computer aided) and rendering **Suisse:** Given design topic which is part of the Campus Master Plan to be completed within the time limit. **Model Making:** Final three-dimensional model/views Parametric design with the powerful visual programming languages.	**40 hrs.**
Text Books: NIL	
Reference Books: 1. Architecture Today 2. Concept of the Manifest. 3. Projects of Various Architects of similar nature. 4. Campus design in India – Kanvinde & Miller 5. Campus Planning _ Richard Dober. 6. Urban Design. The Architecture of towns and cities. –Paul Sprereingen. 7. Exterior design in Architecture __ Ashihara Toshinibu 8. Modern Language of Architecture __ Bruno Zevi. 9. Modern Movements in Architecture __ Charles Jencks 10. Language of Post – modern Architecture - Charles Jencks 11. Complexities and contradictions in Architecture – Robert Venturi 12. Architectural Composition. –Rob Krier. 13. Pattern Language Christopher Alexander. 14. Town Design –Fredrick Gibberd Alexander 15. Various monographs and periodicals	
Scheme for Internal Semester Examination (ISA) The Portfolio covering the given topics and the study models shall be presented. The evaluation shall be through periodic internal reviews. The students have to present the entire semester work for assessment along with Models. Term work Evaluation of Portfolio, Assignments by internal examiner.	
Scheme for End Semester Examination (ESA) Evaluation of Portfolio, assignments by internal and external examiners The students have to present the entire semester work for assessment along with Models. A viva-voce (Approximate 15 minutes /student) shall be conducted by a jury comprising of an external examiner and an internal examiner. The drawings, models and shall be presented by the student.	

RETURN TO SEM 7

Program: Architecture			
Course Title: Building construction & Materials-VII		**Course Code: 18AATC402**	Teaching Hours
L-S-P: 0-4-0	**Credits: 4**	**Contact Hours: 6Hrs/week**	
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**	
Teaching Hours: 84Hrs	**Examination Duration: Viva Voice**		
Course Overview: To familiarize the students with the advanced forms of construction like folded plate structures, shells, geodesic domes, Tensile and compressive structures, pneumatic structures, space frames, various system building components, pre-stressed and pre-tensioned building components, curtain wall and structural glazing with materials like admixtures, sealants.			
Unit I Chapter 1: Structural Forms: Introduction to folded shells, hyperbolic, paraboloid structures, structural behavior, materials, spans and architectural applications.			18
Chapter 2: Geodesic Domes: Introduction to geodesic domes, structural behavior, types, materials, spans and spaces and their architectural applications..			12
Chapter 3: Tensile and Compressive structures. Introduction, structural behavior, materials, spans and application and its form.			12
Unit II Chapter 4: Pneumatic Structures. Introduction, structural behavior, materials, spans, architectural application and its futuristic scope.			12
Chapter 5: Space frame. Introduction to structural behavior, materials, spans and its architectural applications.			12
Unit III Chapter 6: System building components: Modular approach, materials, manufacturing erection and architectural applications.			12
Chapter 6: Pre-stressed and post-tensioned building components: Concepts, materials, construction and applications.			06
Scheme for Internal semester assessment (ISA) Regular Assignments, models. Term work: Evaluation of Portfolio, assignments by internal examiner			
Scheme for End Semester Assessment (ESA) Term work: Evaluation of Portfolio, assignments by the External examiner through VIVA VOICE			
Mode of assessment: Portfolio			

Text Books

1. NIL.

References

1. "Construction Technology" Volume-I by R Chudley, ELBS& Longman group Ltd.
2. Barry R, "The construction of buildings", Vol-2, 5th Edi, East West Press, New Delhi 1999.
3. BindraS.P and AroraS.P, Building Construction-Planning Techniques and Method of Construction, 19thedi, DhanpatRai Pub, NewDelhi, 2000
4. "Building Construction" by JanardhanJha, Khanna New-Delhi.
5. RangawalS.C ,"Building Construction" 22nd Edi, charotar Publishing house, Anand, 2004
6. "Building Materials" by S K Duggal, IBH New Delhi.
7. Sushil Kumar T.B of Building Construction 19thedi, Standard Pub House, NewDelhi, 2003.
8. ChowdharyK.P. Engineering Materials used in India, 7th Edi, Oxford and IBH Pub ltd New Delhi, 1990.
9. Building Construction Hand book : By R Chudly& R Greeno, Bullerworth Heinemann, New-Delhi.

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Program: Architecture			
Course Title: Research Methodology Dissertation		**Course Code: 18AATC403**	Teaching Hours
L-S-P: 0-3-0	**Credits: 3**	**Contact Hours: 4Hrs/week**	
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**	
Teaching Hours: 42Hrs	**Examination Duration: Viva Voice**		

Course contents: The objective of this course is to orient the students to gain a strong theoretical analytical base for a well-structured research. The course shall enable students to conduct research, analyses and write a research paper on a topic of their interest.
Students may choose a topic related to Architecture and allied subjects. Emphasis must be on critical understanding, logical reasoning and structured writing.

Unit-I: The nature and function of research, meaning of research in the field of architecture, pure and applied research, traditional and potential areas/types, the three stages of research Research methodology, various techniques of data collection in general, specific techniques in architectural research, methods of analysis stage, communication of research reporting, the structure of a report, the necessity for the development of writing skills.	15
Unit-II Technical data about formal writing, the use of visuals, the qualities of research, the use of primary and secondary references, bibliography, notation, cross reference etc. Issues of selective reference. Methods of writing draft reports before finalisation. Research in the fields of environment, community structure, architectural history and theory, urban structure, building type studies, etc.	15
Unit-III Behavioural studies and user evaluation.	12
Sessional Work (Internal semester assessment) Students are expected to present the progress of the study at various stages of the semester. Students will be asked to prepare research proposals, which will be discussed and modified.	
Scheme for Semester End Assessment (ESA) Final assessment of the students' work may be based on written Paper as well as oral communication. However, greater weightage may be given for writing skills and research content of the study.	
Mode of assessment: By the end of the semester, students are expected to submit a written paper of approximately 3500 words. Standard referencing conventions and technical writing norms must be adhered to. Students are expected to present the progress of the study at various stages of the semester.	
References: 1. Murray, R. Writing for academic journals. Berkshire: Maidenhead, Open University Press. (2005). 2. Borden, I. and Ray, K. R. The dissertation: an architecture student's handbook. (2006). 3. Anderson, J. and Poole, M. Thesis and assignment writing. Brisbane: John Wiley. (1998). 4. Architectural research methods; Linda Groat& David Wang, John Wiley and sons, New York 5. Visual research methods in Design; Henry Sanoff, Van Nostrnad Reinhold, New York Architectural research; Snyder James C; Van Nostrnad Reinhold	

