

Bachelor of Architecture 5 Yr Course

B.Arch, I Semester

Subject Code	Subject Name	Periods (L-T-P/S)	Credits	End			Internal		Grand Total	Course Type
				Theory	Viva	Total	Sessional	Midterm		
AR1001	Architectural Structures-I	2-0-0	2	60	-	60	15	25	100	BS&AE
AR1003	Humanities in Architecture	2-0-0	2	60	-	60	15	25	100	PC
AR1005	Computer Communication	0-0-2	2	-	60	60	40	-	100	SEC
AR1011	Architectural Design-I	0-0-6	6	30	30	60	15	25	100	BS&AE
AR1013	Building Construction-I	0-0-4	4	30	30	60	15	25	100	PC
AR1015	Architectural Drawing-I	0-0-4	4	60	-	60	15	25	100	PC
AR1017	Arts and Graphics-I	0-0-3	3	-	60	60	40	-	100	PC
AR1019	Surveying and Levelling	2-0-2	3	60	-	60	15	25	100	BS&AE
	Open Elective*	2-0-0	2	60	-	60	15	25	100	OEI
Total			28			540	135	225	900	NC

Lecture. T -Tutorial. P-Practical,S-Studio
 PC – Professional Core, BS&AE- Building Science & Applied Engineering, SEC- Skills Enhancement Courses
 PAECC – Professional Ability Enhancement Compulsory Course, PE-Professional Electives

- As offered by different Schools/Depts

B.Arch, II Semester

Subject Code	Subject Name	Periods (L-T-P/S)	Credits	End			Internal		Grand Total	Course Type
				Theory	Viva	Total	Sessional	Midterm		
AR1002	Architectural Structures II	2-0-0	2	60	0	60	15	25	100	BS&AE
BS101	Human Values and Buddhist Ethics	2-0-0	2	60	0	60	15	25	100	SEC
ES101	Environment and Ecology	2-0-0	2	60	0	60	15	25	100	BS&AE
AR1002	Humanities II	2-0-0	2	60	0	60	15	25	100	PC
AR1010	Architectural Design II	0-0-6	6	30	30	60	15	25	100	PC
AR1012	Building Construction II	0-0-4	4	30	30	60	15	25	100	BS&AE
AR1014	Architectural Drawing II	0-0-4	4	60	-	60	15	25	100	PC
AR1016	Arts and Graphics II	0-0-3	3	-	60	60	40	-	100	PC
AR1018	Model Workshop	0-0-3	3	-	60	60	15	25	100	PC
AR1020	Educational Tour	0-0-2	2	-	60	60	40	-	100	PAECC
Total			30			600	175	225	1000	

L- Lecture. T -Tutorial. P-Practical,S-Studio
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❖ Note- Scaling of marks will be done for category 'b(i)' subjects to make it in the ratio of 50:50, leading to a total of 100 marks at the time of final submission of marks to university exam section.

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B.Arch, III Semester

S. No	Subject Code	Subject Name	Periods (L-T-P/S)	Credits	End			Internal		Grand Total
					Theory	Viva	Total	Sessional	Midterm	
1	AR2001	Architectural Structures III	2-0-0	2	60	0	60	15	25	100
2	AR2003	History of Architecture I	2-0-0	2	60	0	60	15	25	100
3	AR2005	Building Services I	2-0-0	2	60	0	60	15	25	100
4	AR2007	Climatology	1-1-0	2	60	0	60	15	25	100
5	AR2011	Architectural Design III	0-0-6	6	30	30	60	15	25	100
6	AR2013	Building Construction III	0-0-4	4	30	30	60	15	25	100
7	AR2015	IT Design Tools I	0-0-3	3	-	60	60	40	-	100
8	AR2017	Arts and Graphics III	0-0-3	3	-	60	60	40	-	100
9	AR2019	DSE I	0-0-3	3	-	60	60	15	25	100
Total				27		60	540	135	225	900


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 PC - Professional Core, BS&AE- Building Science & Applied Engineering, SEC- Skills Enhancement Courses
 PAECC - Professional Ability Enhancement Compulsory Course, PE-Professional Electives

B.Arch, IV Semester

S. No.	Subject Code	Subject Name	Periods (L-T-P/S)	Credits	End			Internal		Grand Total	Course Type
					Theory	Viva	Total	Sessional	Midterm		
1	AR2002	Architectural Structures IV	2-0-0	2	60	-	60	15	25	100	BS&AE
2	AR2004	History of Architecture II	2-0-0	2	60	-	60	15	25	100	PE
3	AR2006	Building Services II	2-0-0	2	60	-	60	15	25	100	BS&AE
4	AR2008	Discipline Specific Sub Elective II	1-0-2	2		60	60	15	25	100	PE
5	AR2010	Architectural Design IV	0-0-6	6	30	30	60	15	25	100	PC
6	AR2012	Building Construction IV	0-0-4	4	30	30	60	15	25	100	BS&AE
7	AR2014	IT Design Tools II	0-0-3	3	-	60	60	40	-	100	SEC
8	AR2016	Arts and Graphics IV	0-0-3	3	-	60	60	40	-	100	PC
9	AR2018	Research I (Building Appraisal)	0-0-3	3	-	60	60	40	-	100	PAECC
10	AR2020	Educational Tour	0-0-2	2	-	60	60	40	-	100	PC
Total				30		60	600	175	225	1000	

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❖ **AR 2018 (Research I)** – Students are required to study and document building complex important from architectural point of view. How Architect has fulfilled functional spaces, sense of creativity and aesthetics. Evaluation should be based on presentation and reports submission at various stages.



B.Arch,V Semester

Subject Code	Subject Name	Periods (L-T-P/S)	Credits	End			Internal		Grand Total	Course Type
				Theory	Viva	Total	Sessional	Midterm		
AR3001	Architectural Structures V	2-0-0	2	60	-	60	15	25	100	BS&AE
AR3003	History of Architecture III	2-0-0	2	60	-	60	15	25	100	PC
AR3005	Building Services III	2-2-0	4	60	-	60	15	25	100	BS&AE
AR3007	Specifications & Costing, Contracts	3-1-0	4	60	-	60	15	25	100	PC
AR3011	Architectural Design V	0-0-6	6	30	30	60	15	25	100	PC
AR3013	Building Construction V	0-0-4	4	30	30	60	15	25	100	BS&AE
AR3015	IT Design Tools III	0-0-4	4	-	60	60	40	-	100	SEC
AR3017	Research II - Pritzker Awardees	0-0-3	3	0	60	60	40	-	100	PAECC
Total			29			480	120	200	800	

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AR 3017 (Research II) – Based on study of works and philosophy of legend International architects whose contribution to the field of architecture considered remarkable, and significance of learning for students.

B. Arch, VI Semester


S. No.	Subject Code	Subject Name	Periods (L-T-P/S)	Credits	End			Internal		Grand Total	Course Type
					Theory	Viva	Total	Sessional	Midterm		
1	AR3002	Architectural Structures VI	2-0-0	2	60	-	60	15	25	100	BS&AE
2	AR3004	Modern and Contemporary History IV	2-0-0	2	60	-	60	15	25	100	PC
3	AR3006	Building Services IV (Bye Laws, codes and Environmental Services)	2-0-2	4	60	-	60	15	25	100	PAECC
4	AR3010	Architectural Design VI	0-0-6	6	30	30	60	15	25	100	PC
5	AR3012	Building Construction VI	0-0-4	4	30	30	60	15	25	100	BS&AE
6	AR3014	Working Drawing	2-0-2	4	30	30	60	40	-	100	PC
7	AR3016	Interior Design	2-0-2	3	-	60	60	40	-	100	PAECC
8	AR3018	Research III- Crafts of India	0-0-2	2	-	60	60	40	-	100	PAECC
9	AR3020	Educational Tour	0-0-2	2	-	60	50	40	-	100	PC
Total			29							900	

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AR 3018 (Research III) – Seminar on topics of recent and upcoming issues and trends in building technology, to widen perspective of students to cross cutting contemporary themes in Architecture and development sector.



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B. Arch. VII Semester										
S. No	Subject Code	Subject Name	Periods (L-T-P/S)	Credits	End			Internal		Grand Total
					Theory	Viva	Total	Sessional	Midterm	
1	AR4001	Building Economics	2-1-0	3	60	-	60	15	25	100
2	AR4003	Discipline Specific Sub Elective III	3-0-2	3	60	-	60	15	25	100
3	AR4005	Building Services V(Acoustics)	2-1-0	3	60	-	60	15	25	100
4	AR4011	Architectural Design VII	0-0-6	6	30	30	60	15	25	100
5	AR4013	Advanced Construction I (Equipments)	0-0-4	4	30	30	60	15	25	100
6	AR4015	Principles of Human Settlement	3-0-0	3	60	-	60	15	25	100
7	AR4017	Project and Construction Management I	2-1-0	3	60	-	60	15	25	100
8	AR4019	Research IV- Urban Issues & Paper Publication	0-0-3	3	-	60	60	40	-	100
				28						800

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B. Arch. VIII Semester											
S. No.	Subject Code	Subject Name	Periods (L-T-P/S)	Credits	End			Internal		Grand Total	Course Type
					Theory	Viva	Total	Sessional	Midterm		
1	AR4002	Building Services IV	2-1-0	3	60	-	60	15	25	100	BS&AE
2	AR4004	Professional Practice I	2-1-0	3	60	-	60	15	25	100	PAECC
3	AR4006	Discipline Specific Sub Elective IV	2-0-0	2	60	-	60	15	25	100	PE
4	AR4010	Architectural Design VIII	0-0-6	6	30	30	60	15	25	100	PC
5	AR4012	Advanced Construction II	0-0-4	4	30	30	60	15	25	100	BS&AE
6	AR4014	Project and Construction Management II	2-0-2	4	60	-	60	15	25	100	PAECC
7	AR4016	Town Planning	2-1-0	3	60	-	60	15	25	100	PC
8	AR4018	Discipline Specific Sub Elective V	1-0-2	3	-	60	60	15	25	100	PE
9	AR4020	Research V- Project/ Thesis Tutorial	0-0-2	2	-	60	60	40	-	100	SEC
				30						900	

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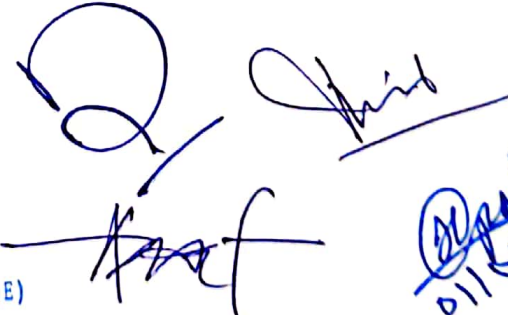
B.Arch, IX Semester


S. No	Subject Code	Subject Name	Periods (L-T-P/S)	Credits	End			Internals		Grand Total	Course Type
					Theory	Viva	Total	Sessional	Midterm		
1	AR5011	Professional Internship with Practicing Architect	16-20 weeks	28	-	60	60	40	-	100	PAECC
2	AR5013	Seminar II (Tour Report)	-	2	-	60	60	40	-	100	PAECC
				30						200	
L- Lecture. T-Tutorial. P-Practical, S-Studio			PC – Professional Core, BS&AE- Building Science & Applied Engineering, SEC- Skills Enhancement Courses PAECC – Professional Ability Enhancement Compulsory Course, PE-Professional Electives								

B.Arch, X Semester

S. No	Subject Code	Subject Name	Periods (L-T-P/S)	Credits	End			Internal		Grand Total	Course Type
					Theory	Viva	Total	Sessional	Midterm		
1	AR5002	Professional Practice	2-1-0	3	60	-	60	15	25	100	PAECC
2	AR5004	Development Legislation	-	2	60	-	60	15	25	100	PAECC
3	AR5006	Urban Agro Infrastructure	3-0-0	3		60	60	15	25	100	PC
4	AR5010	Thesis Project	10 hrs contact/week	22	-	60	60	40		100	PC
5	GP502	General proficiency								400	NC
				30						400	
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Department of Architecture and Regional Planning School of Engineering

Programme Objectives

Programme: B.Arch (5 Year programme)

The broad objective of the programme is to impart theoretical and practical knowledge to students to prepare them for a professional career in the field of architecture. The course at a broad level aspires to widen the horizon of students with exposure of related scenarios in the field of architecture to determine the directions of their further development. The theoretical knowledge gained by students in class rooms and research mode is integrated in applied mode in Studio exercises. The programme is designed by following guidelines of Council of Architecture for its B. Arch. degree. This forms the criteria for registration of students with COA as architect on completion of B. Arch. course of the school. The courses are divided into four main modes for imparting theoretical, practical and interest based education to students.

Core Courses

Core Courses represent the central learning of architectural education. Architecture is synthetic learning of various fields relating to humanities and scientific fields. Practical knowledge of the subjects is applied to projects which are resolved by students with faculty and these form the core of studios. Architectural Design, Building construction Arts and Drawing and communication along with other studio subjects are principally conducted in this way. Supplementary formal knowledge about technical aspects of building as well as abstract aspects of architectural thought draw upon other related disciplines of humanities are learned in a theoretical mode.

Elective Courses

Electives shall be offered by the institute to supplement additional coursework or to advance knowledge in architecture and allied fields beyond core subjects. The Elective courses also reflect diverse technical and cultural developments of current relevance. These provide valuable specialized expertise or knowledge with the faculty of the institution or in the city. The courses will be seminar or practical/studio courses.

Programme Objectives (PO)

- Students shall be able to define architectural designs that satisfy both aesthetics and technical requirements with the adequate acquired knowledge of the history and related fields. They shall be able to appraise the physical problems, technologies and functions of buildings and summarize so as to provide justified internal conditions of comfort and protection against the climate.
- Students shall have an understanding of the relationship between people and buildings, and distinguish between buildings and the environment, thus being able to analyze the methods of investigation and illustrate the preparation of the brief for a design project.
- Students shall demonstrate an understanding of the profession of architecture and the role of an architect in society and at the same time have the ability to display sensitivity towards concerns for environmental and energy issues.
- Students shall be able to appraise themselves with the design skill necessary to meet building users' requirements within the constraints imposed through adequate knowledge of the industries, organizations, regulations, and procedures.

General objectives for Design Studios

- Architectural Design is to be seen as a central discipline of the B. Arch. programme. The focus of this programme is to develop skills of design while engaging with pragmatic and speculative propositions about the making of the built environment. The studio is an arena where knowledge gained in the technologies, humanities and professional streams of the programme is synthesized into built environment solutions through the act of design with the exercise of the creative imagination of the designer.
- The learning of Architectural Design is seen as a cumulative process with a spiral structure of development where it is used as a base for increasing the depth and breadth of knowledge and development of skills in the following year. The range of design exercises will therefore move progressively from exercises with a relatively limited scope and size of the individual component or small shelter toward the complexity and scale of city so that the student experiences the range of complexities that characterizes the Indian habitat.
- The studio design exercises are intended to develop a student's subjective abilities in the appreciation and creation of architectural form and the crafting of built objects, to consciously deploy processes and methodologies of design in response to varied design tasks and to develop a capability in deploying established and innovative design strategies.
- The iterative process of designing will also be used to develop verbal and graphic communication skills using a range of techniques and tools for representation such as hand drawn drawings, computer graphics and scale models, for presentation of design ideas and solutions.
- Design exercises shall be devised by the course faculty acknowledging and building upon the cultural and intellectual assets of the student, opportunities offered by local environments, theoretical and philosophical issues thought to be relevant, and the knowledge gained by previous and parallel courses.
- The design work will be supplemented by research, discussion and lectures arranged during studio hours to assimilate a rich reference store of the culture of design. There may be several short and discreet exercises within an overall semester programme.
- The design exercises and the studio programme for the semester, stating the learning outcomes and evaluation stages, shall be set well in advance in consultation with the course coordinator. The exercises may be designed in part requiring group work; however the intent shall be of developing and evaluating design capability for each individual student.
- All other courses, while maintaining their individuality, shall contribute to Design.