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Program: Architecture			
Course Title: STRUCTURES - VII		**Course Code: 18AATC404**	Teaching Hours
L-S-P: 3-0-0	**Credits: 3**	**Contact Hours: 3Hrs/week**	
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**	
Teaching Hours: 42 hrs.	**Examination Duration: 3Hrs**		
UNIT 1			
Chapter No.01 1. Case Studies-Study of ongoing Residential and public RC frame building structures by site visits. 2. Collecting data regarding the type of structural system, structural configurations, arrangement of columns and beams for the different floors. 3.Critical analysis and interpretation of data at studio, for the possible alternative structural system with column position and beam layout			8 hrs.
Chapter No.02 Design of structures 4. Load calculations of continuous beams , 1-way continuous slab, 2-way continuous slab, uni axial column, isolated footings for residential and multi-story public buildings			8 hrs.
UNIT 2			
Chapter No.03 Design of structures Preparing a RC structural system for a proposed architectural design of a residential, commercial and public building structures. Preparing column positions, beam layout as per requirements of all floors and parking arrangement.			10 hrs.
Chapter No.04 Preparing various options of foundations can be provided for the proposed building structure. Design of typical isolated column foundation and pile foundation for the estimated axial loading Design of typical columns for the estimated gravity load subjected to axial load and unit axial moment. Design of typical beam and slab elements for the estimated loading			8 hrs.
UNIT 3			
Chapter No.05 Structural detailing - Preparing the structural drawings of layout of columns, foundation and retaining walls. Typical floor structural drawing with reinforcement details			8 hrs.
Scheme for Internal semester assessment (ISA) Assignments, ISA 1, ISA 2			
Scheme for End Semester Assessment (ESA) Theory Exams			
Text Books (List of books as mentioned in the approved syllabus) 1. Dr. Ram Chandra, Design of Steel Structures, Vol I, 10th ed. Standard book house, New Delhi, 1999 2. S. Ramambrutham and R Narayanan, Design of Steel Structures, 4th ed. DhanpatRai and Sons, Delhi 1995			
References 1. S.R. Karve and V. L. Shah, Limit state theory and design of reinforced concrete structures publications Pune 2. IS : 456- 2000 Code of practice for plane and reinforced concrete. 3. Structures Martin Bechthold, Daniel L Schodek. PHI Learning pvt. Ltd			

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Program: Architecture			
Course Title: Professional Practice I		**Course Code: 18AATC405**	Teaching Hours
L-S-P: 3-0-0	**Credits: 3**	**Contact Hours: 3 hrs./week**	
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**	
Teaching Hours: 42 hrs.	**Examination Duration: 3 hrs.**		

Course Overview:

Unit I **Chapter 1: Architect and his Practice:** Profession of architecture, duties and liabilities to the profession, Types of Architect's Office – proprietorship, partnership and combined concerns, advantages and Disadvantages of each, secure clientage, office administration and accounts of firms, Competitions, Supervision by Architects: Site Visits, Meaning and Purpose of Supervision, Remarks on Site Book, Site Meeting and Bill Checking.	**10**
Chapter 2: Council of Architecture (COA) and The Indian Institute of Architects (IIA) Council of Architecture (COA), Code of Professional Conduct, Architect's Act 1972, The Indian Institute of Architects (IIA), Conditions of engagement, Scale of Professional Charges, Mode of Payment, Taxation in the profession, Architect's responsibilities and liabilities towards client.	**06**
Unit II **Chapter 3: Tenders.** Tender documents, Types, Tendering Procedure, Tender Notice, EMD, Mobilization Fund, Security Deposit, Retention Amount, Mobilization Fund, Contractor's Profit, Work Order, and Letter of Acceptance.	**08**
Chapter 4: Contracts: Definition, General Principles, Types of Contract, Importance of Articles of Agreement and Appendix, Definition of various terms and their scope. Architect's power and duties with respect to execution of contract conditions, Contractor's Duties and Liabilities under contract. Problems arising out of contract – Virtual completion and defects liability, liquidated and unliquidated damage, Penalty Bonus, Extension of Time, Non tendered items, extra and additional work, variation, prime cost and provisional sum, fire insurance and conditions of claim.	**08**
Unit III **Chapter 5: Valuation –** Introduction, Essential Characteristics, Value and its classification, purpose of Classification, methods of valuation, standard rent, cost of construction.	**10**

Scheme for Internal semester assessment (ISA)
ISA 1 and ISA 2 – Theory Examination
ISA 3 - Assignments

Mode of assessment:
Theory Examination

Text Books

2. NA.

References

10. Professional Practice – Dr. Roshan Namavati
11. Architectural Practice and Procedure – Ar. V S Apte
12. Architectural Practice in India – Ar. Madhav Deobhakta
13. Professional Practice – Dr. K G Krishna Murthy and Prof S V Ravindra
14. The Business of Architectural Practice – Derek Sharp

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Program : Architecture			
Course Title: Online Portfolio		**Course Code: 18AATC406**	**Teaching Hours**
L-S-P: 0-0-1	**Credits: 1**	**Contact Hours: 02**	
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**	
Teaching Hours: 48	**Examination Duration: NA**		
Unit-I: Students will learn the industry-standard publishing application to design and publish high-quality Architectural presentations and portfolio across a full spectrum of digital and print media. Portfolios and Presentations in Adobe InDesign, will take students through all of the steps needed to build a professional presentation and portfolio using textual description, photos of drawings, photos models, sketches etc.			**15**
Unit-II Demonstrating how to set up Architectural online portfolio website using Word press (open source CMS). Create profile and upload Architectural content like: Academic assignments, design sheets, participations, Award, hobbies etc. to share with professional architects and web audience.			**15**
Unit-III Installing plugins, themes, and attracting web users with permalinks, social sharing etc. in WordPress			**18**
Sessional Work (Internal semester assessment) Regular Assignments, Architectural portfolio hardcopy (booklet) and online portfolio website			
Scheme for Semester End Assessment (ESA) Term work: Evaluation of Portfolio booklet and online portfolio website by external examiners			
Mode of assessment: Printed portfolio booklet and online portfolio website			
References :www.adobe.com, www.wordpress.com, video tutorials and web resources			

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<table>
<tr><td colspan="3">Program: Architecture</td><td></td></tr>
<tr><td colspan="2">Course Title: Digital Tool III (REVIT)</td><td>Course Code: 18AATC407</td><td rowspan="4">Teaching 64 Hours</td></tr>
<tr><td>L-S-P: 0-2-0</td><td>Credits: 1</td><td>Contact Hours: 4Hrs/week</td></tr>
<tr><td>ISA Marks: 50</td><td>ESA Marks: 50</td><td>Total Marks: 100</td></tr>
<tr><td>Teaching Hours: 64Hrs</td><td>Examination Duration: NIL</td><td></td></tr>
<tr><td colspan="4">Course Overview: Building Information Modelling is used by architects and other building professionals to help reduce risk obtain insight into how buildings will perform before construction begins, develop better quality designs, and improve project delivery.</td></tr>
<tr><td colspan="3">Unit I</td><td></td></tr>
<tr><td colspan="3">1. Building Information Modelling:
2. Imperial and Metric Convention
3. Exploring the User Interface
4. Revit Architecture Basics
5. Starting a Design
6. The Basics of the Building Model
7. Loading Additional Building Components</td><td>21</td></tr>
<tr><td colspan="3">Unit II</td><td></td></tr>
<tr><td colspan="3">1. Viewing the Building Model
2. Using Dimensions and Constraints
3. Developing the Building Model
4. Detailing and Drafting
5. Construction Documentation.</td><td>21</td></tr>
<tr><td colspan="3">Unit III</td><td></td></tr>
<tr><td colspan="3">Presenting the Building Model. And Office Interiors. Documenting the Project</td><td>22</td></tr>
<tr><td colspan="3">Scheme for Internal semester assessment (ISA)
Regular Assignments, models.
ISA I -20 marks
ISA II -20
Term work: Evaluation of Portfolio, assignments by internal examiner-10 marks</td><td></td></tr>
<tr><td colspan="3">Scheme for End Semester Assessment (ESA)
Term work: Evaluation of Portfolio, assignments by the External examiner</td><td></td></tr>
<tr><td colspan="3">Mode of assessment:
Portfolio</td><td></td></tr>
<tr><td colspan="3">Romanesque Architecture
New Construction Methods, Pisa Cathedral, The Abbey Church, Cluny
Gothic Architecture
Cathedrals, Gothic Churches with construction of pointed arch, Rose windows, etc.</td><td></td></tr>
</table>

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VIII Semester

Program : Architecture		
Course Title: Professional Training		**Course Code: 18AATT401**
L-S-P: 0-22-0	**Credits: 22**	**Contact Hours: 34**
CIE Marks: 50	**SEE Marks: 50**	**Total Marks: 100**
Teaching Hours: 420	**Examination Duration: NA**	

UNIT-1

The Student is expected to be exposed to preparation of working drawing, detailing, preparation of architectural models, computer applications in design and drafting, filing system in respect of documents, drawing and preparation of tender, documents. Site experience may be given in respect of supervision of the construction activity, observing the layout on site, study of the stacking methods of various building materials, study of taking measurement and recording.

Students will have to maintain a day to day record of their engagement for the period of training. This will be recorded in an authorized diary to be counter signed by the architect at the end of each month and the same diary shall be sent to the department once in a month. At the end of the training period, a student will have tp produce a certificate of experience and satisfactory performance from the concerned office in the prescribed format.

UNIT-II

The viva-voce marks shall 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 various drawing done by the student either drafted or designed. It shall also contain other works like photographs of site visited, models done, computer output produced etc.,

Building study – This shall be a detailed critical study of a building designed by the architect with whom the student has worked. It shall include the study of function, aesthetics, context, structure etc., This shall be presented through drawings, photographs, write ups etc.,

UNIT-III

Building Materials Study – This shall be a detailed study of a new or relatively new building material available in the market. A study of its properties, uses, cost, maintenance etc., is expected to be done. Samples of materials shall also be obtained and presented.

Detailed Study – This shall be a study of any interesting detail done in the firm where the student has undertaken training. This shall include sketches and photographs of the detail.

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.

Objectives of the course:
To provide exposure to the various dimensions of architectural practice.

Text Books: NIL

Reference Books: NIL

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IX SEMESTER

KLE Technological University | Creating Value, Leveraging Knowledge

Program: Architecture			Teaching Hrs
Course Title: Architectural Design VIII (Urban Insert)		Course Code:18AATC501	
L-S-P: 0-10-0	Credits: 10	Contact Hours:12 hrs./week	
ISA Marks: 50	ESA Marks: 50	Total Marks: 100	
Teaching Hours: 210 hrs.	Examination: NA		

Course Overview:

The community and urban design studio seeks to educate architecture students to be leaders for vision-based change at the scales of neighborhood, city and region. This studio builds upon and expands your design skills in architecture, urban design and landscape architecture, and introduces new skills in community leadership and urban design. Our approach to urban design engages the city as an integrated design problem which is best solved through a participatory design process.

Drawing on multiple disciplines, you will study the process of working directly with communities to create visions for future change. The studio is intended to both introduce you to urban design and inform your understanding of building design in relation to existing contexts. The first half of the semester is focused on introducing new skills of seeing, sensing, experiencing and reading a place decoding its myriad layers and complexities ,while the second half is devoted to expanding and developing design skills at the block and neighborhood scale.

Unit I	
Based on the currents issues affecting the built environment in India or abroad, the studio is aligned accordingly to address the complexity through solutions. The studio is divided into three phases The first phase involves Site (urban/peril-urban, rural laboratory) Identification, inventory and analysis. Pre visit research, archival study appreciating the natural, cultural, historical, economical socio-political context (Data collection: Maps, drawings, CDP, building regulation, Demography study, socio economic survey) Field study and inventory exercise, Meetings with the stake-holders. Site analysis inferences is carried out by the pre formed groups of four to five students each. The inferences, individual and shared views are presented. The emerging issues are discussed in a group. All groups present and discuss their respective SWOT observation, vision statement, Objectives, Strategies leading to a common vision statement. The second phase of work focus on the preparation of master plans and design guidelines based on the conclusion drawn from the inventory and analysis phase, through agreed objectives for development and strategies and individual demonstration projects. The master plan and accompanying guidelines will be formulated simultaneously and will serve as the basis for individual test projects during the third phase. Third Phase Individual Project Proposals Note: The above said task will be carry out in the holidays before the commencement of the semester and will take approximately two-three weeks	80 hrs.