Programme Outcomes

PO1: Understand the real-life situation in architectural practice and recognize the dialectic relationship between people and the built environment (especially with reference to the Indian sub-continent) with reference to their needs, values, behavioural norms, and social patterns.

PO2: Work collaboratively toward synthetic design resolution which integrates an understanding of the requirements, contextual and environmental connections, technological systems and historical meaning with responsible approach to environmental, historical and cultural conservation.

PO3: Apply visual and verbal communication skills at various stages of the design and delivery process.

PO4: Thrive in a rigorous intellectual climate which promotes inquiry through design research.

PO5: Produce professional quality graphic presentations and technical drawings/documents.

PO6: Critically analyse building designs and conduct post-occupancy evaluations.

PO7: Work in a manner that is consistent with the accepted professional standards and ethical responsibilities.

PO8: Work in collaboration with and as an integral member of multi-disciplinary/interdisciplinary design and execution teams in the building industry.

PO9: Conduct independent and directed research to gather information related to the problems in architecture and allied fields.

PO10: Students able to work effectively in a multi-disciplinary/inter-disciplinary team in the building industry, by providing 360o knowledge of architecture.

Program Specific Outcomes

PSO1: Demonstrate critical thinking through a self-reflective process of conceptualization and design thinking that is open to consideration of alternative perspectives by analyzing, evaluating, and synthesizing ideas and information gathered through applied research grounded in information literacy.

PSO2: Implement complex two and three-dimensional graphic representation techniques using a wide variety of traditional and digital media, to reflect on and explain the architectural design process to a wide range of stakeholders.

PSO3: The knowledge and ability to apply a design decision-making process through appropriate technical documentation in a manner that is client-centered, sustainable, aesthetic, cost effective, and socially responsible.

PSO4: Incorporate a wide range of technical skills and professional architectural knowledge during schematic design to demonstrate a comprehensive application of life safety, accessibility, and sustainability issues in making sound design decisions across varying scales and levels of complexity.

Course Educational Objectives and Course Outcomes

Department of Architecture and Regional Planning

B.Arch(5 year programme)

First Semester

CEO 1: AR 1001 – Architectural Structures I

- To understand the basic principles of structural mechanics so that it forms the basis for study of structural design.

CEO 2: AR 1003- Humanities in Architecture

- To expose the students to the relationship between man and environment.
- To familiarize the students with basic concepts, theories and issues of Sociology and its relevance to architecture

CEO 3: AR 1005- Computer Communication

- Introduction to basic knowledge of computers - operating system, software and hardware.
- To familiarize with software associated with text formatting, spread-sheets and presentation.
- Development of effective presentation techniques.

CEO 4: AR 1011- Architectural Design I

- Orientation of students to the profession of architecture.
- Introduction to basic design and the basic understanding of form and space in architecture.
- Field trips to relevant sites shall be compulsory for all assignments.

CEO 5: AR 1013- Building Construction I

- To familiarize the students with constituents, properties and uses of traditional building materials used in construction.
- To understand the usage of these traditional building materials in simple building works.
- To develop skills in understanding the complexities & constrains of brick masonry.
- To familiarize the student with the basic building construction practices on site.

CEO 6: AR 1015- Architectural Drawing I

- To familiarize with drawing tools and accessories.
- To give a basic knowledge of good drafting and lettering techniques.
- To develop comprehension and visualization of geometrical forms.
- To familiarize with the concept of enlarging and reducing scales.

CEO 7: AR 1017- Arts and Graphics I

- Introduction to art and appreciation of art and its philosophies.
- Familiarization with principles and theories of art
- Development of art and graphic skills.

CEO 8: 1019- Surveying and Levelling

- To develop knowledge and skills related to surveying and levelling principles and practice.

CO 1: AR 1001 – Architectural Structures I

- Theory of structures for architects. Technical names and functions of various structural components from foundation to roof. Fundamentals of mechanics.
- Types of Loads - Dead Load, Live Load, Impact Load, Earthquake Load, Wind Load and Snow Load. Mechanical properties of different materials such as tensile strength, fatigue strength and comprehensive strength.
- Definition, Cause, Effect, Units, Force as vector, Graphical representation. Resolution of forces by graphical and analytical methods. Types of forces – Co planar, Non-Co planar, Concurrent, Non-Concurrent, and parallel forces
- Elasticity, stress, strain, types of stresses, elastic limit, Hook's law, modulus of elasticity, stresses in composite bars, linear strain, Poison's ratio, shear stress, principal stresses and strains

- Definition, centre of gravity of plane figures, centre of parallel forces. Definition, important theorems, section modulus, calculation of moment of inertia by first principle and its application, moment of inertia of composite sections

CO 3: AR 1005- Computer Communication

- To Introduce students and initiate into theory and practice of Computer Applications in Architecture.
- To familiarize students with computers so as to understand complete management outlook of an architects' office besides architectural drawings.
- To teach graphic applications specially 2Dimensional for fast and attractive presentation of theme and ideas.
- To teach utilization of knowledge of 3D modeling and its application in design.

CO 4: AR 1011- Architectural Design I

- Know about the fundamentals of design and development of design vocabulary and to apply the same thought process in development of design.
- Implement the design through conceptualization and organization.
- Enhance the creative skills through creative exercises.
- Understand their surroundings and promoting it as a basic creative instinct

CO 5: AR 1013- Building Construction I

- Understanding of Binding materials, their classification, Manufacturing, properties and uses viz. soil, lime and cement.
- Knowledge of basic construction materials, their characteristics, occurrences or production, classification, properties and uses viz. stone, bricks and other clay products.
- Demonstrate fundamental knowledge of the systems and processes used to construct the building, including an understanding of industry terminology.
- Market surveying and case studies so a student acquainted with the latest construction technology & materials.
- Analyze, troubleshoot, and implement solutions in the field based on knowledge and experience.

CO 6: AR 1015- Architectural Drawing I

- Develop the requisite level of proficiency in drawing with primary communication tool in the practice of architecture just like language.
- Familiarize with a range of techniques of expression beginning with manual drawing.
- Familiarize with drafting tools and accessories along with learning drafting, lettering and rendering techniques.
- Know about the comprehension and visualization of geometrical forms.

CO 7: AR 1017- Arts and Graphics I

- Demonstrate an understanding of basic art form & develop perception, the ability to think graphically and utilize drawing as a language of communication.
- Learn the architectural rendering techniques for building exteriors and interiors by using pen & ink, color, values, tones, etc
- To develop a design idea into a coherent proposal and to communicate ideas and concepts through graphical representation.
- Articulate an understanding of visual impact of colors, lines, shapes and textures used in design & construct conceptual and presentation models as a design presentation tool for aesthetic exploration.

CO 8: 1019- Surveying and Levelling

- Explain importance and need of surveying in architecture, Types and classification of surveys, Plane and geodetic surveying.

- Equipment and methods of plane tabling. The prismatic compass and its use; whole circle bearing; quadrant bearing
- Different types of leveling instruments, temporary and permanent adjustments, Characteristics of contour lines, direct and indirect methods of contouring, interpolation of contours.
- Total Station and its application in surveying, Introduction to aerial survey, digital mapping, satellite Imaging, GPS and uses of GIS in plane surveying.
- On site lay outing of a small residential unit as per map and plan.

2nd Semester

CEO 1: AR 1002– Architectural Structures II

- To understand the basic principles of structural mechanics so that it forms the basis for study of structural design.

CEO 2: BS101- Human Values and Buddhist Ethics

CEO 3: ES101- Environment and Ecology

CEO 4: HU102- Humanities II

- Gain insight into the ways in which the environment influences our feelings and experiences
- Gain first-hand knowledge about key environment and behavior issues through hands on activities.

CEO 5: AR 1010- Architectural Design II

- Introduction to human activity and spaces required for activities.
- Introduction to basic building components and their dimensions.
- To appreciate the elements in architectural design of single unit built-up structures.
- Field trips to relevant sites shall be compulsory for all assignments.

CEO 6: AR 1012- Building Construction II

- To acquaint the students to usage of building materials such as Timber and Hardware, Damp Proofing Courses and Cement Concrete.
- To familiarize the students with construction techniques for use of the above materials in building works. and joinery in carpentry
- To familiarize the student with the basic building construction practices on site/yard.

CEO 7: AR 1014- Architectural Drawing II

- To familiarize the student with theoretical, practical and pictorial aspects of architectural drawing.
- To develop perception and presentation of simple architectural forms and buildings.
- To develop or upgrade an understanding about AutoCAD 2D, as an important tool for drafting, designing, analyzing and representation of the drawings in a desired manner.

CEO 8: AR 1016- Arts and Graphics II

- Introduction to art and appreciation of art and its philosophies.
- Familiarization with principles and theories and graphic and architectural composition
- Development of art and graphic skills

CEO 9: AR 1018- Model Workshop

- This course is aimed at imparting basic workshop and material handling skills and techniques necessary for preparing architectural models and art project while in calculating value for good craftsmanship.

Course Objectives

CO 1: AR 1002– Architectural Structures II.

- Three-moment theorem. Slope deflection method: introduction; analysis; yielding of supports.
- Study of Geo-tech. engineering and Soil Mechanics.
- Overview of construction materials: cement; aggregate; water; reinforcement. Grades of concrete; workability and durability, design and nominal mix. Design philosophies.

CO 2: BS101- Human Values and Buddhist Ethics**CO 3: ES101- Environment and Ecology****CO 4: HU102- Humanities II**

- Gain first-hand knowledge about key environment and behavior issues through hands on activities.

CO 5: AR 1010- Architectural Design II

- To explore the interrelationship between human behavior and space in a small unit environment, including, volume of space, shape, form, function and materials.
- Optimum space planning in the buildings
- Focus on studying patterns with circulation and layout in design of a building.

CO 6: AR 1012- Building Construction II

- To equip the students with the knowledge of various materials and techniques used for opening in a building and also about the temporary structures that aid the construction process.
- To grasp the relation between construction materials and their applicability to different types of structures (based on function, form and use).
- Develop a fundamental understanding of material in construction systems and techniques, dimensions and intrinsic qualities that influence the design process.
- Sound Graphical representation of construction techniques through drawing and different rendering medium; develop details and specifications for the design projects.

CO 7: AR 1014- Architectural Drawing II

- Understanding the proficiency in drawing, which is seen as a primary communication tool in the practice of architecture just like language?
- To develop perception and presentation of simple architectural forms and buildings.

CO 8: AR 1016- Arts and Graphics II

- To Develop understanding for principles and theories and graphic and architectural composition.

CO 9: AR 1018- Model Workshop

- To work with carpentry tools and equipments to be able to cut, plane, join, and finish wooden members. Making simple joints used in buildings and furniture and its significance on site.
- Simple exercises to convert metal into desired shapes and forms.
- To understand the process of making building models with various materials such as cardboard, wood, plastics, plaster of Paris and metals, ability to make simple joints in timber, pipes and other materials, basic electrical circuits.
- To familiarize with making of actual scale model from card board, wood, sun pack and general metal etc.
- Ability to prepare course file for workshop activities

3rd Semester

CEO 1: AR 2001– Architectural Structures III

- To understand an informal choice regarding the most appropriate structural system for the building design due to different types of loading. Provide a basic understanding about the structural modelling and research techniques in the field of Architecture.

CEO 2: AR 2003- History of Architecture I

- To inform about the development of Indian architecture and its contextual and traditional aspects.
- To understand architecture as evolving within specific cultural contexts including aspects of politics, society, religion and climate
- To gain knowledge of the development of architectural form with reference to technology, style and character in various aspects of Hindu architecture.
- To comprehend and analyze spatial character, scale, and structure through historical and traditional built heritage.
- To comprehend and relate to the theoretical basis of historical and traditional Hindu architecture.

CEO 3: AR 2005- Building Services I

- To understand the basic principles of water supply and sanitation.
- To make them enable to draw the piping system (pipe above ground and underground) for different types of buildings.
- To familiarize the student with plumbing bye laws as per BIS

CEO 4: AR 2007- Climatology

- Acquainting the students with human thermal comfort as an essential function of a building, its analysis & use in Architecture.
- To familiarize students with the elements constituting climate and their role in creating responsive designs.
- Understanding the characteristics of varied tropical climates and expected responses of buildings in specific climate types
- To utilize existing traditional/vernacular/ historical structures in the city as case study to learn the various attributes of climate & the desirable responses.

CEO 5: AR 2011- Architectural Design III

- Introduction to human activity and spaces required for activities.
- Introduction to basic building components and their dimensions.
- To appreciate the elements in architectural design of single unit built-up structures.
- Field trips to relevant sites shall be compulsory for all assignments.

CEO 6: AR 2013- Building Construction III

- To acquaint the students to building materials such as Timber products, Surface finishing, Adhesives, Painting and
- Polishing.
- To familiarize the students with construction techniques for use of the above materials in building works.
- To familiarize the student with the basic building construction practices on site/yard.

CEO 7: AR 2013- IT Design Tools I

- To develop an understanding of the design based software like Autocad, Coral Draw and Adobe Photoshop.
- Learning the application of the above said software in design exercises so as to make use of maximum commands.

CEO 8:AR 2017- Arts and Graphics III

- To develop greater perception of complex Architectural forms and buildings.
- To develop the skill of making perspectives of complex buildings and Rendering them in different media.
- To develop the skills free hand sketching.
- To develop or upgrade an understanding about Autodesk Revit Architecture, as an important tool for drafting, designing, analyzing and representation of the drawings in a desired manner.

CEO 9:AR 2019- DSE I

Course Outcome

CO 1: AR 2001– Architectural Structures III

- Three-moment theorem. Slope deflection method: introduction; analysis; yielding of supports.
- Study of Geo-tech. engineering and Soil Mechanics.
- Overview of construction materials: cement; aggregate; water; reinforcement. Grades of concrete; workability and durability, design and nominal mix. Design philosophies.

CO 2: AR 2003- History of Architecture I

- To understand the importance of historical, geographical, religious, social, building materials and construction techniques, climatic conditions in molding architecture spaces and structures.
- To understand the morphological development of Architecture in India from post Vedic period and confined till Hindu Architecture

CO 3: AR 2005- Building Services I (Water Supply and Sanitation)

- To know about the Sources of water supply, Quality and Quantity, Treatment, Conveyance, Distribution and Storage, size of overhead tank and underground tank based on the occupancy in different type of buildings as per NBC.
- To understand Pipes-types, sizes and materials along with their joining details & Domestic hot and cold water supply systems with market survey.
- To Understand Basic principles of sanitation, collection and conveyance of waste matter from buildings, Quantity and quality of refuse, working and installation of sewers and sewer appurtenances.
- To know Drainage systems, gradients used in laying drains and sewers, selfcleansing and non-scouring velocities for drain pipes, Rain water harvesting types and methods and its calculation.
- To know calculation of shaft size as per NBC norms and preparing design layout and details as per the NBC Standards.

CO 4: AR 2007- Climatology

- Theoretically understand design with climate as the basic parameter of design.
- Prepare design strategies for different climatic regions.
- Analyze, troubleshoot, and implement solutions with climate as the basic parameter of design.
- Utilize modern as well as traditional techniques to derive a climate responsive design,

CO 5: AR 2011- Architectural Design III

- To apply the learning of the previous semesters.
- To teach students to map gathered information of visited physical setting
- To transform the human behavioral needs into architectural program requirements.
- To compose the architectural spaces in a design project
- To develop sensitivity towards informal settings and elements of built space.