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Phase 1 Site Analysis (5 weeks in the studio) (1-6 week) 2-3 weeks on the site during VI Semester end holidays Research and inventory Appreciating the context through maps, context model, digital model Analysis and identification of issues and impact assessment Communication of analysis and conclusions through situation maps, analytical drawings, photo documentation, sketches drawings and other graphical material as required to illustrate issues with potential to influence the master plan. This information will be published in a binder that will act as a primary resource for the next phase of work. Working as a studio you will explore economic, social and physical aspects of the neighborhood through maps, demographics, diagrams, photographs, and a large physical model. The analysis provides an opportunity for you to learn about the community. More importantly, effective representation of conditions sets the frame for a future. Analysis is the foundation upon which urban design and development proposals stand.	
Unit II	
Chapter 3: Urban Design Framework 4 weeks (6-10 weeks) Formulating the Vision of the place Formulation of Objectives Development strategy (Land use, Zoning regulations, setting FAR, Ground Coverage, defined sustainable measures) Develop graphic and verbal recommendation for essential design character of the overall site and its individual development. Each group will produce one master plan for specific area of the city/town/neighborhood. Policy and development framework Working as a studio group, you will transform community issues and objectives into a unified vision for the neighborhood with a series of strategies and an urban design framework. The urban design framework will establish a future vision of the corridors, districts, and neighborhood of the community. The framework will establish significant places for public investment as well as important civic design features of private development.	80
Unit III	
Urban Design Project 4 weeks (10-14 weeks) This unit will involve reading task followed by class room discussions. Once the overall vision for the place has been formulated and development objective are chalked out, the group disperses. Each individual designer will zoom in to their respective areas of intervention for: Project identification Formulation of design program Urban Design Project framework Formulation of areas Design development Draft proposal Final Project In the final phase you will develop a single area of focus in detail, exploring site forces, development typologies, three-dimensional place making and representation. Your vision for change will be embodied through the designs of a development proposal at a critical location in the community. A catalytic project must inspire continued investment and pursuit of the larger urban design goals for community reinvestment. The individual design solutions itself is defined in terms of allowing and constricting a set of processes in time and space. The challenge you face in the Urban Design Studio involves expanding the scale of the problem not only in space (the site is much bigger than in your previous studios), but also in time: the solution itself must allow for multiple possibilities over an extended period of time. In this sense your solutions must be concrete spatial proposals, but they should also be thought of as flexible temporal frameworks for urban change. (13th week) +1 week for Final Presentation of individual interventions)	50

Scheme for Internal semester assessment (ISA):	Weight age in %	
Participation- Field studies, Pin -ups, critique, discussion, activity engagement, studio attendance and preparation, formulation of Vision, Objectives and Strategies, Design Program	40% 30%	
Studio assignments- sketchbooks, drawings, maps, report, interpretations from archival studies, observation SWOT analysis. Comprehensive Design Proposals, Master Plan, spatial configuration, character of public realm, Typo-morphology		
Urban Design Project (Area of intervention), Urban Design Framework, Typologies Pin Ups, Product Mix, Area Plan, Urban Design Guidelines, Representation Individual design project- process and product	30%	
Total	100%	

Successful accomplishment of learning outcomes will be assessed, primarily, based on two tools, project process, product, and presentation; and verbal critique and written comments from guest reviewers for process and final project presentations
1.Rubrics for the studio assignments
2. The community design project, organized around project process, product, and presentation; and verbal critique and written comments from guest reviewers for process and final project presentations spread across series of internal reviews, external reviews, community participation, discussions, exhibitions/Urban Design Charrette /pechakucha

Scheme for End Semester Assessment (ESA):
Jury, Term work and Final report

Mode of assessment:Final Report

References:

1) Katz Peter,The New Urbanism: Toward an Architecture of Community. McGraw -Hill, Inc
2) *Larict, M and Macdonald*, E.Ed.2013. The Urban Design Reader, *Second Edition, Routledge.*
3) *Bacon N. Edmund.* Design of cities. Penguin Books, New York 1976.
4) *Krier Rob*, Urban Space 3rd Ed, Academy Editions, London 1984.
5) *KrierRob,*Town Spaces(Contemporary Interpretations in Traditional Urbanism),*Birkhauser-Publishers for Architecture*
6) Mumford Lewis City in History, Its origin transformation and its prospects.
7) Spreiregen Paul ,Urban Design: The Architecture of Towns and cities
8) *Alexander Christopher ;*Urban Pattern
9) *Alexander Christopher:* Timeless way of Building
10) *Alexander Christopher*: New Theory of Urban Design
11) *Alexander Christopher: Nature of Order, vol.1,2,3,4*
12) *Alexander Christopher*: Synthesis of Form
13) *Alexander Christopher:* City is not a Tree
14) *Rappaport Amos:* Human Aspect of Urban Form
15) *Rappaport Amos:* History and Precedent of Environmental Design
16) *Rappaport Amos:* House Form and Culture
17) *Rappaport Amos:* Meaning of the built environment
18) *Geoffrey Broadbent*: Design in Architecture
19) *Geoffrey Baker*: Design strategies in architecture: An approach to analysis of form
20) *Lynch Kevin: City Sense*
21) *Lynch Kevin: Image of the City*

Reference Reading book

1) MoughtinClif, Urban Design, Method and Techniques. Architectural Press
2) Lawson B,(1980)How Designers Think, London Architectural Press
3) De Bono,E(1977) Lateral Thinking, Harmondsworth: Penguin
4) Jane Jacob, The Death and Life of Great American Cities (1961) New York, Random House.