CO 6: AR 2013- Building Construction III

- To equip the students with the knowledge of various materials and techniques used for opening in a building and also about the temporary structures that aid the construction process.
- To grasp the relation between construction materials and their applicability to different types of structures (based on function, form and use).
- Develop a fundamental understanding of material in construction systems and techniques, dimensions and intrinsic qualities that influence the design process.
- Sound Graphical representation of construction techniques through drawing and different rendering medium; develop details and specifications for the design projects

CO 7: AR 2013- IT Design Tools I

- To develop an understanding of the design based software like Autocad, Coral Draw and Adobe Photoshop.

CO 8:AR 2017- Arts and Graphics III

- Understanding the proficiency in drawing, which is seen as a primary communication tool in the practice of architecture just like language?
- Understanding the perspective of the buildings.
- Demonstrate an understanding of furniture, people and accessories in one and two point projected perspective drawing.
- Articulate an understanding of volumetric drawings used in interior design.

4th Semester

CEO 1: AR 2002- Architectural Structures IV

- To Understand the analysis of indeterminate structures and their use in field in greater depth.

CEO 2: AR 2004- History of Architecture II

- Understanding of the period in terms of its location, climate as well as the socio-cultural, historical, economic and political influences of the time.
- Study of the building 'types' and the development of architectural form and character based on the developments in construction and technology exemplified through specific building examples that identify the works of the period.
- Understanding the intentions of the period and architects as a solution to the need or demands of the period.

CEO 3: AR 2006- Building Services II

- To understand the basic principles of physics of electricity and light.
- To make them enable to draw the electrical layout with appropriate cross section of wires and illuminance calculations for residences.
- To know the characteristics and applications of the different types of modern lamps and luminaires.
- To familiarize the student with electrical bye laws as per NEC/BIS.

CEO 4: AR 2008- DSE II

CEO 5: AR 2010- Architectural Design IV

- Introduction to human activity and spaces required for activities.
- Introduction to basic building components and their dimensions.
- To appreciate the elements in architectural design of single unit built-up structures.
- Field trips to relevant sites shall be compulsory for all assignments.

CEO 6: AR 2012- Building Construction IV

- To acquaint the students to building materials such as Timber products, Surface finishing, Adhesives, Painting and
- Polishing.
- To familiarize the students with construction techniques for use of the above materials in building works.
- To familiarize the student with the basic building construction practices on site/yard.

CEO 7: AR 2014- IT Design Tools II

- To develop an understanding of the design based software like Autocad, Coral Draw and Adobe Photoshop.
- Learning the application of the above said software in design exercises so as to make use of maximum commands.

CEO 8: AR 2016- Arts and Graphics IV

- To understand the analysis of indeterminate structures and their use in field in greater depth.
- To make artifacts which influence and create visual effect in built environment.

CEO 9: AR 2016- Research I (Building Appraisal)

- To understand the analysis of indeterminate structures and their use in field in greater depth.

Course outcomes

CO 1: AR 2002- Architectural Structures IV

- Pre- Stressed Concrete principles and systems, loss of pre-stress, analysis and design of pre-stress beams.
- Role and design of beams, columns and joints in RC buildings. Planning for reducing earthquake effects on buildings.
- Design of riveted and welded connections (simple cases only), tension and compression members, beam and plate girder, introduction to grillage foundation and trusses.

CO 2: AR 2004- History of Architecture II

- Know about the period in terms of contexts of technology and other parameters.
- Know the development in the Islamic Era with emphasis on the underlying parameters, philosophy, intentions and expressions of associated periods/ movements as a response to the context of time, location and aspirations.
- Understand the building type and its architectural style.

CO 3: AR 2006- Building Services II

- Learn elementary building services of electrical services.
- Familiarize with a range of electrical accessories and its design consideration
- Learn illumination schemes.
- Familiarize with wiring systems and design consideration of lighting schemes.
- Implicate electrical services in Design.

CO 4: AR 2008- DSE II

CO 5: AR 2010- Architectural Design IV

- Learn the art of collecting data and to carry out analysis for the process of evolving design and individuality of approach.
- Understanding site planning: organization, scale, hierarchy, orientation and climate.

- Understand complex services in multi-storied buildings; understanding the architectural content of services in buildings.
- Implicate knowledge of design fundamentals and knowledge gained in other subjects to develop better design solutions.
- Develop appropriate graphic skills and presentation techniques (models, rendering) to explain the contents of a design.

CO 6: AR 2012- Building Construction IV

- To equip the students with the knowledge of various materials and techniques used temporary construction work.
- To grasp the relation between construction materials and their applicability to different types of structures.
- Develop a fundamental understanding of materiality in construction systems and techniques, dimensions and intrinsic qualities that influence the design process.
- Sound Graphical representation of concepts and ideas using drawing techniques and rendering medium and format; develop details and specifications for their design studio projects.

CO 7: AR 2014- IT Design Tools II

- To Introduce students into theory and practice of Computer Applications in Architecture.
- To familiarize Advanced learning of software available for architectural applications and familiarize the students with the concepts of 3D modeling.
- To enable them to experiment with forms, mapping, rendering and presentation techniques.
- To make students create integrated design documents by taking full advantage of the building model. Integration of practical exercises along with the design studio projects.

CO 8: AR 2016- Arts and Graphics IV

- To understand the analysis of indeterminate structures and their use in field in greater depth.
- To make artifacts which influence and create visual effect in built environment

CO 9: AR 2016- Research I (Building Appraisal)

- To understand the Philosophy of Indian Architects and their famous works.

5th Semester

CEO 1: AR 3001- Architectural Structures V

- To understand the analysis of intermediate structures and their use in field in greater depth.

CEO 2: AR 3003- History of Architecture III

- Understanding of the period in terms of its location, climate as well as the socio-cultural, historical, economic and political influences of the time.
- Study of the building “types” and the development of architectural form and character based on the developments in construction and technology exemplified through building specific building examples that identify to works of the period.
- Understanding the intentions of the period and architects as a solution to the need or demands of the period.

CEO 3: AR 3005- Building Services III

- To develop an understanding of the advanced building services such as Air conditioning and lifts and their application in the design proposals of buildings of slight complex nature such as multistoried.

- The thrust shall be on understanding the use and application of the services and not the calculation or numerical part.

CEO 4: AR 3007- Specifications & Costing,Contracts

- To initiate the students into theory and practice of estimation and quantity surveying.
- To develop the understanding of specification writing.

CEO 5: AR 3011- Architectural Design

- Understanding design as a function of specific agenda such as site conditions, orientation, climate, circulation and essential services with design limited to design of Low-rise buildings.
- Design for the requirements of Individuals, Groups or Community with limited land size and other parameters.
- Designing for simple and multi-use, single and multiple floors with parameters of building byelaws.

CEO 6: AR 3013- Building Construction V

- To introduce and familiarize the students with constituents, manufacturing process/ availability, properties/ characteristics, defects, classification, treatments, preservation and uses of traditional building materials used in construction.
- To understand the use of the above said building materials in simple building works.

CEO 7: AR 3015- IT Design Tools II

- Introduction to basic knowledge of computers - operating system, software and hardware.
- To familiarize with software associated with text formatting, spread-sheets and presentation.
- Development of effective presentation techniques.

CEO 8: AR 3015- Research II& Dissertation(Architects)

- To develop knowledge and skills related of International Architect's his principles and Philosophy.

Course Outcomes

CO 1: AR 3001- Architectural Structures V

- Pre- Stressed Concrete principles and systems, loss of pre-stress, analysis and design of pre-stress beams.

CO 2: AR 3003- History of Architecture III

- Know about the period in terms of contexts of technology and other parameters.
- Know the development in the Western Civilization with emphasis on the underlying parameters, philosophy, intentions and expressions of associated periods/ movements as a response to the context of time, location and aspirations.
- Understand the building type and its architectural style.

CO 3: AR 3005- Building Services III

- Demonstrate an understanding of building construction as it relates to firefighter safety, building codes, fire prevention, code inspection, and firefighting strategy.
- Understand the basic fundamentals of mechanical systems.
- Understanding the concept of Fire and methods used as fire-fighting.
- Understanding of working of Lift and escalator as a mechanical device
- Develop an understanding of local codes in reference to the topics of this course

CO 4: AR 3007- Specifications & Costing,Contracts

- Aim and object, Scope and importance of subject, types of estimates etc.
- Principles of analysis of rates, rates of labour and materials, exercises in rate analysis of different building works.
- Correct form of specification writing – avoiding ambiguity and conflicting statements. Form and sequence of clauses, study and use of standard specification.
- Detailed specification writing of various building materials, e.g. bricks, sand, lime, glass, paints, metals, timber and its products.
- Superstructure and sub structure works.

CO 5: AR 3011- Architectural Design V

- Learn the art of collecting data and to carry out analysis for the process of evolving design and individuality of approach.
- Understanding site planning: organization, scale, hierarchy, orientation and climate.
- Understand complex services in multi-storied buildings; understanding the architectural content of services in buildings.
- Implicate knowledge of design fundamentals and knowledge gained in other subjects to develop better design solutions.
- Develop appropriate graphic skills and presentation techniques (models, rendering) to explain the contents of a design.

CO 6: AR 3013- Building Construction V

- To equip the students with the knowledge of various materials and techniques used temporary construction work.
- To grasp the relation between construction materials and their applicability to different types of structures.
- Develop a fundamental understanding of materiality in construction systems and techniques, dimensions and intrinsic qualities that influence the design process.
- Sound Graphical representation of concepts and ideas using drawing techniques and rendering medium and format; develop details and specifications for their design studio projects.

CO 7: AR 3015- IT Design Tools II

- Introduction to basic knowledge of computers - operating system, software and hardware.
- To familiarize with software like MS Office, MS Excel, MS Powerpoint
- Development of effective presentation techniques.

CO 8: AR 3015- Research II& Dissertation(Architects)

- To develop knowledge and skills related of International Architect's his principles and Philosophy.

6th Semester

CEO 1: AR 3002- Architectural Structures VI

- To understand the basic of soil Mechanics and Foundation Engineering.
- To Understand the Design of Steel Structures.

CEO 2: AR 3004- Modern and Contemporary History IV

- Understanding of the period in terms of its location, climate as well as the socio-cultural, historical, economic and political influences of the time.
- Study of the different building and the development of architectural form and character based on the developments in construction and technology exemplified through building specific building examples that identify to works of the period.

- Understanding the intentions of the period and architects as a solution to the need or demands of the period.

CEO 3: AR 3006- Building Services IV (Bye Laws, codes and Environmental Services)

- To study the master plan and development controls as applicable to building design.
- To acquaint the students to compulsory building bye-laws and permits.
- To understand design limitations due to authority guidelines.

CEO 4: AR 3007- Specifications & Costing, Contracts

- To initiate the students into theory and practice of estimation and quantity surveying.
- To develop the understanding of specification writing.

CEO 5: AR 3010- Architectural Design VI

- Understanding design as a function of specific agenda such as site conditions, orientation, climate, circulation and essential services with design limited to design of Low-rise buildings.
- Design for the requirements of Individuals, Groups or Community with limited land size and other parameters.
- Designing for simple and multi-use, single and multiple floors with parameters of building byelaws.

CEO 5: AR 3012- Building Construction VI

- To introduce and familiarize the students with constituents, manufacturing process / availability, properties/ characteristics, defects, classification, treatments, preservation and uses of traditional building materials used in construction.
- To understand the use of these traditional building materials in simple building works.

CEO 6: AR 3014- Working Drawing

- To understand design limitations due to authority guidelines and making drawing/ details necessary for final execution of a Project.

CEO 7: AR 3016- Arts and Graphics IV (Interior Design)

- To initiate students into theory and practice of Interior Design.
- To familiarize students with modern materials and techniques useful for furniture and interior design.
- To appreciate early interventions in design of furniture

CEO 8: AR 3018- Research III & Dissertation (II)

- Understanding basic principles of any research with special reference to architectural research and applications.
- To understand the basic methodology of writing a technical paper.
- To develop knowledge and skills.

Course Outcomes

CO 1: AR 3002- Architectural Structures VI

- Design of riveted and welded connections (simple cases only), tension and compression members, beam and plate girder, introduction to grillage foundation and trusses.

CO 2: AR 3004- Modern and Contemporary History IV

- Know about the period in terms of contexts of technology and other parameters.

- Know the development in the modern period with emphasis on the underlying parameters, philosophy, intentions and expressions of associated periods/ movements as a response to the context of time, location and aspirations.
- Understand the building type and its architectural style.

CO 3: AR 3006- Building Services IV (Bye Laws, codes and Environmental Services)

- To familiarize student with development of design according to Control Rules and Building Bye laws of Local Authority.
- To make students aware about the various codes of practices and different acts regarding the construction of building.
- To make students understand how to maintain the overall massing of the city in an urban context.
- To understand the plan approval process from the sanctioning authority.

CO 4: AR 3007- Specifications & Costing, Contracts

- Aim and object, Scope and importance of subject, types of estimates etc.
- Principles of analysis of rates, rates of labour and materials, exercises in rate analysis of different building works.
- Correct form of specification writing – avoiding ambiguity and conflicting statements. Form and sequence of clauses, study and use of standard specification.
- Detailed specification writing of various building materials, e.g. bricks, sand, lime, glass, paints, metals, timber and its products.
- Superstructure and sub structure works.

CO 5: AR 3010- Architectural Design VI

- Learn the art of collecting data and to carry out analysis for the process of evolving design and individuality of approach.
- Understanding site planning: organization, scale, hierarchy, orientation and climate.
- Understand complex services in multi-storied buildings; understanding the architectural content of services in buildings.
- Implicate knowledge of design fundamentals and knowledge gained in other subjects to develop better design solutions.
- Develop appropriate graphic skills and presentation techniques (models, rendering) to explain the contents of a design.

CO 6: AR 3012- Building Construction VI

- To equip the students with the knowledge of various materials and techniques used temporary construction work.
- To grasp the relation between construction materials and their applicability to different types of structures.
- Develop a fundamental understanding of materiality in construction systems and techniques, dimensions and intrinsic qualities that influence the design process.
- Sound Graphical representation of concepts and ideas using drawing techniques and rendering medium and format; develop details and specifications for their design studio projects

CO 7: AR 3014- Working Drawing

- Create and utilize construction documents.
- Decipher and communicate information through drawings and specifications

CO 8: AR 3016- Arts and Graphics IV(Interior Design)

- The course furnishes students with basic design of interiors.
- Perform various drawing standards and conventions used in interior design.

- Read and create construction documentation sets.
- Develop portfolio pieces that represent basic drawing skills and drafting conventions

CO 9: AR 3018- Research III & Dissertation (II)

- To develop knowledge and skills related to various typologies of Architecture.

7th Semester

CEO 1: AR 4001- Building Economics

- Understanding Architectural Projects as an Economic function and understanding their evaluation techniques.
- Basic principles of building economics at macro and micro levels

CEO 2: AR 4003- Discipline Specific Sub Elective I

CEO 3: AR 4005- Building Services V(Acoustics)

- To understand the basic principles of physics of sound.
- To make them enable to apply the knowledge in various buildings.
- To get familiarized with sound system equipments, available in market.
- To familiarize the student with laws as per National Building Code of India/BIS.

CEO 4: AR 4011- Architectural Design VII

- Understanding design as a function of specific agenda such as site conditions, orientation, climate, circulation and essential services with design limited to design of Low-rise buildings.
- Design for the requirements of Individuals, Groups or Community with limited land size and other parameters.
- Designing for simple and multi-use, single and multiple floors with parameters of building byelaws

CEO 5: AR 4013- Advanced Construction I(Equipments)

- Development of construction technology and innovative techniques as tools to address demand to mass construction.
- Knowledge of modular coordination

CEO 6: AR 4015- Principles of Human Settlement

- Understanding various theories of settlement and City planning.

CEO 7: AR 4017- Project and Construction Management I

- Understanding Construction Management and Construction industry, Project Planning and Scheduling.

CEO 8: AR 4019- Research IV(Professional Summer Training Evaluation)

- To do training at an Architects office in order to get practical exposure.

Course outcomes

CO 1: AR 4001- Building Economics

- Students will understand Basic economics.
- Students will grasp the fundamental economics of the Indian society.

- Students will understand and apply economic principles in building construction projects.

CO 2: AR 4003- Discipline Specific Sub Elective

CO 3: AR 4005- Building Services V(Acoustics)

- Understand standard measurement methods that are used in building acoustics and Analyze acoustic properties of typically used materials for design consideration. .
- Apply prediction methods to assess the transmission of noise in buildings, its mitigation and reverberation of sound.
- Select appropriate building constructions for the solution of practical noise problems and evaluate their performance
- Make basic room acoustic measurements and determine the various indicators used for auditorium acoustics
- Learn various ideologies and context of designs thereby developing their own theories and applying the same knowledge in their own design skills.

CO 4: AR 4011- Architectural Design VII

- Design buildings campuses for a specific purpose for a large group of users in a city.
- Understand other parameters of architectural design like socio economic demand, population density, user satisfaction, inclusive design etc.
- Come up with design process and design solution for large scale urban project

CO 5: AR 4013- Advanced Construction I(Equipments)

- Understanding construction technology and innovative techniques as tools to address demand to mass construction.
- Students will get Knowledge of modular coordination

CO 6: AR 4015- Principles of Human Settlement

- Distinct understanding of regulated urban development in cities.
- The course shall develop understanding about the emergence of human settlements on the basis of complex interaction of determinants, elements and principles over time.
- Understanding of neighbourhood concepts.

CO 7: AR 4017- Project and Construction Management I

- Learnt different management techniques suitable for planning and constructional projects.
- The course of a work from the start to the finish to analyses before the commencement of the project.
- Learnt how to manage different construction activity with their time an calculation of time management.

CO 8: AR 4019- Research IV(Professional Summer Training Evaluation)

- The student gets a real-time exposure of how architectural projects are carried out.
- Office management and team-work to enhance the employability of the student.
- To acquaint students with their roles and responsibilities of dealing with various related agencies and the freedom/ limitations as a professional as well as their real status in the society.

8th Semester

CEO 1: AR 4002- Building Services IV

- To develop an understanding of the advanced building services and their application in the design proposals of buildings of slight complex nature such as multistoried.
- The thrust shall be on understanding the use and application of the services and not the calculation or numerical part.

CEO 2: AR 4004- Professional Practice I

- To acquaint the students with the role of an architect in society; scale of charges; an architect's conduct in architectural Practice.
- To familiarize a student with requirements of Architectural Competitions and appointment of a contractor through tenders.
- To familiarize the students with Easement rights.

CEO 3: AR 4006- Discipline Specific Sub Elective IV

CEO 4: AR 4010-Architectural Design VIII

- Understanding design as a process of problem identification, space standards, formulation of requirements, evolution of design criteria and development of design of buildings in urban context, phasing and development.
- Understanding relationship of buildings amongst themselves and with a given environment.

CEO 5: AR 4012- Advanced Construction II

- To understand advance techniques used in Building Construction.

CEO 6: AR 4014- Project and Construction Management II

- Understand the importance of project management for architects.
- Be in a better position while preparing for post-graduation in project management

CEO 7: AR 4016- Town Planning

- To develop an appreciation of the planning issues involved at the scale of a town or a city.
- To expose the students to the history and development of planning, its relevance & application to modern day principles of town planning.

CEO 8: AR 4018- Discipline Specific Sub Elective III

Course Outcomes

CO 1: AR 4002- Building Services IV

- Understanding of approach for effective energy management in building through automated systems and sensors.

CO 2: AR 4004- Professional Practice I

- Understand his role, responsibilities and code of conduct as an architect.
- Develop an understanding of the role of professional and statutory bodies.
- Learns how to setup and run office

CO 3: AR 4006- Discipline Specific Sub Elective IV

CO 4: AR 4010-Architectural Design VIII

- Design a large campus for a specific purpose for a large population of multiple groups of users.
- Produce a design process and a design solution to an urban design problem

CO 5: AR 4012- Advanced Construction II

- Modern construction systems and techniques used in large scale buildings and other architectural projects.
- Understand design and use of tensile structures, form active structures, vector active structures

CO 6: AR 4014- Project and Construction Management II

- Communicate with project management consultant.
- Prepare bar charts, CPM and PERT networks.
- Prepare cash flow statements and basic financial management calculations.
- Understand organization structure and human resource management

CO 7: AR 4016- Town Planning

- Have a basic understanding of urban processes involved in urban planning and development.
- Understand the various development plans and their preparation.
- Use his understanding of various, acts, regulations and schemes in his design exercises

CO 8: AR 4018- Discipline Specific Sub Elective III

9th Semester

CEO 1: AR5011- Professional Internship with Practicing Architect

- Introduced to fundamental processes of designing of real buildings on real sites.
- Develops confidence in interacting with various key players in building design and construction processes.
- Develop an understanding of contemporary issues and techniques of building construction.

CEO 2: AR5013- Seminar II (Tour Report)

Course Outcomes

CO 1: AR5011- Professional Internship with Practicing Architect

- The student gets a real-time exposure of how architectural projects are carried out.
- Office management and team-work to enhance the employability of the student.

CO 2: AR5013- Seminar II (Tour Report)

10th Semester

CEO 1: AR5002- Professional Practice

- To acquaint the students with most of the general aspects of valuation and arbitration.
- To familiarize the students with organization of an architect's office.
- To familiarize the student about an elementary knowledge of various instruments of law and legislation to safeguard the professional interest

CEO 2: AR5004- Development Legislation

- To acquaint the students about an elementary knowledge of various instruments of law and legislation to safeguard the professional interest.

CEO 3: AR5010- Thesis Project

- Objective of the thesis project is to provide an opportunity to the students to do study and handle a project of his / her choice.

- It is a compilation and judgment of the knowledge gained by the student through various stages of study.
- It allows a student to learn intricacies of procuring a project, to be aware of probable clients, independent handling of the project and presentation of the same to a client to procure the project.
- The study must be design oriented with detailed investigation, logical analysis and thoughtful synthesis to enrich the knowledge.
- The work may include original or compilation and analysis of the information already available in the realm of architecture but should conclude with the related architectural design proposal.

CO 1: AR5002- Professional Practice

- To understand about valuation and arbitration.
- Learn to make an original and individual, creative contribution to the academic discipline and/or the professional field in some cases.

CO 2: AR5004- Development Legislation

- Students will have elementary knowledge of various instruments of law and legislation to safeguard the professional interest.

CO 3: AR5010- Thesis Project

- To use all the skills acquired in the duration of preceding academic courses.
- Methodically self-direct effort by choosing the project of choice, builds capacity to work independently and methodically in a variety of intellectually and professionally demanding contexts.
- Learn to make an original and individual, creative contribution to the academic discipline and/or the professional field in some cases.

2-1-0

OBJECTIVES:

- To understand the basic principles of structural mechanics so that it forms the basis for study of structural design.

CONTENTS:**Simple stresses and Strains:**

Elasticity, stress, strain, Types of stresses, Elastic limit, Hook's Law, Modulus of Elasticity, Stresses in Composite Bars. Primary or Linear Strain, Poisson's ratio, shear stress, Principal stresses and strains.

Centre of Gravity:

Definition, Methods of finding out C.G. of simple figures, Centre of parallel forces.

Moment of Inertia:

Definition, important theorems, section modulus, Calculation of MI by first principles and its application, MI of Composite sections.

Elements of Statics:

Law of parallelogram of forces, Resolution of a force, Law of triangular of forces, Polygon of forces, Theorem of resolved parts, resultant of number of concurrent coplanar forces, Conditions of equilibrium, moment of a force, Moment and arm of a couple, Theorems on couples.

Shearing force and Bending Moments:

Beams Shearing force and bending moment, Moment of resistance. S.F. and B.M. diagrams of simple cases.

APPROACH:

- The lectures by the experts in the field will be arranged for the students so as to give them exposure to the practical aspects of design.

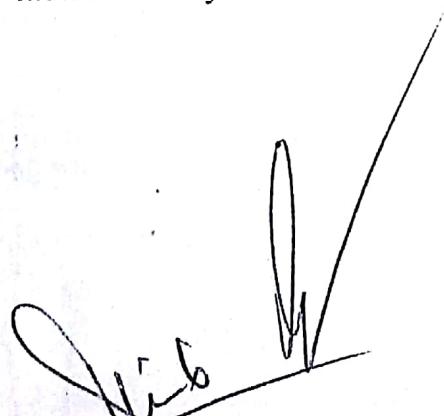
Lecture -02

Objectives To explore people in physical context in context of elements of social science and their relation to design

1. Sociology

- Sociology as a Science of Human Society: Introduction:-** Basic concepts (Roles, Norms, Values, Groups and Institutions), Social Structure, Culture, Perspectives (Functionalist, Conflict & Interactions),
- Social Institutions:-** Social Stratification, Family and marriage, Organizations: Formal & Informal, Religion,
- Social Processes of Change:-** Defining social change, various processes of change like Urbanization, Industrialization, Modernization (Social mobilization and differentiation, structural differentiation, consensual mass tendencies, etc.)
- Introduction, Ecological Issues in social perspective, Indian Society & Socio Cultural Factors of Development.

Theory Exam will be conducted.



B. ARCH. SEMESTER-I**AR-1005 COMPUTER COMMUNICATION**

Credit -02

0-0-2

OBJECTIVES:

- To acquaint the students with the basic knowledge of Computers & Drawing Skill

CONTENTS:**Basic Computers Skills:**

Word Formatting, Excel Power Point,

Corel Draw, Photoshop
Sketch up**Words and Idioms:****Composition and Comprehension:**

Essay, story and letter writing. Summarizing, comprehension-unseen passages.

Architectural Journalism:

Recording/Collecting material, writing pertaining to events/activities. Writing reports on design projects/buildings/complexes.

APPROACH:

- The emphasis should be given to actual working on computer and working examples should be shown to students.

B. ARCH. SEMESTER - I**AR-1011 ARCHITECTURAL DESIGN - I**

Credit -06

Studio -06

OBJECTIVES:

- Orientation of students to the profession of architecture.
- Introduction to basic design and the basic understanding of form and space in architecture.

CONTENTS:**Orientation to the Architecture Profession:**

Role of an Architect in the built environment. Building process, role of other professional in building. A general survey of the changes in habitat in history. Architects act, C.O.A. I.I.A., NASA.

Space and Architecture:

Understanding design as to create for a particular purpose and architectural design as to create space – exercise in terms of simple drawing and sketching of objects available in nature and surroundings. Form created through lines (columns) and planes (volumes), and combination there of.

Form and Transformations:

Additive, dimensional, subtractive exercises primarily through 3 D models of simple geometry. Visual perception, ideas of abstraction.

Scale in Architecture:

Simple measurement exercises. Design of Basic Shelter, Human Scale

Order in Architecture:

Geometrical, structural, dimensional, material, spatial orders – through observation of surroundings as well as simple exercises in 2D and 3D. Exercises in order and transformations of form and space.

APPROACH:

- Drawing and model making skills will be taught along with the subject to improve the abilities to understand space and form.

Studio-04

OBJECTIVES:

- To familiarize the students with constituents, properties and uses of traditional building materials used in construction.
- To understand the use of these traditional building materials in simple building works

1. MATERIALS

Clay and Clay Products:

Mud including stabilized earth, Burnt Bricks, Brick Tiles, Brick Ballast and Surkhi.

Stone:

Classification, Availability, Characteristics and Uses.

Lime:

Availability, Preparation and Uses

Cement:

Manufacture and Properties.

Sand and Surkhi:

Characteristics, Availability and Uses.

Mortar:

Mud, Lime, and Cement.

Concrete:

Lime, Cement.

D.P.C:

Asphalt, Bitumen, Synthetic.

2. CONSTRUCTION

Element of Building:

Terminology, nomenclature of various parts of building from foundation to roof.

Brick Work:

Brick Terminology, Simple Bonds in Brick work.

Stone Work:

Details at junctions and Quoins.

Foundation:

Elementary Stone Masonry, Types of joints.

Random, Square and Ashlars Stonework.

Need, Design criteria. Foundation concrete.

Details of simple Spread Foundations for load bearing walls of various thicknesses.

D.P.C:

Introduction to Horizontal D.P.C.

APPROACH:

- The students would be familiarized with vernacular terminology as prevalent in this part of the country.
- The emphasis will be construction details as applicable to Indian conditions.
- Site visits and market surveys will be an integral part of sessional work.



0-0-4

OBJECTIVES:

- Familiarization with drawing tools and accessories.
- To develop comprehension and visualization of geometrical forms.

CONTENTS:**Drawing tools and Accessories:**

Introduction to the subject and drawing equipment.
Setting of drawing equipment.
B.I.S/ code of practice for architectural designs.
Drafting and quality of lines with pencil.

Basic technical drawing :

Concept and types of line.
Division of lines and angles.
Drawing polygons.
Inscribing and circumscribing circles in polygons.
Drawing geometrical curves helix, conoid etc.

Orthographic Projections:

Concept, Planes of Projections. First angle projections.
Projection of points, lines and planes in different positions.
Projection of regular rectilinear and circular solids (prisms, pyramids, cones, cylinders, spheres etc.) in different positions.
Sections of regular rectilinear and circular solids (prisms, pyramids, cones, cylinders, spheres etc.) in varying conditions of sectional plane.

Development of Surfaces:

Types and uses of scales, Scales used by an architect.
Reducing and enlarging scales.

Lettering:

Free hand and mechanical lettering.

APPROACH:

- Maximum drafting work will be done in the studio.
- Models of solid will be used as teaching aids.
- Exercises for each topic will be undertaken.

B. ARCH. SEMESTER - I**AR - 1017 ARTS & GRAPHICS - I**

Credits -04

0-0-4

OBJECTIVES:

- Introduction to art and appreciation of art and its philosophies.
- Familiarization with principles and theories and graphic and architectural composition.
- Development of art and graphic skills.

CONTENTS:**Philosophy of Art:**

Relevance of art of life: Art and artist, Art and society, Art and religion, art and mysticism.

Appreciation of art: Painting, Sculpture and Architecture.

Art in architecture: psychological and emotional aspect of aesthetics.

Elements of Design-Line, Direction, Shape size and form, Texture, Colour.

Theory of Design:**(Introduction to Graphic Composition)****Art and Graphic Skills:**

Exercise to develop free hand skills-drawing lines, joining points, drawing curves, comprehension of scale.

Still life drawing-from observation..

Drawing from nature-shrubs, trees, grass, plants, flowers, rocks, and water.

APPROACH:

- The theory part of the course will be an overview covered through audiovisual lectures delivered by experts in the field.
- Studio exercises of graphic composition will be in the form of drawings, collapses and models.
- The students would be taught to handle various mediums in studio work as part of development of art and graphics skills.

B. ARCH. SEMESTER - I**AR - 1019 SURVEYING & LEVELING**

Credit -03

2-0-2

OBJECTIVES:

- To bring about awareness of the role of surveying and leveling in architectural and planning projects.
- To familiarize the student will be techniques of surveying and leveling.

CONTENTS:**Surveying:**

Role of surveying in Architecture, Types of survey.

Introduction to various techniques – Chain and Plain Table Survey, Travers Survey.

Contouring – Contour Maps characteristics, use and interpretation.

Leveling:

General principles of Leveling in context of Architecture and Planning.

Theodolite – Theodolite and its use on site.

Photogrammetry:

Definition, principles and application of photography in Surveying.

APPROACH:

- Emphasis on field exercises and on site surveys
- The theoretical part of the course shall be covered through lectures

B. ARCH. SEMESTER - II AR - 1002 ARCHITECTURAL STRUCTURES - II

OBJECTIVE:

- To understand the basic principles of structural mechanics so that it forms the basis for study of structural design.