5) Rudi & Academy of Urbanism, Place Making 2009
6) Atkins, Hinkley Town Center Renaissance Master Plan
7) DETR/CABE,By design(2000)
8) DTLR/CABE, Better places to live (2001)
9) Bartlett School of Planning, The value of design (CABE online, 2002)
10) English Heritage/CABE, Building in context (2001)
11) Robert Cowan (ed.), Urban design guidance (Urban Design Group, 2002)
12) Robert Cowan, Place check - a user's guide (Urban Design Alliance)
13) Bentley, I (etal) (1985) Responsive Environments, Architectural Press
14) Colquhoun, I (1995) Urban Regeneration
15) DETR and CABE (2000) By Design: Urban Design in the Planning System: Towards Better Practice
16) Urban Design Compendium

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Program: Architecture			Teaching hrs.
Course Title: Pre -Thesis		Code: 18AATC502	
L-S-P: 0-3-0	Credits: 3	Contact.Hours:4 hrs./week	
ISA Marks: 50	ESA Marks: 50	Total Marks: 100	
Teaching Hours: 56 hrs.	Examination: Viva voce		

Course Overview:
This is to put the **problem** in context and describe the precise issue through research, through a process of conceptual exploration, research and execution of the **thesis project.**

Unit I **Chapter 1: Problem statement** Identify your research area/ problem, and your ideas for narrowing to a specific topic within this area.	**10**
Chapter 2: Background Research Background research should take a thorough look at the work that has been done in your area already.	**12**
Unit II **Chapter 3: Program formulation** Program formulation, Include your research plan, methodology, and relevant data of your work thus far. Include a brief summary of background research and how it led you to this direction;	**12**
Chapter 4: Site selection Site analysis frame work, Selection of the site for the proposed thesis project	**12**
Unit III **Chapter 5: Report** Compile a draft report about the selected thesis project	**10**
Scheme for Internal semester assessment (ISA): Reviews 1-5, along with site models. Evaluation of Progress of work by the Internal examiner	

Scheme for End Semester Assessment (ESA): Term work: Evaluation of Portfolio, assignments by the External examiner	
Mode of assessment: Portfolio	
Text Books 1. NIL. **References** 1. Iain Borden, The Dissertation, 2005 2. Thesis & Dissertations –A guide to Planning, Research & Writing 3. Council of Architecture, Archive of Architecture Thesis 4. Architecture Journals	

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Program: Architecture			Teaching hrs.
Course Title: Professional Practice II		**Code: 18AATC503**	
L-S-P: 3-0-0	**Credits: 3**	**Contact.Hours:3Hrs/week**	
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**	
Teaching Hours: 42 hrs.	**Examination Duration: 3Hrs**		

Course Overview:

Unit I **Constitutional Law** **Chapter 1: Features of Indian Constitution** – Features of Indian Constitution, Preamble to the constitution of India, Fundamental rights under Part III – details of Exercise rights, Limitations & Important cases.	**03**
Chapter 2: Relevance of Directive principles of State Policy Relevance of Directive principles of State Policy under Part IV. Fundamental duties and their significance	**03**
Chapter 3: Union Union – President, Vice President, Union Council of Ministers, Prime Minister, Parliament and the Supreme Court of India	**03**
Chapter 4: State State- Governors, State Council of Ministers, Chief Minister, State Legislature and Judiciary	**03**
Chapter 5: Constitutional Provisions for Scheduled Castes and Tribes Union Constitutional Provisions for Scheduled Castes and Tribes, Women & Children and Backward classes, Emergency Provision	**03**
Chapter 6: Electoral Process Union Electoral process, Amendment procedure, 42nd, 44th and 86th Constitutional Amendments.	**03**
Unit II **Chapter 7: National Building Code.** Need and nature of building codes, standards and regulations, overview of basic terminologies, nature of building codes in special regions like heritage zones, environmentally sensitive zones, disaster prone regions, coastal zones, hilly areas, etc. Norms for Vehicular Areas, Norms for Fire Protection, Norms for Building Services.	**06**
Chapter 8: Building Regulations: Building Bye laws and Regulations, Setbacks and margins, norms for building projections in open spaces, considerations in Floor Area Ratio (FAR) and Floor Space Index (FSI), building height regulations, Study of local administrative provisions for obtaining building permits.	**06**
Unit III **Chapter 9: Arbitration and Conciliation –** Methods to settle disputes and differences, Arbitration – Types, Arbitrator, power and duties of Arbitral Tribunal, Umpire, Awards and Conduct of arbitration proceedings. Conciliation –	**06**

Duties of Conciliator. Arbitration and Conciliation Act 1996	
Chapter 10: Dilapidation and Easements – Dilapidation - Definition, Characteristics, Schedule of Dilapidations, Preparation of Dilapidation Report Easements – Definition, Various easement rights, process and precautions to be taken by the architect in protecting or preventing the concerned parties from acquiring such rights.	**06**
Scheme for Internal semester assessment (ISA) ISA 1 and ISA 2 – Theory Examination ISA 3 - Assignments	

Scheme for End Semester Assessment (ESA)

Sl.No	8 Questions to be set of 20 Marks Each	Unit Number	Instructions
1	Question Numbers 1, 2 & 3	I	Solve Any 2 out of 3
2	Question Numbers 3, 5 & 6	II	Solve Any 2 out of 3
3	Question Numbers 7 & 8	III	Solve Any 1 out of 2

References

5. Professional Practice – Dr. RoshanNamavati
6. Architectural Practice and Procedure – Ar. V S Apte
7. National Building Code Book
8. Architectural Practice in India – Ar. MadhavDeobhakta
9. Professional Practice – Dr. K G Krishna Murthy and Prof S V Ravindra
10. Constitutional Law of India – Dr. J N Pandey

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Program: Architecture			Teaching Hours
Course Title: Construction and Project Management		**Course Code:18AATC504**	
L-T-P: 3 – 0 - 0	**Credits:2**	**Contact Hours: 3 hrs.**	
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**	
Teaching Hours: 42 hrs.	**Examination Duration: 3 Hours**		

COURSE OVERVIEW

Today's (construction) industry environment is dynamic, in such scenarios, organisations (firms) need to manage the project with various aspects such as timeline, resource and budget. Projects are key way to create value and benefits in organisation. Hence to remain competitive and create business value, organisations are embracing project management to consistently deliver the project outcomes. Project management is the application of knowledge, skills, tools and techniques to project activities, which helps the organisations to execute the project effectively and efficiently.

This course is designed to understand application of Project Management in various phases of project embracing various processes and also to familiarize the fundamentals of construction project management.