CONTENTS:

Stresses in Trusses:

Definitions, forces in members, analytical method, method of sections, Graphical method, Link polygon.

Direct and Bending stresses :

Distribution of shear Stress:

Shear stress in the section of a beam, different sections.

Deflection of Beams:

Simple cases.

Column:

Definition, end conditions, buckling and critical loads, slenderness ratio.

APPROACH:

- The lectures by the experts in the field will be arranged for the students so as to give them exposure to the practical aspects of design.

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Lecture -02**Credit -02**

Objectives :Gain insight into the ways in which the environment influences our feelings and experiences
Gain first-hand knowledge about key environment and behavior issues through hands-on activities

Content :

- The Nature & Scope of Psychology in Design, Explore and understand various perspectives on human-environment interrelationships, Emotional Relationship to Place: Attachment & Identify, Relationship to Nature,
- , Person-Environment Relationship, Natural and manmade disasters. Reactions to environmental changes, Environmental perception and cognition, Environmental appraisal and aesthetics, Place attachment and rootedness: psychological consequences of displacement. Proxemies and personal space. Privacy, Crowding, Community Design
- Ecological concerns, Environmental design - vastu-shastra, architectural factors, and psychological reactions. Designing of specific places, Personality, and the environment, Cultural factors in environmental and ecological psychology
- Community Psychology & Social Change, Interface between Psychology & Design, Human Experience in Design, Indian Tradition & Products Environment Problems from Local To Global, A framework for analysis.

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B. ARCH. SEMESTER - II

AR - 1010 ARCHITECTURAL DESIGN - II

Credit -06

0-0-8

1. Understanding the Design Language – Space, form with Function, Discipline of Structures,
2. Space as resultant of functional need – anthropometric dimension
3. Design Parameters spatial order, basic modulation, structures as order, space structures form correlation, landscape correlation.
4. Institutional Design – Program Interpretation, choice of theme, abstraction, spatial scales, order mechanism, evolution of form.
5. Program Site analysis, area volume diagram,
6. Principle of abstraction, spatial ordering, kinds of forms and their principles of combination light and perception of space and form

Taught skills & Methods

Analytical Techniques, overlays, spatial structural system Models, alternative models of form

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OBJECTIVES:

- To acquaint the students to building materials such as Timber, Reinforced Concrete and Reinforced Brick Work.
- To familiarize the students with construction techniques for use of the above materials in building works.

CONTENTS:**1. MATERIALS:**

Timber: Classification, Characteristics, Defects, Preservation.

Reinforced Cement Concrete and Reinforced Brick Concrete: Types, Mixing, Curing, Water Cement Ratio, Qualities and Workability.

2. CONSTRUCTION:

Brick Work: Arches, Brick, Stone, elementary principles, definition and centering. Corbelling. Coping, String Courses, Decorative Brick work, Brick Jalis. Special Bonds-Rat Trap Bond, Garden Bond etc.

Timber: Elementary Carpentry, Common Joints, Details of Ledged and Braced Batten Doors.

D.P.C.: Vertical Damp proofing.

APPROACH:

- The students would be familiarized with glossary of vernacular terminology as prevalent in this part of the country.
- The emphasis will be on construction details as applicable to Indian conditions.
- Site visits to Timber market, Lime Kiln and Cement factory.
- Knowledge about rates of materials should be given.

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OBJECTIVES:

- To familiarize the student with theoretical, practical and pictorial aspects of architectural drawing.
- To introduce the students to graphic treatment of two-dimensional drawings.
- To develop perception and presentation of simple architectural forms and buildings.

CONTENTS:**Metric Drawing:**

Types, uses and advantages.
Isometric, axonometric and pictorial view.
Metric Drawing and projection and their dimensioning.
Metric of plane figures composed of straight lines.
Metric of circles.
Metric of simple and complex blocks.

Perspective Drawing:

Purpose and use.
Differences with metric projections.
Anatomy of a perspective – cone of vision, station point, picture plane, eye level, horizon line, ground line, vanishing point, etc.
Types of perspective- One point, two points, and three point perspectives.
Perspectives of simple and complex box blocks.
Perspective of simple curved surface.
Perspective of simple household furniture items.

Shades and shadows:

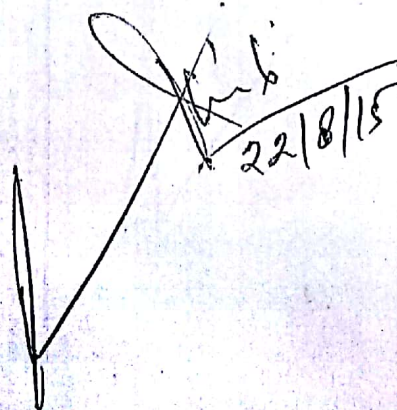
Values in Shades and shadows.
Constructing plan shadows (point, line and plane).
Constructing shadows in elevations (point, line and plane).
Short –cut methods for Constructing shadows
Presentation techniques in Sciography.

Solid Geometry:

Construction of section , intersection and interpenetration of solids.

APPROACH:

- The emphasis will be on drawing in the studio and different mediums will be used.
- The sun-path model would be used as a teaching aid while teaching shades and shadows.


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INTENT:

The subject of Arts and Graphics would encompass:

- Introduction to Art and appreciation of art and its philosophies.
- Familiarization with principles and theories of graphics and architectural composition.
- Development of Art and Graphic skills.

CONTENTS:

Theory of Design:
(Introduction to Architectural Composition)

Unity, Elements of unity, - Texture, Colour, Tone Direction, Proportion, Form and shape, solids and voids.
Aspects of unity – Dominance, harmony, proportion, rhythm, vitality.

Arts and Graphics skills:

Free hand drawing – drawing people, furniture, fabric and transport from imitation, observation and recapitulation.
Rendering techniques – for textures of materials and finishes; using equipments like transfers, airbrush, rendering architectural drawings.

APPROACH:

- The theory part of the course will be an overview covered through audiovisual lectures delivered by experts in the field.
- Studio exercises of graphic composition will be in the form of drawing, collages and models.
- The students would be taught to handle various mediums in studio work as part of development of art and graphic skills. The examination paper would be so set so as to test the knowledge and understanding of the student for each distinct part of the syllabus.

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OBJECTIVES:

- To develop skills in understanding the complexities and constrains of brick masonry and joinery in carpentry.
- To familiarize the student with the basic skills of photography for use in architectural work.
- To familiarize the student with the use of various materials for model making.

CONTENTS:

Workshop:

Carpentry Workshop, 3D Model making with Wood, Plaster of Paris
Appreciation of art: Painting, Sculpture and Architecture.
Art in architecture: psychological and emotional aspect of aesthetics.

Photography:

Assignment understanding & illustration of techniques of Photography

APPROACH:

- Most of the assignments shall be done in the college workshop.
- Laboratory demonstration of developing and printing of Black and White photographs.

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Lecture : 3

Objective:

To understand an informal choice regarding the most appropriate structural system for the building design due to different types of loading. Provide a basic understanding about the structural modeling and research techniques in the field of Architecture.

Course Contents:**Forms of structure :**

Types of vector active, form active, surface active, bulk active or combinations- meaning, definition and illustrations; sketches and brief details of trusses, space structures, arches, cable structures, industrial frames, multistory frames, shells and folded plates.

Types of loads :

Concept and definitions of dead load, imposed load, seismic load, wind load and snow load as per IS: 875- 1987 (Part I- V) and IS: 1893- 2002.

Stability and determinacy :

Free body diagrams, external stability, internal stability, external determinateness, internal determinateness and combined external and internal indeterminateness, Determinate vs. indeterminate structures.

Elastic, Plastic & deflection theories: Strain energy Principle of superposition, elastic, plastic and deflection theories, Principle of virtual work, Maxwell's theorem of reciprocal deflections, Strain energy due to axial load and flexure; Castigliano's theorems (Only brief theories).

Slope deflection methods :

Formula for fixed end and moments due to concentrated loads, uniformly distributed load and sinking of supports, analysis of continuous beams, analysis of frames with no lateral translation of joints.

Moment distribution methods :

Absolute and relative stiffness of members, Distribution factor, analysis of continuous beams and simple portal frames (Non- Sway type only).

Text & References:**Text:**

- Strength of Materials – Khurmi R. S.
- Civil Engineering Handbook – P.N. Khanna
- R.C.C. Design – Khurmi, Punmia, Sushil Kumar
- Design of Steel Structure – Negi
- Structure in Architecture – Salvadori and Heller

References:

- Elements of Structure by Morgan
- Building Construction by Mackay WB Vol. 1-4
- Construction Technology by Chudley Vol. 1-6
- Elementary Building Construction by Mitchell

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AR 2003 HISTORY OF ARCHITECTURE III
Lecture -2 studio -1

Credit :3

OBJECTIVES:

- Understanding of the period in terms of its location, climate as well as the socio-cultural, historical, economic and political influences of the time.
- Study of the building 'types' and the development of architectural form and character based on the developments in construction and technology exemplified through specific building examples that identify the works of the period.
- Understanding the intentions of the period and architects as a solution to the need or demands of the period.

INDIAN CONTEXT:

- Indus Valley civilization:** Particularly in reference to the town planning principles exemplified with examples from Mohenjodaro and Harappa.
- The Aryan civilization:** With its emphasis on the Vedic town plan, its motifs and patterns.
- Buddhist Architecture:** In specific reference to the lats, eddicts, stupas, viharas, and chaityas, both in rock-cut or otherwise.
- Hindu Architecture-Indo Aryan:** With special attention to the evolution of the temple form, the shikhara in north India. Reference also to be made to the three schools of architecture—the Gujarat, the Khajuraho, and the Orrisan styles.
- Hindu Architecture-Dravidian:** Particularly in reference to the evolution of the vimana and the contributions of the Chalukyas, the Pallavas, the Pandyas and Cholas as well as the contributions of the Nayaks to the temple cities.

APPROACH:

- Lectures could be specifically conducted with the visual aids and seminars presented by students.
- Written assignments and seminar presentations could be made by students on the architectural characteristics that identifies the building types as well as intentions of the period in response to its context and demands of the time.
- Free hand sketches and orthographic drawings could made by students in the tutorials on specific building examples to familiarize them with the architectural character that identify the works of the particular period.
- Understanding of the period in terms of its context of location, climate as well as the socio-cultural, historical, economic and political influences of the time.
- Study of the building 'types' and the development of architectural form and character based on the developments in construction and technology exemplified through specific building examples that identify the works of the period.
- Understanding the intentions of the period and architects as a solution to the need or demands of the period.

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OBJECTIVES:

- To understand the basic principles of water supply and sanitation.
- To make them enable to draw the piping system (pipe above ground and under ground) for different types of buildings.
- To familiarize the student with plumbing bye laws as per ISI.

CONTENTS:

Water Supply:

Need to protect water supply and requirements of water supply to different types of buildings.

Sources of water supply, quantity and quality of water and treatment plants.

Conveyance and distribution of water overhead tank under ground tanks pipe appurtenances.

Hot and cold water supply system in a low rise and high rise buildings, distribution system in campus, pipes their size, jointing and different fittings.

Sanitary Engineering:

Purpose and principles of sanitation, collection and conveyance of waste matter.

Quantity and Quality of refuse, design and construction of sewer's and sewer appurtenances, roof and surface water drainage.

Sanitary appliances, traps their variety, pipes and joints, sanitary pipes works below and above ground level. Drainage in non-municipal area.

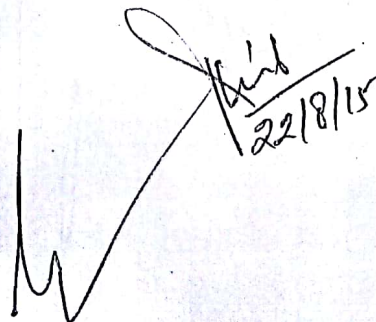
Rain waters storage and water harvesting principles and methods.

System Of Plumbing & Plumbing Bye-Laws:

The water supply and sanitary system individual and group of buildings. Indian standards for designing the toilet /Kitchen. Plumbing by-laws.

APPROACH:

- The emphasis will be on the studio exercise on designing and detailing water supply and drainage in a building, toilet and kitchen.
- The students shall be motivated to visit the practical site.


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OBJECTIVES:

- To acquaint the students about human thermal comfort as an essential function of a building and its analysis and use in Architecture.

CONTENTS:

Introduction to Climate:	Importance of climate in Architecture, Factors affecting climate, Elements of climate, Solar radiation, Temperature, Wind, Humidity and precipitation and their measurement.
Tropical Climate:	Climatic zones, characteristics of tropical climate, Macroclimate and Microclimate.
Human Thermal Comfort:	Study of body's heat production and heat loss, Comfort zone, Bioclimatic chart and effective temperature, Isoleths.
Shading Devices:	Method of recording position of sun in relation to earth, Solar chart, Shadow angle protractor and its application in designing of shading devices.
Day Light:	Natural lighting, Glare, day light factor and day lighting in tropics.
Ventilation and Air-movement:	Requirement, size and position of openings, Air-flow pattern inside and outside buildings.
Orientation:	Orientation of buildings in relation to sun and wind.

APPROACH:

- Course would be covered through lectures.
- Tutorials for Practical designing of sunshades/louvers to be carried out in studio and through case studies.

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OBJECTIVES:

- The objectives of Arch. Design in the 1st semester were concerned with 'space and form' and 'formal transformations'. The objective of Arch. Design in the 2nd semester was to study 'space and activity'. The continuation of this leads to understanding of architecture as an outcome of 'space and structure'
- Understanding basic structure forms in relation to space and materials.
- Application of structure forms in design.

CONTENTS:**EVOLUTION OF STRUCTURAL SYSTEMS:**

Trabeated:	Brick and stone, columns and beams slabs, one way and two way, coffers.
Arcuated:	Corbelled, Radiating Arch, Vault and Dome, Squinch and Pendentives.
Vector Structures:	Trusses and space frames.
Form Structures:	Folded slabs, Shells, Hyperbola-paraboloid.
Tensile:	Tents, Cables, and Pneumatic vis-à-vis materials and plan shape/s It should be noted that emphasis would be on the design parameters and graphical presentation of systems rather than their structural analysis.
Suggested Exercises:	Making of models of various structural forms with appropriate and innovative materials. Making a scale model of important historical building/s incorporating one of the structural forms e.g. Trabeated: Parthenon, Arcuated:- Santa Sophia, Pantheon:, Vector Active: Pompidou Center:, Form Active: Sydney Opera House: Tensile: any famous bridge or stadium.
Design programmes incorporating imaginative use of space and forms:	Small space structures such as kiosks, Bus shelters, Petrol pumps, Entrance gates, Rain shelters Exhibition stalls etc.
Suggested studio exercises:	Large space structures such as Gymnasiums, Skating Rinks, badminton halls, Exhibition pavilion, Religious buildings etc.

APPROACH:

- Architectural models of various structural forms and important historical buildings will be preserved in the Architecture museums of the college for the use in History of Architecture classes.
- Students shall be taught Model making, pasting, Cutting, soldering also as also as a part of this class.

NOTE FOR CONDUCT OF EXAMINATIONS:

- The duration of Examination for this subject is 6X2=12 hours. The examination shall be held over two days. The drawings completed on the first day shall be left in the examination hall and shall be completed and submitted on the second day.

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OBJECTIVES:

- To introduce and familiarize the student with constituents, manufacturing process/ availability, properties/ characteristics, defects, classifications and uses of traditional building materials used in construction.
- To understand the use of these building materials in simple building work.

CONTENTS:

MATERIALS

Surface Finishing:	Plastering, Jointing & Pointing and Painting.
Floor Finishing:	Brick flooring, Cement Concrete, Stone, Terrazzo Ceramic & Vitrified Tiles, Wooden.
Glass:	Translucent, Transparent and special glasses.
GLASS FIBRE:	
CONSTRUCTION:	
Brickwork Continued:	Cavity Walls.
Woodwork Continued:	Panelled doors. Flush doors and Windows. Mosquito proof Shutters.
Temporary Timbering:	Timbering of shallow trenches Raking, Flying and Needle shoring.

APPROACH:

- The students would be familiarized with vernacular terminology prevalent in this part of the country.
- The emphasis will be on construction details as applicable to Indian conditions.
- Site visits and market surveys will be integral part of sessional work.

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AR 2015 IT DESIGN TOOLS Studio:4 Credit : 04

OBJECTIVES:

- To develop an understanding of the design based software like Auto Cad, Coral Draw and Adobe Photoshop.
- Learning the application of the above said software in design exercises so as to make use of maximum commands.

CONTENTS:

Understanding AutoCAD:

Learn various 2D commands their function and application.
Understanding coordinate systems.
Working on layers and Colours.
Drawing plans, Elevations, Sections using Auto Cad.
Dimensioning Drawings.
Connecting from one file format to another
Various file formats and their usefulness.

Understanding Coral Draw:

Learn various commands their functions and application
Putting text & images together in various settings,
Importing & exporting documents
Learn various commands & their functions and applications

Suggested Exercises:

- Drawing the entire set of drawings for an already designed residence using Auto Cad.
- Design and draw a logo with the help of Coral draw including Textures and Colours. (May be use if as a letter head.)

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OBJECTIVES:

- To develop greater perception of complex Architectural forms and buildings.
- To develop innovative skills for presenting Architectural Drawings (like plan, elevation etc.) in different media.
- To develop the skill of making perspectives of complex buildings and Rendering them in different media.
- To develop the skills free hand sketching.

in
of**CONTENTS:****Sciography:**

Shades and Shadows of objects and building elements cast on irregular surfaces, rendered in suitable medium.
Shades and shadows in perspective views and for exterior and interiors.
Shades and Shadows cast by point source of light in interiors.

s
r**Perspective Drawing:**

One point and Two-point perspective views, using measure point method, of simple & medium sized buildings- isolated or in-group, showing shades and shadow using different media like-Pencil, Pen-Ink, Water Colour, Poster, and Airbrush etc.

Other innovative methods of perspective presentation techniques should be encouraged.

Presentation:

One point and two point perspective drawing of interiors rendered in different media.

Introduction to short cut methods in perspective drawing.

Free hand perspective.

Introduction to different textures and finishes in plan and elevation.

Graphical representation of furniture, automobiles, human figure etc. in plans and elevation and 3-Dimension.

Preparation of presentation drawings of small buildings, through Plans, Elevation, site plan etc., using various rendering techniques and media, incorporating sciography creating three dimensioned effect.

Text:

- The Sculpture Reference: Contemporary Techniques, Terms, Tools, Materials and Sculpture, Arthur Williams.
- Mural Art: Large Scale Art from Walls around the World by K. Iosifidis.
- Perspective for the Architect, Themes and Hudson
- Perspective and Sciography, Shankar Mulik
- Architectural Graphics, Ching Frank
- Interior Design: Ahmed Kasu
- Engineering Drawing – N.D. Bhatt
- Engineering Drawing – P.S. Gill

References:

- Architectural Graphic standards editor, Boaz Joseph
- A.J. Metric Handbook, editors, Jan Bilwa and Leslie Fair weather
- Planning – the Architect's handbook, E and E.O.
- Neufert's Architect's data
- Time Saver standards for building types, Editor Joseph D.C. and John Callender.
- Rendering with pen and ink
- Practical Plane and Solid Geometry – H. Joseph and Morris

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-06

OBJECTIVES:

- To understand the analysis of indeterminate structures and their use in field in greater depth.

CONTENTS:

Overview of construction materials:

Cement, aggregate, Water, reinforcement.

Concrete used in R.C.C

Grade of concrete, workability & durability, Design mix & normal mix.

Introduction to working Stress Method and ultimate Load Method.

Singly Reinforced Beams:

Introduction, Bending of beam Assumptions, Moment of resistance, Modes of failure, max. depth of neutral axis, Limiting Values of tension steel & moment of resistance. Minimum and Maximum tension reinforcement, Effective span, Type of problem.

Doubly Reinforced Beams:

Introduction, Type of problem, Stress in compression reinforcement, design steps. Minimum and maximum reinforcement.

Flanged Beams:

Introduction, Effective width of flange, Minimum & Maximum reinforcement

Shear & Development Length:

Introduction, Shear stress, Diagonal tension Shear reinforcement, Development length, Anchorage bond, Flexural bond.

Detailing of Reinforcement:

Introduction, Requirements of good detailing, Cover to reinforcement, Spacing of reinforcement, Reinforcement requirements, Reinforcement splicing.

Slabs:

Introduction, One way slab, Two-way slab

Masonry Structures Foundation:

Introduction, Masonry wall, Design of wall & columns footing.

APPROACH:

- The lectures by the experts in the fields will be arranged followed by the tutorial examples.

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OBJECTIVES:

- Understanding of the period in terms of its location, climate as well as the socio-cultural, historical, economic and political influences of the time.
- Study of the building 'types' and the development of architectural form and character based on the developments in construction and technology exemplified through specific building examples that identify the works of the period.
- Understanding the intentions of the period and architects as a solution to the need or demands of the period.

CONTENTS:

Introduction:	Introduction and understanding of 'Islam's' philosophy and its interpretation in building type e.g. mosque, tomb, fort and their elements like domes, minarets, arch, squinch etc.
The Sultanate Style:	With reference to the Slave, Khalji, Tughlaq, Sayyid, Lodhis and Shershah Suri regimes (who ruled from Delhi) and their architecture.
Provincial Architecture:	Development of colloquial styles in various provinces of India like Punjab, Jaunpur, Gujrat, Bengal, Bijapur, Bidar and Deccan.
Cities and Citadels:	Morphology of fortified cities of Jaisalmer, fort/ palaces like Mandu, Chittorgarh, Orchha, Datia, Jodhpur etc. with an overview on architectural types like havelis, stepwells, gates, baradaris etc.
Mughal Architecture:	The architecture of the Timurids in India- Babur, Hamayun, Akhbar, Jahangir and Shahjahan.
The Later Moghuls:	The Oudh architecture in Lucknow and its surroundings briefly outlining the Lucknow city.
Colonial Architecture:	The British architecture of the colonial days in India- the capitol at Delhi and the residency at Lucknow emphasizing on their planning criteria and architectural features.

APPROACH:

- Lectures to be specifically conducted with the visual aids and seminars presented by students.
- Students will make written assignments and seminar presentations on architectural characteristics that identify the building types and the intentions of the period in response to context and time.
- Students will make free-hand sketches and orthographic drawings in the tutorials of specific building examples to familiarize them with the architectural character that identifies the work of a particular period.
- Free hand sketches and orthographic drawings could made by students in the tutorials on specific building examples to familiarize them with the architectural character that identify the works of the particular period.

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OBJECTIVE:

- The course intends to integrate the knowledge of electrical services in buildings and to enable a student to take the appropriate decisions at the planning stage from electrical services point of view.
- To make the student familiar with the design principles and applications of light for indoor and outdoor requirements.

CONTENTS:
Section A

ILLUMINATION:

Terminology in illumination, definitions and units: Light and its characteristics – propagation, reflection, radiation, transmission, absorption; light and vision, colours.

Types of illumination schemes: Direct, semi direct, semi indirect, indirect and diffused lighting.

considerations of lighting schemes: Methods of lighting Calculations Light flux method and Point to Point method.

Sources of light, types and characteristics: Incandescent, gas filled and gaseous discharge lamps. Luminaries: Types and characteristics.

Interior and Exterior Lighting: Residential, Commercial, Industry lighting, Flood lighting and Street lighting.

Section B

ELECTRICAL INSTALLATION:

Principles of electrical circuitry; definitions and units; NBC.

Wiring Systems: System of supply & distribution; Methods of wiring, Capping and Casing, conduits Open and concealed. Circuits – Series and parallel, Simple circuits. Load calculation and wiring diagrams.

Wiring Material and Lighting Accessories: Wires and cables – materials, types, sizes, specifications, Main switch,

M.C.B, Distribution Board, Meter, Lighting accessories-switches, Ceiling rose, socket outlets, plugs, lamp holders.

Design Considerations of electrical installations: Protection against overload, short-circuit, earth fault, lightning protection, method of Earthing; Fuse and types of fuses; Guideline for installation of light fittings.

APPROACH:

Site visits to existing facilities showing indoor and outdoor lighting and electrical services


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OBJECTIVES:

- To understand and, to apply the principles of architectural composition (organised physical structure) in design.
- Use of appropriate presentation techniques to explain the contents of design.
- Developing drawing, graphic and model making and oral presentation skills.

CONTENTS:

Understanding relationship of human scale, activity, space and form in mono-functional buildings:

Suggested studio exercises: Creative design of simple buildings such as Community halls, Restaurants, College Canteens, Reading rooms etc.

Functional, geometric and visual order of repetitive units:

Suggested Studio Exercises: Design of buildings having primarily horizontal circulation and repetitive units such as nursery and primary schools, Motels, way-side tourist arcades and kiosks.

Note: The studio exercises in addition to the above should also have at least one time problem as a preparation for the examination.

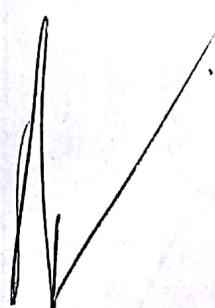
APPROACH:

- Lectures with slide and field visits on similar design. Models to supplement each stage of development of design for greater understanding of Stress on working in the studios and referencing in Library.

Note: The subject will be taught by at least one teacher for every 20 students

NOTE FOR CONDUCT OF EXAMINATIONS:

- The duration of Examination for this subject is $6 \times 2 = 12$ hours. The examination shall be held over two days. The drawings completed on the first day shall be left in the examination hall and shall be completed and submitted on the second day.


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OBJECTIVES:

- To introduce and familiarize the students with constituents, manufacturing process / availability, properties/characteristics, defects, classifications and uses of building materials used in construction.
- To understand the use of these building materials in building works.

CONTENTS:

Timber Products:

Roof Coverings:

Adhesives:

CONSTRUCTION:

Roofs & Trusses (Timber):

Partition, Cladding & Panelling:

Doors & Windows (Timber):

APPROACH:

- The students would be familiarized with vernacular terminology prevalent in this part of the country.
- The emphasis will be on construction details as applicable to Indian conditions.
- Site visits and market surveys will be integral part of sessional work.

MATERIALS:

Decorative and Commercial Plywood, Ply-Board, Block Boards, Particle Board, Wood Wool Cement Board, Fibre Board, Compressed Straw Board, Veneers, Laminates, Cement Fibre Board, Bamboo products. Innovative use of wood & Glass.

Clay Tiles (Country, Allahabad, Mangalore tiles etc.), Concrete Tiles, Asbestos Cement sheets (Plain & Corrugated), Aluminium Sheets (Plain & Corrugated), Galvanised Iron Sheets (Plain & Corrugated), Stone Slating, Shingles, Thatch.

Introduction, Natural Adhesives – Animal, Casein, Bituminous. Thermoplastic Adhesives – Polyvinyl Acetate. Thermosetting Adhesives & Plastics - Urea Formaldehyde, Phenol Formaldehyde, Melamine Formaldehyde, Resorcinol Forma Epoxide Resins, Rubber Adhesive.

Terminology, Single roof, Double or Purlin roof, Trussed rafter Roof, Triple or Framed roof.

Terminology, Timber and Timber Products, Clay and Terracotta Brick & Block, Pre-cast Concrete Block, Wood Wool Cement, Compressed Straw Board, Glass and Glass Brick.

Sliding Door, Sliding- folding door & Revolving Doors.

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B. ARCH. SEMESTER - IV**AR - 2016 ART & GRAPHICS IV**

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Credits -04

OBJECTIVES:

- To understand the analysis of indeterminate structures and their use in field in greater depth.
- To Make artifacts which influence and create visual effect in the built environment.

CONTENTS:

- Design of Mural with multi medium like ceramic, stone, tiles, paints, steel or any other scrap material.
- Out Door Lighting concept, principle and examples .
- Design of Signage Board , graphic design, Calligraphy, logo, lights for development of focus and visual emphasis.
- Retail Design with monochrome shop front elevation, light effects.

B. ARCH. SEMESTER - IV**AR - 2016 DESIGN TOOLS II**

0-0-4

Credit -02

OBJECTIVES:

- To develop an understanding and application of the design based software like Auto Cad Revit as to make use of maximum commands.

CONTENTS:**Understanding AutoCAD:**

Learn various 2D commands their function and application.
Understanding coordinate systems.
Working on layers and Colours.
Drawing plans, Elevations, Sections using Auto Cad. Revit
Dimensioning Drawings.
Connecting from one file format to another
Various file formats and their usefulness.

Understanding Coral Draw:

Learn various commands their functions and application
Putting text & images together in various settings,
Importing & exporting documents
Learn various commands & their functions and applications

Suggested Exercises:

- Drawing the entire set of drawings for an already designed residence using Auto Cad, Revit
- Design and draw a logo with the help of Coral draw including Textures and Colours.(May be use if as a letter head.)

B. ARCH. SEMESTER - IV**AR - 2018 RESEARCH II**

0-0-3

Credits - 02

OBJECTIVES:

- To understand the analysis of indeterminate structures and their use in field in greater depth.

CONTENTS:

Contemporary Indian Architects, their design philosophies in significant projects. Famous architects and lesser known architects and their projects.

Assignment : Presentation seminar with Handmade composed sheets in two or three stages which need to be submitted in a report upto 80 pages hard bound.

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OBJECTIVE:

- To understand the analysis of intermediate structures and their use in field in greater depth.

CONTENTS:

- Limit state method, Limit state method Vs working stress method, Building code.
- Introduction, Limit state, characteristics strength and characteristics load, Design values, Partial safety factors, Factored Loads, stress strain relationship for concrete & steel, yield stress.
- Theory & design of simply reinforced, Doubly-reinforced L & T beams (Limit state method).
- One way, Two-way & flat slabs (Limit state method).
- RCC column for Pure-axial load, Lateral ties, Direct and bending stresses combined and RCC footing.
- Element of pre stressed concrete, Principles and systems, loss of pre stress, analysis of pre stresses and design of beam.

APPROACH: The lectures by the experts in the field of design and analysis will be arranged to make student's exposure to practical aspect of design.

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OBJECTIVES:

Understanding of the period in terms of its location, climate as well as the socio-cultural, historical, economic and political influences of the time.

- Study of the building "types" and the development of architectural form and character based on the developments in construction and technology exemplified through specific building examples that identify the works of the period.
- Understanding the intentions of the period and architects as a solution to the need or demands of the period.

Greek Architecture:

Classical orders as constituent element of Architecture. Column Orders and the articulation of temples. Classification of temples. Geometry and symmetry of individual buildings and their relationship with others. Organizing principles and conditions of site. Study of important acropolis, agora, temples, theatres, tombs and house forms.

Roman Architecture:

Multiple building types to correspond the complex social functions and structure. Complex axial organizations of Forums. Concrete and construction of walls, vaults and domes. Use of Classical Orders in surface articulation. Study of important forums, temples, basilicas, thermaes, theatres, amphitheatres, circuses, tombs, triumphal arches, palaces, houses and villas.

Early Christian Architecture:

Development of early church from Roman basilica. The concept of center and path of Christianity manifested through centralized and longitudinal church. Interiority of churches and the articulation of interiors to create spiritualized space. Study of different basilica churches in Italy.

Byzantine Architecture:

Centralization in Byzantine churches. Centrality and interiority of both cross-domed and cross in square planned church. Indistinct exterior of churches and the domed 'heavenly' interior. Construction of dome over polygonal compartments through the use of pendentives. Study of important churches in Constantinople.