Unit I 1) Introduction to Project Management –Concept of project and project life cycle, project management process and knowledge areas. 2) Organization, structure of Organization for different project & firms. Project Manager- Qualities, roles and responsibilities	20
Unit II 3) Construction Management Process – Introduction, Planning, Scheduling, Monitoring, Central Phase, 4) Various scheduling techniques – Bar charts, CPM& PERT networks for different projects. 5) Construction Economics – Basic concept, direct &Indirect costs, sources of Finance	12
Unit III 6) Construction Equipment's– Classification and operational characteristics of equipment's for Earthmoving, Hoisting and Concrete production. Procurement process and maintenance methods.	10

Text Books:

- "Construction planning, equipment and methods by R L Purifoy.
- Project management for architects" by S P Mukopadhyay

Reference Books:

- Guide, A., 2017. *Project Management Body of Knowledge (PMBOK® GUIDE)*. Project Management Institute.
- Sharma, S.C., 2016. *CONSTRUCTION EQUIPMENT AND MANAGEMENT*. Khanna publishers
- Punmia, B.C. and Khandelwal, K.K., 2002. *Project Planning and Control with PERT &CPM*. Firewall media
- Bernold, L.E., 2015. *Construction equipment and methods: Planning, innovation, safety*. Wiley Global Education
- Dr.K.G. Krishnamurthy and S.V. Ravindra, 2008. *Construction and Project Management*

Scheme for Internal semester assessment (ISA)
ISA I - 20 marks
ISA II - 20 Marks
ASSIGNMENT – 10 Marks

Scheme for Semester End Examination (ESA)

UNIT	8 Questions to be set of 20 Marks Each	Chapter numbers	Instructions
I	Question Numbers 1, 2	I, II	Solve Any 2 out of 3
II	Question Numbers 3,4, 5	III, IV and V	Solve Any 2 out of 3
III	Question Numbers 7 & 8	VI	Solve Any 1 out of 2

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Program: Architecture			Teaching Hours
Course Title: Elective-Architecture Film Making - I		Course Code: 18AATE501	
L-S-P:0-2-0	Credits: 2	Contact Hours: 3	
ISA Marks:50	ESA Marks:50	Total Marks:100	
Teaching Hours: 42	Examination Duration: NA		
Unit I Film Pre-production Introduction to Architectural film making concepts, story board, screenplay and planning.			18
Unit II Film Production Introduction to video shooting using various devices.			14
Unit III Film Post-Production Video post-production techniques like editing, titles, sub titles, narration and rendering.			10
Text Books			
Reference Books: Online tutorials			
Scheme for Semester End Examination (ESA) Assignments, Checking of Portfolio of Term Work / Viva.			

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			Teaching hrs.
Program: Architecture			
Course Title: E-Architectural Lighting		**Code: 18AATE502**	
L-S-P: 0-2-0	**Credits: 2**	**Contact. Hours: 2Hrs/week**	
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**	
Teaching Hours: 28Hrs	**Examination Duration: NIL**		
Unit I **Chapter 1: Introduction to Architectural Lighting** The history of architectural lighting, manipulation and design of daylight. Basics of Lighting Design systems within the built environment, both interior and exterior. Terminology and units in lighting glossary.			4 hrs.
Chapter 2: Elements of Lighting Design Light – Qualities and features of light which includes aesthetics, function and efficiency as three key aspects in architectural lighting. Controlling light to save energy and controlling systems. Luminaries for lighting design.			6 hrs.
Unit II **Chapter 3: Classification and control of lighting systems** Types of architectural Light and light sources like cove, soffit and valance. Architectural lighting Control gear and control equipment in building automation systems.			4 hrs.
Chapter 4: Lighting Design and analysis Lighting design with parameters to provide adequate visibility for movement and enable required functions within the space. Lighting design and analysis tools			4 hrs.
Unit III **Chapter 4: Studio work** Design and analysis of Lighting for a sample interior/exterior space			10 hrs
Scheme for Internal semester assessment (ISA) **ISA1 & ISA 2 20 marks**			
Scheme for End Semester Assessment (ESA) Portfolio submission			
Mode of assessment: **Assignment and market study of luminaires and portfolio submission.**			

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<table>
<tr><td colspan="3">Program: Architecture</td><td rowspan="5">Teaching hrs.</td></tr>
<tr><td colspan="2">Course Title: Transit Oriented Development</td><td>Code: 18AATE503</td></tr>
<tr><td>L-S-P: 0-2-0</td><td>Credits: 2</td><td>Contact.Hours:3 hrs./week</td></tr>
<tr><td>ISA Marks: 50</td><td>ESA Marks: 50</td><td>Total Marks: 100</td></tr>
<tr><td>Teaching Hours: 42 hrs.</td><td colspan="2">Examination Duration: NA</td></tr>
<tr><td colspan="3">Unit I
Chapter 1: TOD - Theories and Principles:
Introduction to Transit Oriented Development
Theories and Principals of TOD
Examples of TOD</td><td>14</td></tr>
<tr><td colspan="3">Unit II
Chapter 2: Study, Analysis and Design of a TOD Project
Study, Analysis and Design of an identified area along a Transit Corridor using Principles of TOD and Infrastructure</td><td>18</td></tr>
<tr><td colspan="3">Unit III
Chapter 3: Article / Research Paper
Article / Research Paper on TOD related Topics</td><td>10</td></tr>
<tr><td colspan="4">Scheme for Internal semester assessment (ISA)
Reviews and Assignments</td></tr>
<tr><td colspan="4">Scheme for End Semester Assessment (ESA)
Portfolio of Assignments Submission</td></tr>
<tr><td colspan="4">Mode of assessment:
Portfolio Assessment by External</td></tr>
<tr><td colspan="4">Text Books: NA.
References - Nil</td></tr>
</table>