Romanesque Architecture:

Massiveness and verticality of medieval churches. Combination of the five towered structures and longitudinal basilica. Gradual integration of tower from early to later examples. Integration of centralized and longitudinal plans. Articulation of external wall like arcaded interiors resulting in dematerialization of exterior. Study of important cathedrals and churches from Italy and France.

Gothic Architecture:

Continued integration of centralized and longitudinal plans. Spatial and formal integration of Romanesque churches. Integration of wall and vault. Ribbed vault and the dissolution external wall to allow light. Sensitivity to light and use of stained glass for mysterious interiors. External buttressing. Study of important cathedrals and churches in France.

Renaissance Architecture:

Break with medieval churches for sources from Roman antiquity.

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Spatial centralization through simple addition of independent spatial elements. Use of elementary geometrical forms unified through symmetry and simple mathematical ratios. Reintroduction of anthropomorphic Classical Orders. Study of palazzos and development of centralized church form through specific examples from Italy.

Mannerism:

Conflict and tension in Mannerism in place of harmony and order Renaissance. Dynamic interplay of contrasting elements as against static addition of independent units of Renaissance church. Interplay between manmade and nature in villas. Dynamism of urban spaces. Study of important villas, churches and urban spaces in Italy.

Baroque Architecture:

Dynamism and systemization of Baroque architecture. Vitality and spatial richness with underlying systematic organization. Space as constituent element of architecture, Sensitivity to effects of texture, color, light and water. Study of important urban spaces and churches in Italy and Germany.

APPROACH:

- Lectures to be specifically conducted with the visual aids and seminars presented by students.
- Students will make written assignments and seminar presentations on architectural characteristics that identify the building types and the intentions of the period in response to context and time.
- Students will make free-hand sketches and orthographic Drawings in the tutorials of specific building examples to familiarize them with the architectural character that identifies the work of a particular period.

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OBJECTIVES: To develop an understanding of the advanced building services such as Air conditioning and lifts and their application in the design proposals of buildings of slight complex nature such as multistory. The thrust shall be on understanding the use and application of the services and not the calculation or numerical part.

CONTENTS:

Air Conditioning Systems:

Principles of Air-conditioning
Psychometric chart
Refrigeration Cycle and the air cycle
Comfort cooling systems—Unitary air conditioning and remote air-conditioning
Working of window air conditioners and central air conditioning their parts, standards and prescribed locations for the respective parts
Air Distribution Systems-fans, filters, ductwork, outlets, dampers,
Norms for Air-conditioning, Cooling load for air conditioning.
The emphasis shall be on educating the student as to how the system works and the location of various distribution systems such as the AHU, cooling plant cooling tower, fan-coil units and ducts.

Lift Services:

Types of Lifts, Grouping of lifts
Working of lifts with details of lift section describing Various parts of lifts, carrying capacity, rated load, rated speed, RTT etc.
Installation requirements and the information to be provided by the architect for the installation.
Design standards of a lift lobby. function and working of Escalators.
The emphasis shall be on the drawing of the correct plan and section of the lift and the lift well showing various parts and how to group them in a building core for the various functions they perform.

SUGGESTED EXERCISES:

Site visits of buildings where different types of Air-conditioning systems and lifts have been installed .their working and the merits and demerits of the system.
In an already designed project of a multi-strayed building installation of an air-conditioning system and lifts the location of their parts and how they will be connected.

APPROACH: Specialized lectures from technical people in the field. Practical and site based exercises to make the data more comprehensive.

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OBJECTIVES:

- To initiate the students into theory and practice of estimation and quantity surveying.
- To develop the understanding of specification writing.

CONTENTS:**Specification:**

Definition, Importance and scope of the subject. Correct form of writing specifications –avoiding ambiguity and conflicting statements. Form and sequence of clauses, study and uses of standard specification viz; drafted by C.P.W.D etc. Writing detailed specifications for various building materials e.g. bricks, sand, lime, timber, glass and paints etc. Writing detailed specifications for various building constructions works e.g. earthwork for foundations, concreting the trenches for foundations, superstructure in cement mortar, R.B. work, plastering and painting, lime punning, flooring, whitewashing, distempering and painting. Snowcem wash, stone masonry, mud phuska, terracing and others.

Estimating:

Estimates-types of estimates-approximate and detailed methods of estimating- plinth area method, carpet/floor area method cubic content method, approximate quantity method and number system, detail estimates-procedure of estimating taking out quantities schedule of rates.

Exercise in estimating (with different methods) of small buildings, estimating exercises for interior schemes, plumbing work and electrical installations etc.

Rate analysis:

Principles of analysis of rates, rates of labour and materials, exercises in rate analysis of different building works, e.g. earthwork for foundations, flooring, timber work etc.

Introduction to P.W.D accounts procedure, measurement book daily labour, muster roll, stores, stock, and issue of materia from stock, indent form, imprest account, cash book, mode o payment.

APPROACH:

- The course would be covered through lectures and tutorials.
- The students' seminars will help realize the grasp on the subject matter.

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OBJECTIVES:

- Understanding design as a function of specific agenda such as site conditions, orientation, climate, circulation and essential services with design limited to design of low-rise buildings.
- Design for the requirements of individuals, groups or community with limited land size and other parameters.
- Designing for simple and multi-use, single and multiple floors with parameters of building byelaws.

CONTENTS:**Designing with climate:**

Design exercises related to multi-functional buildings with specific agenda of peculiar climate; hot and dry, hot and humid, and cold to very cold, conditions.

Site constraints and Architecture:

Design exercises on sloping terrain with specific orientation and views on peculiar sites. Suggested studio exercises: low-rise guest houses, tourist resorts, holiday inns, artist's house, shopping malls etc. or more advanced such as auditoriums, library, offices, commercial complexes etc.

Residential:

Residential buildings for defined clients and given requirements on sq plot/ land in urban context.

Non-Residential:

Designing for unknown users, the buildings other than residential use middle order educational buildings, commercial and health-care facilities

Suggested studio exercise:

Detached & semi-detached houses, terraced housing, Group housing, Housing for specific socio-economic groups, schools, Neighborhood shopping centers, commercial banks polyclinics/diagnostic centers.

APPROACH:

- Prototype case-studies may be done in groups of 3-5 students.
- Slide lectures on similar projects.
- Understanding to develop the design requirements/architectural programme.
- Design time problems programs to prepare students for examinations.

Text & References:

- Time Save Standards, J. D. Chaira and J. H. Calender
- Architectural Graphic Standards, C. G. Ramsey
- Neufert's Architects Data, V. Jones, Ed. Gen.
- Towards a Human Architecture, A. Bruce
- Architectural Graphics: C. Leslie Martin
- Perspective for the Architect: Themes and Hudson
- Mastering AutoCAD: George Omura
- Interior Design: Ahmed Kasu
- Architectural Graphics – Ching Frank
- A.J. Metric Handbook, editors, Jan Bilwa and Leslie Fair weather
- Architectural Graphic standards editor – Boaz Joseph
- Planning – the Architect's handbook, E and E.O.
- Rendering with pen and ink

OBJECTIVES:

- To introduce and familiarize the students with constituents, manufacturing process / availability, properties / characteristics, defects, classifications, treatments, preservation and uses of traditional building materials used in construction.
- To understand the use of the above said building materials in simple building works.

CONTENTS:

MATERIALS:

Gypsum Products:

Introduction - Gypsum Board, Suspended Ceiling (Board & Tiles), Gypsum Plaster, Components and Accessories. Jointing and finishing.

Metals:

Ferrous – Iron (Pig, Cast & Wrought), Steel, Structural, Sheet and Alloys.

Non Ferrous:

Aluminium.

Materials with special reference to interiors:

Floor Coverings, Wall Finishes, Ceiling Finishes, Window Dressings, Fabrics / Upholstery, Hardware.

CONSTRUCTION:

Structural Steel Works:

Typical metal joinery (mechanical:(riveted & bolted), soldering, brazing and welding). Detailing of structural steel work: beam to column joint, beam to beam joint, Column Splice, Column Base, Roof Truss to column joints.

Doors, Windows & Partitions (Metals):

L and Z section mild steel, Pressed steel section, Aluminium section

Partitions & False Ceilings (Gypsum Board):

Construction details of Metal Stud Partition (single layer).Suspended Ceilings

APPROACH:

- The students would be familiarized with vernacular terminology prevalent in this part of the country.
- The emphasis will be on construction details as applicable to Indian conditions.
- Site visits and market surveys will be integral part of sessional work.

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B. ARCH. SEMESTER - VI AR - 3002 ARCHITECTURAL STRUCTURES VI

Credit -03

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OBJECTIVES:

- To understand the basic of soil mechanics and foundation engineering
- To understand the design of steel structures.

CONTENTS:

Elements of soil Mechanics & foundation engineering:

- Properties of Soil.
- Safe bearing Capacity.
- Active & Passive Earth Pressure.
- Type of foundation and their Design. (Spread, Piles & raft foundation)

Steel Structures:

- Riveted & welded connections (Simple cases only).
- Tension & Compression members.
- Beam & Plate Girder.
- Introduction to grillage foundation.
- Trusses

- Design of continuous beams & Portal Frames.
- Requirement of joints in R.C.C. Construction: Construction joints, Expansion joints.
- Theory & Design of Cantilever retaining walls.
- Theory of Domes, Shells & Folded Plates.
- Design of stairs: Effective span of stairs, Distribution of Loading on stairs, Simple case of design of stairs.

APPROACH:

- The lectures by the experts in the field will be arranged to make the students do independent design of foundation of steel structure elements.

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OBJECTIVES :

- Understanding of the period in terms of its location, climate as well as the social cultural, historical, economic and political influences of the time.
- Study of the different building and the development of architectural form and character based on the developments in construction and technology exemplified through specific building examples that identify the works of the period.
- Understanding the intentions of the period and architects as a solution to the need or demands of the period.

CONTENTS:**Picturesque and Neo- classical architecture:**

Purity and structural honesty of antiquity preferred over ornamentation and exaggeration of Baroque. Representation of ancient Roman monuments in imaginary compositions. Archeological purism and importance of pictorial values in historical settings. Recreation of antique Roman simplicity and splendor for modern living. Palaces and public buildings in Britain and France.

Enlightenment and beginnings of Modern :

Belief in creation of 'new' and 'ideal' world through return to fundamentals, 'true' and 'original' values. Romanticizing elementary geometrical forms with undecorated surfaces. Iron and glass construction for openness and lightness: Art Nouveau. Repetitive, Orthogonal, skeletal systems for horizontal and vertical expansion. Latter attempts to dissociate references to past styles.

Modern Architecture:

Social intentions and search for ideal world. Pluralism in place of past unity of styles. Search for paradigms in historical sources: It return to fundamentals and origins in geometry, nature and paradigms of technology.

Expressions of construction and technology. Equating technology and progress with present. Functionalism and functional appropriateness. Thoughts and works of frank Lloyd Wright, Walter Groupies, Le Corbusier, Mies van der Rohe, Alvar Aalto, Louis Kahn, Dutch De Stijl Italian futurists and Russian Constructivists.

International style: Oversimplification of the modern Movement into functional, steel and glass, cubes. Monotonous functionalist abstractions and Modernism as a style.

Disenchantment of modern cities and fall of modern Movement.

Post Modern Architecture:

Post Modern Architecture as a revision of Modern architecture and resistance to functional containers of 60's. Objective, representational and emphasis on content. Pluralistic and differing trends.

Post Modern – Historicism:

Rooted to place and history. Regards of expression: ornaments, symbolism and context with irony and humour, exemplified through the works of James Stirling, Michael Graves, Charles Moore, Arata Isozaki.

Neo- Modern:

Disregard historical imaginary to recapture ideas for modern architecture of 20's. Hi-tech metal abstractions of Richard Rogers, Normal Foster, showing structure and equipment as implied ornament. References of Russian Constructivists. The early works of New York Five including later works of

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Deconstructive:

Richard Mier as complicated, exaggerated and sophisticated revival of modern grid and Corbusier's geometry. Narrative and representational. Sources in Russian Constructivism. N perfection in the works of Frank Gehry, Peter Eisenman, Bernard Tschun Daniel Libeskind, questioning traditional purity of form, geometry and structure.

APPROACH:

- Lectures to be specifically conducted with the visual aids and seminars presented by students.
- Student will make written assignments and seminar presentations on architectural characteristics that identify the building types and the intentions of the period in response to context and time.
- Students will make free hand sketches and orthographic drawings in the tutorials of specific building examples to familiarize them with the architectural character that identifies the work of the particular period.

B. ARCH. SEMESTER - VI AR - 3006 Bye Laws, Codes & Environment Services

2-0-2

Credit -04

BYE LAWS :

Familiarizing with Building Bye-laws through Local Developments Authority Guidelines, National Building Codes. Interpretation of the Bye Laws applicable to residence in plotted developments, Group Housings, Commercial Buildings, Educational Buildings and other Public Institutions.

BUILDING CODES

National Building code in India BIS 2005, 2010. Its salient features for life safety, Structural, electricity & Fire, through various stages to planning, designing, construction, operation and maintenance stages. Provisions for Parking requirements,

DESIGN FOR ALL :

Provisions for Handicaps, Elderly, Children. Low income groups, Provisions for safety for Multi Disaster prone Districts.

FIRE SAFETY :

Triangle of fire, Materials to be used in construction, Staircases, Fire escape distances for different buildings, Fire spread in Buildings, Fire doors, Basements, Lifts, Electrical Substation, AHU Shut off, NBC Rules for fire. Fire safety standards and requirements for various types of Buildings. Fire alarm system and components, Hydrant System and Components, Pump house and location. Wet riser system, Down comer system and Sprinkler Systems for fire Fighting services.

Environment Services :

Water Harvesting, Solid waste Management, collection segregation, Treatment, Recycle. Water recycle & Reuse.

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OBJECTIVES:

- Design for the requirements of individuals, groups or community with limited land size and other parameters.
- Designing for simple and multi-use, single and multiple floors with parameters of building byelaws.

CONTENTS:**Residential:**

Residential buildings for defined clients and given requirements on plot/ land in urban context.

Non-Residential:

Designing for unknown users, the buildings other than residential uses e middle order educational buildings, commercial and health-care facilities

Suggested studio exercise:

Detached & semi-detached houses, terraced housing, Group housing.
Housing for specific socio-economic groups, schools,
Neighborhood shopping centers, commercial banks
polyclinics/diagnostic centers.

APPROACH:

- Prototype case-studies may be done in groups of 3-5 students.
- Slide lectures on similar projects.
- Understanding to develop the design requirements/architectural programme.
- Design time problems programs to prepare students for examinations.

NOTE : Duration of Examination 2X6 Hrs

OBJECTIVES:

- To introduce and familiarize the students with constituents, manufacturing process / availability, properties / characteristics, defects, classifications, treatments, preservation and uses of traditional building materials used in construction.
- To understand the use of these traditional building materials in simple building works.

CONTENTS:**MATERIALS:**

Patent material of construction available under different trade names with their properties specification & uses. Vineertex, Mrblex, Fixopan, Anchor Boards, Novapan etc

Ceramics: Terracotta, Faience, Fireclay, Stoneware, Earthen ware, Vitreous China, Porcelain. Jointing and Finishing.

Prefabrication:**CONSTRUCTION:**

Systems – open prefab system, large panel prefab system, joints, pre-casting methods, materials, on-site and off-site prefabrication, components, etc.

Pre-stressed Concrete:

Introduction, methods of pre-stressing and their application to large-space structures.

Speedy Construction:

Methods, Types of floor construction: Beam & Slab, Waffle Grid Slab, Drop Beam & Slab, Flush Slab, Lift Slab Construction; Cast-in-situ service & stair cores; Cross wall & Box frame construction.