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Program : Architecture			**Teaching Hours**
Course. Title :Architectural Entrepreneurship		**Course Code: -18AATE504**	
L-S-P: 0-2-0	**Credits: 2**	**Contact Hours: 3**	
ISA : 50	**ESA: 50**	**Total Marks: 100**	
Teaching Hours: 42	**Examination Duration : NA**		
UNIT I			
Introduction and orientation to Entrepreneurship – SELF DISCOVERY Finding out traits, discovering strength (Am I a natural Entrepreneur or Reluctant one) – Identifying problem and Ideation Process -Project 1 – Case study of a successful Entrepreneurial journey			**18**
UNIT-II			
The capacity to Develop resilience, Design Thinking, Unique Value proposition, Rapid Prototyping and Business Ethics. Project 2 - Creation of own business unit (startup)			**12**
UNIT III			
Budget and Financial Modeling Revenue Modeling Lean Canvass, Pitch Deck Pitching to an external Jury			**12**
Reference Books : The Innovators Dilemma by clayton crustiness,			
Scheme for Internal semester assessment (ISA) The Portfolio covering the given topics and the study models shall be presented. The evaluation shall be through periodic internal reviews. The students have to present the entire semester work for assessment along with Models. Term work Evaluation of Portfolio, assignments by internal examiner			
Scheme for End Semester Assessment (ESA) Term work: Evaluation of Portfolio and assignments by internal and external examiners/Viva			
Mode of assessment : Portfolio, Models			
Text Books: NIL			

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X SEMETER

Program: Architecture			Teaching hrs.
Course Title: Thesis Project		Course Code: 18AATC505	
L-S-P: 0-18-0	Credits: 18	Contact Hours:24 hrs./wk.	
ISA Marks: 50	ESA Marks: 50	Total Marks: 100	
Teaching Hours: 336	Examination: NA		

Course Overview

Thesis Design Studio is meant to provide students with expertise and knowledge necessary in order to produce innovative, creative and competent design solutions. The main objective of Design Studio is to develop students' imagination in design and allow them to explore and produce architectural designs that have dialogue and balance between poetic and pragmatic thinking. Design Studio provides architectural students with the skill to work under both intuitive and practical contexts. Manage specific aspects /thrust area of design relevant to the topic. Interpret the evolutionary stages of a design process and various techniques required for a successful presentation of an Architectural Design.

Unit I	
Stage I Case study and Research Review of Literature and Case studies, comparative analysis and inferences. Analyzing existing related structures, Data Collection from standards and NBC, Local building bye laws and norms governing the type of project. Students will express their architectural ideas and creativities through myriad communication techniques and methods such as in the forms of drawings, physical models, computer models, photography, video clips and others Stage 2 C Contextual Study of the proposed site Demographic data – present and projected population, population distribution and population density. Physical data- Macro site (Political Boundaries, Area & land uses, climate, adjoining areas and uses, access) Micro site (Topography/landform, water bodies & quality, vegetation, visual resources and existing structures. Social and Economic services, Physical Infrastructure. They will analyses and interpret the data and the site. Concretize the abstraction of space relationships into units of measure. Site Analysis and design formulation Site Analysis –Macro site and Micro site, Schematic site plan and model. Site synthesis, Behavioral Analysis – Users their activities, the culture of the people. Interrelationship analysis – Space programming, (Bubble diagrams), Organization of spaces, Zoning. formulation of design brief.	110

Unit II	
Stage 3 Preliminary Design Development Conceptualizing – enumerate the specific functions and specific activities. Space and form formulation, Master plan development, Preliminary plans, elevations, sections and study models. draft report	110
Unit III	
Stage 4 Final Design Final Master and Block Plans, All the layers ,Detail floor plans, elevations and sections, Massing3d views and renderings with physical models.	116
Scheme for Internal semester assessment (ISA) Regular Reviews, Assignments and models. Term work: Evaluation of Portfolio, assignments by internal examiner	

Scheme for End Semester Assessment (ESA): Jury, Term work and Final report	
Mode of assessment: External Jury,Portfolio ,Report	
References: • Linda Grant and David Wang, “Architectural Research Methods”, John Wiley Sons, 2002 • Edmund Bacon, “Design of Cities”, Penguin, 1976 • 3. Gordon Cullen, “The Concise Townscape”, The Architectural Press, 1978 • Lawrence Halprin, “Cities”, Revised Edition, MIT Press 1972. • Gosling and Maitland, “Urban Design”, St. Martin’s Press, 1984 • Kevin Lynch, “Site Planning”, MIT Press, Cambridge 1967 • Michelle Provoost et al., Dutchtown, NAI Publishers, Rotterdam, 1999. • Jawgeih, “Life between Buildings”, Using Public Space, Arkitektens Forleg 1987. • Anthony Antoniades, “Poetics of architecture”, Theory of design, John Wiley & sons 1992, • Paul -Alan Johnson, “Theory of Architecture: Concepts, Themes”, Wiley 2008 VNR, 1994 • Christopher Alexander, “Pattern Language”, Oxford University Press, 1977 • Amos Rapoport, House, Form & Culture, Prentice Hall Inc. 1969. • Dominique Gauzin – Muller “Sustainable Architecture and Urbanism: Concepts, Technologies and examples”, Birkhauser, 2002. . . • Calendar.J.H, Time Saver Standard for Architectural Design Data, Aswin St, 1983 • Ramsey and Sleeper, Architectural Graphic Standards, • Neufert, Architects Data, Franarda, London, 1980 • 21. Chaira.J.D.and Salleder, Time Saver Standard for Building types, MH New york, 1995 • Watson.D,Crosbie M.J, Time Saver Standard for Architectural Design, New york, 2005 • National Building Code. 24. Richard Kintermann and Robert, “Small Site Planning for Cluster Housing”, Van Nastrand Reinhold Company, London/New York 1977. • 25. Miller T.G. Jr., “Environmental Sciences”, Wadsworth Publishig Co., 1994 26. Geoffrey and Susan Jellico, “The Landscape of Man”, Thames and Hudson, 1987. • 27. Arvind Krishnan & Others, “Climate Responsive Architecture”, A Design Handbook for Energy Efficient Buildings, TATA McGraw Hill Publishing Company Limited, New Delhi, 2007	

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Program: Architecture			**Teaching hrs.**
Course Title: Documentation And Technical Writing		**Code: 18AATE505**	
L-S-P: 0-2-0	**Credits: 2**	**Contact Hours: 3 hrs. /week**	
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**	
Teaching Hours: 42 hrs.	**Examination Duration: NA**		
Unit I **Chapter 1: Documentation and Technical Writing:** Introduction to Documentation and Technical Writing , Various process of Documentation media or technique, Monographs and Magazine Formats			**20**
Unit II **Chapter 2: Effective Writing Skills** Dissertation / Thesis Report Writing Compiling of Ideas and Thoughts generated during Design Process			**14**
Unit III **Chapter 3: Article / Research Paper** Article / Research paper on any architect showcasing his design philosophy and architectural works			**08**
Scheme for Internal semester assessment (ISA) Reviews and Assignments			
Scheme for End Semester Assessment (ESA) Portfolio of Assignments Submission			
Mode of assessment: Portfolio Assessment by External			
Text Books 2. NA. References 11. Nil			

Program: Architecture			Teaching Hours
Course Title: Green Building Studio		**Course Code: 18AATC506**	
L-S-P: 0-2-0	**Credits: 2**	**Contact Hours: 3 hrs./week**	
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**	
Teaching Hours: 42 hrs.	**Examination Duration: NA**		
Unit I **Chapter No. 1.** Background on Green Design movement around the world and Introduction to Green Building Design. Green Building Movement in India; various organizations driving the movement and the current trends			3 hrs.
Chapter No. 2. Introduction to GRIHA (The Energy and Resource Institute, New Delhi) and IGBC (Indian Green Building Council) rating tools with detailed presentation of both rating tools step by step and to cover all the credit points.			3Hrs
Unit II **Chapter No. 3.** Hands-on guidance on Green rating for Thesis Project: Phase 1 of Architecture Design IX – Thesis (18AATC505)			9Hrs
Chapter No. 4. Hands-on guidance on Green rating for Thesis Project: Phase 2 of Architecture Design IX – Thesis (18AATC505)			9Hrs
Chapter No. 5. Hands-on guidance on Green rating for Thesis Project: Phase 3 of Architecture Design IX – Thesis (18AATC505)			6Hrs
Chapter No. 6. Hands-on guidance on Green rating for Thesis Project: Phase 4 of Architecture Design IX – Thesis (18AATC505)			6Hrs
Unit III **Chapter No. 7.** Final Evaluation and Assessment			6Hrs

Program : Architecture			
Course Title: Architecture and Human Behavior		**Code:18AATE506**	**Teaching Hours**
L-S-P: 0-2-0	**Credits: 2**	**Contact Hours: 3**	
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**	
Teaching Hours: 42	**Examination Duration: NA**		
UNIT I			
Introduction to Behavioral and Environmental Psychology. Evolution of Human Behavior. Interaction of Man and environment, Man and built forms and study of psychology of spaces. Methods and process of studying human psychology in the context of Architecture.			**18**

UNIT II	
The Human – Nature interface through the medium of Basophilic Design. **Nature in Space** – Study of Visual Connection with Nature, Non-Visual Connection with Nature, Non-Rhythmic Sensual Stimuli, Thermal / Airflow Variability, Presence of Water, Dynamic and Diffused Light, Connection to Natural Systems. **Natural Analogues** – Study of Biomorphic forms and Patterns, Material Connection to Nature, Complexity and Order **Nature of the Space** – Study of Prospect, Refuge, Mystery, Risk / Peril	**16**
UNIT II	
Building Systems Room use, geometry & meaning, hidden behavioral assumptions, adjacencies, vertical bypass& horizontal bypass, various stages in the design of building subsystems. **Building – Behavioral Interface** Geometry of spaces, their meaning & connotations, Social organization of buildings, Behavioral assumptions in the planning of new towns and neighborhoods, borrowed space.**Behavioral Design** Process organization chart, affinity matrices, pictograms: behavioral design process model,design context, activity/adjacency relationship, evaluation chart, Area use frequency program, simultaneous use, community utilization map, occupancy load profile, defensible space, EDRA etc., **Urban Environment** Patterns of activity in time and space, the ecology of a neighborhood park and playground,cross-cultural issues, social & psychological issues in the planning of new towns, environmental perceptions and migration, awareness and sensitivity to open spaces, environmental cognition.	**08**
Scheme for Internal semester assessment (ISA) Presentation of the assignments through power point slidesThe evaluation shall be through periodic internal reviews. The students have to present the entire semester work for assessment along with all the hardcopy assignment. Term work Evaluation of final portfolio, assignments by internal examiner	
Scheme for End Semester Assessment (ESA) Term work: Evaluation of Portfolio and assignments by internal and external examiners/Viva	
Mode of assessment : Portfolio, Assignments, Presentations	
Text Books: 1. Burnette, C. (1971). Architecture for human behavior. Philadelphia Chapter: AIA. 2. Canter, D. and Lee, T. (1974). Psychology and the built environment. New York: Halstead Press. 3. Christopher, A. et al. (1977). A Pattern Language. New York: Oxford University Press. 4. Clovis, H. (1977). Behavioral Architecture. McGraw Hill. 5. Lynch, K. (1973). The image of a city. Cambridge: MIT. _ 6. Sarnoff, H. (1991). Visual Research Methods in Design. New York: John Wiley & Sons. _	

7. Zeisel, J. (1984). Enquiry by design: Tools for Environment- Behavior Research. Cambridge: Cambridge University Press. 8. Zeisel, J. and Eberhard, J. P. (2006). Inquiry by Design - Environment/Behavior/Neuroscience in Architecture, Interiors, Landscape and Planning. New York: W. W. Norton & Company. 9: Evolution and Human Behavior: Darwinian Perspectives on the Human Condition by John Cartwright	
Reference: 1: Built Environment Psychology: A complex affair of buildings and user by Mr.Safiulla Khan, Integral University, India.2: Architectural Psychology – S T Janitius, St.John's College, Bangalore 3: Spaces of Social Influence by Anna P Gawlikowska 4: Psychology of Architecture by W.Bro Victor G Popow5: Behavioral Architecture – SPA Vijaywada	

Program: Architecture			
Course Title: Elective – Adobe Illustrator		**Course Code: 18AATE507**	**Teaching Hours**
L-T-P:0-2-0	**Credits: 2**	**Contact Hours: 3**	
ISA Marks:50	**ESA Marks:50**	**Total Marks:100**	
Teaching Hours:42	**Examination Duration: NA**		
Unit I Graphic Designs Create everything from gorgeous print, web and mobile graphics to logos, icons, brochures, flyers, posters etc.			**18**
Unit II Typographic Designs Design typographic designs and add effects, manage styles, and edit individual characters			**16**
Unit III Publish artwork to various media Publish illustrations anywhere, including printed pieces, presentations, websites, blogs, and social media.			**08**
Text Books			
Reference Books: Online tutorials			
Scheme for Semester End Examination (ESA) Assignments, Checking of Portfolio of Term Work / Viva.			

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