Industrial Construction

Structural Steel Works: Portal Frame Construction, North-Light truss and Lattice Girder roof with various roof coverings

APPROACH:

- The students would be familiarized with vernacular terminology prevalent in this part of the country.
- The emphasis will be on construction details as applicable to Indian conditions.
- Site visits and market surveys will be integral part of sessional work.

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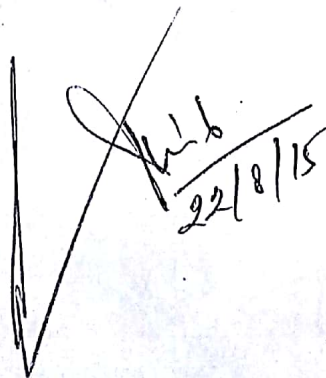
OBJECTIVES: To understand design limitations due to authority guidelines and making drawing/ details necessary for final execution of a project.

CONTENTS:

- Making a complete Local Development Authority drawing for a small two storied residence that may have been designed in any of the previous semesters with desired modifications needed as per Local Authority and NBC guidelines.
- Making complete set of working Drawings and Details for the residence presented earlier or any other small project designed in any of the previous semester. The drawings to also incorporate electrical and plumbing details complete with schedule and all specifications. The Working Drawings and details to include:
 1. Site plan
 2. Foundation layout with details of foundations.
 3. Ground floor Plan.
 4. First Floor Plan.
 5. Terrace Plan
 6. Sections
 7. Elevations.
 8. Doors and Windows
 9. Doors and Windows details
 10. Electrical Layout in at least one of the two Floors.
 11. Plumbing Layout in at least one of the two Floors.
 12. Toilet details complete with all fixtures and their specifications.
 13. Kitchen details complete with all fixtures and their specifications
 14. Flooring pattern on either of the two Floors.
 15. Staircase Details including railings.
 16. Details of Grills, Parapet or railings.
 17. Typical wall section showing foundation, DPC, skirting, sill, lintel, slab and terracing details.

APPROACH:

- Course would be covered through lectures and display.
- Regular studio work for total grasp.



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Objective : To define how interior space planning varies from architecture.
Introduction to various methods of interior space planning and execution including anthropometric studies, material finishes and lighting.

Anthropometrics of Interior Design : Human Scale, Furniture Anthropometric.

Principles of interior design and their application:

- Elements of interior design - Space, Light and Illumination, Colour, Texture, Furniture (movables & built-in), Fittings and Fixtures.
- Tools of interior design - Colour, illuminators, furniture, finishing and accessories.

History of Modern Furniture Design:

Understanding the furniture works of Great Masters.

- Gerrit Riet Weld
- Breur
- Kaar Klint
- Alvar Alto
- Mies Vander Rohe
- Le Corbusier
- Eiro Saarinen
- Charle Eames

Modern trends & contemporary attitudes to Interior Design e.g.

- Molded Furniture
- Modular furniture.
- Modern materials

Furniture Design Exercise Design of a small interior space e.g. Entrance Hall, Conference Room, Executive's Office, Study Room, Kitchen, Toilet etc. Making estimates for the designed projects.

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Credits -04

Seminar on topics of recent and upcoming issues & trends in building technology, to widen perspective of students to cross cutting contemporary themes in Architecture & development sector for example -Energy Passive Architecture, Low Cost Architecture, Automated Construction and may other. Students should be encouraged to explore and bring subjects and issues of their interest. Students should do Presentation at different stages & submit reports.

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B. ARCH. SEMESTER – VIII**AR - 4002 ADVANCE BUILDING SERVICES VI**

Lecture-2 Studio 2

Credits -04

Course Content :

Mechanized Parking: Basic Principle of Mechanized Parking System, Working Definition, NBC Recommendation, Location Services, Method of Working, Various Shapes and sizes available, Different types of Parking

Electronic Security & Surveillance : Perimeter protection, Intrusion detection, alarm system, Sensors, Building Plans & Schematics. Surveillance & Recording system: Component of basic system, Security, Lighting, Illumination including infra red, understanding CCTV cameras, Pan, Tilt, zoom mechanism. Recording System – Digital and Analog Recording

Building Automation System

Concept and application, Current trend and innovation, Effect of building automation on functional efficiency, Components of Building Automation, HVAC, electrical, lighting, security, fire-fighting; Integrated approach in design, maintenance and management system, Concept of artificial intelligence, Application of expert system in architecture.

Service Coordination & Integration :

quantity take off, Arch+structure, PCM+ (Mech, Elec, Plumbing, Fire)
BIM Concept, Design model, Structure model
Equipment model & Integrated Model, 4D, 5D, 6D application. Bldg Performance Analysis

B. ARCH. SEMESTER – VIII AR - 4004 PROFESSIONAL PRACTICE - I

Lecture-2 Studio 2

Credits -04

OBJECTIVES:

To acquaint the students with the role of an architect in society; scale of charges; an architect's conduct in architectural Practice. Architectural Competitions and appointment of a contractor through tenders

CONTENTS:**Role of Professional Bodies:**

The Indian Institute of Architects, its working constitution and byelaws, categories of membership, election procedures; The Uttar Pradesh Architects Association.

Architects' Act 1972:

Detail study of the Act, Council of Architecture; procedures of membership.

Scale of charges:

Conditions of engagement of an architect – Duties; Responsibilities and liabilities of a professional architect; Scale of charges, mode of payment etc.

Code of Professional conduct:

Clauses governing conduct of professional architect.

Architectural Competition:

Types of competitions; need and procedure for conducting competitions.

Tender and Contract:

Type of building contracts, their demands. Preparation of tender documents, method of inviting tenders, opening of tenders, preparation of comparative statement, recommendation and award of projects, preparation of contract documents, general conditions of contract, interim certificates, defect liability period, retention amount and virtual completion.

APPROACH:

- The course will be covered through lectures citing practical examples.

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DETAILED SYLLABUS OF ELECTIVE (DSE- II)

AR 4006

HOUSING & COMMUNITY PLANNING

OBJECTIVES:

- Introduction to housing policies programmes, housing process and design.
- Study and design of housing schemes with defined parameters.

CONTENTS:

Policies and Programmes: Introduction to the subject, importance in National development.
Housing Problem and Housing shortages.
Obstacles to progress of Housing in Developing countries.
Public Policy trends in low-cost urban settlements: Pre-built Housing, Aided Self-Help Housing, Site and Services Schemes. National Housing Policy.

Housing Terms: House, housing and settlement.
Density, Zoning, F.A.R., F.S.I., T.L.S.R., C.S.I.,
Terrace, Semi-Detached and Detached House types.
Neighborhood and Neighborhood Planning.

Economics of Housing: Parameters of housing Economics equation: Capital cost Annual Household Income, Annual Rent, their inter-relationship.
Design Factors; which affect costs: plan shape, plan size, circulation, height of buildings, structural systems etc.
Housing Finance: loaning agencies, loan conditions working of a non-banking financial institution.

Housing Design: Housing Surveys: Definition, need and objectives, Planning of a housing survey, Types of surveys, drafting a questionnaire for a housing survey.
Housing Layout, Organisation of space, Access roads, Parking, Pedestrian movement in housing areas.

APPROACH:

- Expert lectures may be arranged for specialised topics.
- The stress should be on analysis of housing layouts rather than on housing design.

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OBJECTIVES:

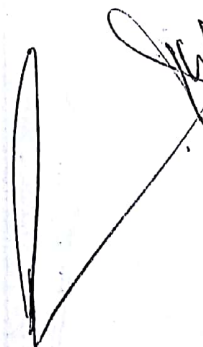
- To introduce the subject of urban design and to prepare students for post graduate programme in urban design

CONTENTS:

- Concept of Urban Design. Identification of common areas, sequential order and design stages and distinction from architectural design and city planning. Participative approach to develop urban design thought.
- Parameters of urban design including building byelaws and architectural control.
- Role of visual, aesthetic and cultural aspirations. Concept of total space design and articulation Effect of movement from pedestrian to vehicular scale.
- Principles of urban design and their functional aspects, Effect of urban growth patterns and the resultant influence of urban design forms on cityscape.
- Development of urban design from historic expression of socio-cultural systems to regulated group design effort. Appreciation of current examples as multi-disciplinary creations.
- Analytical and referential study of urban design thought. Evolution and reconstructive study of live examples of urban design.

APPROACH:

- The course shall be covered through lectures, slides, site visits and seminars.


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DETAILED SYLLABUS OF ELECTIVE**ARCHITECTURAL CONSERVATION**

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	P/V	S/T	Total	S	Exam. T	Exam P/V.V	Total	
2	-	2	4	50	-	50	100	No Examination

OBJECTIVES:

- To bring in an awareness of the value of natural and historical heritage and sensitise students to the issues of conservation.
- It is an initiation course for students who might wish to take up conservation as a specialization in future.

CONTENTS:**Concepts:**

Natural and cultural heritage.
Definitions of basic terms in conservation.
History and Theory of conservation.
Legislation in conservation.

Instructions & Specifications:

Structural aspects of historic buildings beams , arches, vaults, domes, trusses, frames, walls, piers, column and foundations
Causes of decay in Materials and Structures, Climatic, Botanical, Biological, Man –made.

Work of the Conservation Architect:

Research, Analysis and recording (documentation)
Presentation.
Preventive maintenance of historical buildings.
Management of historic precincts including vernacular.

APPROACH:

- One small project to be taken, which could be adaptation of a historical building or within historical precincts.
- A small workshop could be organized to make the students aware of the techniques of handling , building materials.

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DETAILED SYLLABUS OF ELECTIVE**TROPICAL DESIGN**

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	P/V	S/T	Total	S	Exam. T	Exam P/V.V	Total	
2	-	2	4	50	-	50	100	No Examination

OBJECTIVES:

- To bring in a total understanding of climatology, climatic factors and its application in building design.

CONTENTS:

The Physical Elements of weather and climate:

Climatology and architecture;
Global factors affecting climate.

Patterns of World Climate:

Approaches to climatic classification
Climatic regions of the world;
Climatic characteristics of various climates.

Responsive Climatic Buildings:

Vernacular architecture;
Vernacular architecture of different regions;
Climate and town planning;
Responsive architecture in history.

Climate and Architecture:

Revision- solar radiation, air
Movement, sun-shading devices;
Ventilation;
Building Materials.

Design of Buildings:

Design criteria of buildings for various climates.

APPROACH:

- The emphasis will be to teach climatology as it finds application in building design.

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B. ARCH. SEMESTER - VII**AR - 4010 ARCHITECTURAL DESIGN -**

Scheme of Teaching				Scheme of Examination				Duration of Examination
L	P/V	S/T	Total	S	Exam. T	Exam P/V.V	Total	
1	-	10	11	100	100	50	250	3 X 6 = 18 Hrs

OBJECTIVES:

- Understanding design as a process of problem identification, space standards, formulation of requirements, evolution of design criteria and development of design of buildings in urban context, phasing and development;
- Understanding relationship of buildings amongst themselves and with a given environment.

CONTENTS:

- Urban intervention Projects: Design of buildings/building complexes in specific urban context such as heritage zones, near existing and within built environments.
- Development Projects containing group of buildings with multiplicity of constraints such as relationship of land uses, space, architectural character, circulation, movement, landscape and buildings.

Suggested Design exercises:

1. Redevelopment, rehabilitation and urban improvement projects.
2. Development Projects such as Universities, District Centers and City Centers etc.

APPROACH:

1. The design methodology will take precedence over design.
2. Model of existing site shall be a pre requisite for urban intervention programs.
3. Part of the project must be done in groups to develop teamwork and a multi-faceted approach to design.

Note: The subject will be taught by at least one teacher for every 15 students.

**CONDUCT
EXAMINATIONS:****OF**

The duration of examination for this subject is 6X3=18 hours. The examination shall be held over three days. The drawings completed on the first and the second days shall be left in the examination hall and shall be completed and submitted on the third day.

Objectives : To understand advance techniques used in Building Construction.

Advanced Structural Forms & Concepts : Design of complex building structures like domes, shells etc. Concepts of Bulk active structures, Form active structures, Vector active structures, Surface active structures, Cable structures, Arches, Vaults and domes, Shells, Membrane structures, Pneumatic structures, Folded plate structures etc.

Building Envelope, Façade Development

Alternative Approaches to Construction: Earth Shelter Construction

Roof Construction : Objectives , Components, advantages, disadvantages. Green Roof.

New Materials, Recycled Materials.

Approach : Lecture showing illustration of technology should be done.

Financial Management :	Financial Agencies, Internal Rate of Return, IRR, NPV, Benefit cost Ratio, Pay Back Period, Working Capital, Loans, Cash Flow.
Risk Management :	Systematic, unsystematic Probability, distribution approach, risk adjustment. Sensitivity Analysis, Monte Carlo Simulation:
Material Management :	Inventory management, supply chain, storing & Stacking of Material
Quality Management :	ISO Guidelines, ISO: 14000, ISO :16000 Quality Management System
Safety Management:	Construction Safety Management, Safety Measures

Reference :

- Martin L.; Essential of Construction Project Management by UNSW Press, 2003
- Halpin, Daniel W. and Ronald W. Woodhead, Construction Management, John Wiley and Sons, 1980
- Hodgetts, R.M., Management: Theory, Process and Practice, W.B. Saunders Co., Philadelphia, PA, 1979.
- Kerzner, H. Project Management: A Systems Approach to Planning, Scheduling and Controlling. 2nd. Ed., Van Nostrand Reinhold, New York, 1984.

OBJECTIVES:

- Introduction to elementary art and science of town planning including environmental problems, traffic and transportation planning, Planning for Disaster Mitigation

CONTENTS:

Introduction to Principles and Techniques: Town planning and architecture, role of a town Planner.

The Planning Process: Town planning surveys, Tools of Planning, Preparation of MASTER PLAN for old and new towns, Planning Standards

Environment Planning : Ecological Planning Parameters, Institutions & Governance, Environment Impact Assessment, Sustainability & Climate Change

Traffic and transportation planning: Traffic and urban environment, Traffic design, Elements, Traffic control devices, road intersection. Mobility Planning

Disaster Preparedness, prevention, and mitigation: Case studies; Government structure and disaster mitigation measures at individual, group and community level; Integrating disaster mitigation in the spatial planning process- micro-zoning, building bye-laws, norms and standards, Disaster Management Act 2005

Approach

- Study Program to ascertain and enunciate the town planning problems of a chosen area.

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DISCIPLINE SPECIFIC ELECTIVES III

Energy Conscious Architecture:

(Bioclimatic)

To develop an understanding of energy conservation methods and study of solar energy systems as well as other alternative sources of energy being developed for use in architectural applications.

Modular Architecture:

Concepts, Value & Benefits, Key Advantages, Speed on Construction Site, Case Studies, Value Engineering Assessment, Increased Asset Value, Economic Assessment, Environmental Benefits during Construction, use and reuse. Design & Procurement Process.

Intelligent Buildings :

Building Automation System, Concept and application, Current trend and innovation, Components of Building Automation, HVAC, electrical, lighting, security, fire-fighting; Integrated approach in design, maintenance and management system, Concept of artificial intelligence, Application of expert system in architecture. **Advanced Telecommunication Systems** Intelligence with respect to telecommunications

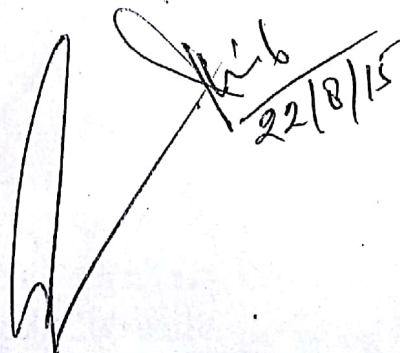
Ergonomics in Product Design :

Concept of Body space: anthropometry, ergonomics, and the design of work. Human Safety Factor, Agencies APA, OSHA. man-machine system and physical environment.

Human control system human performance and system reliability, information input and processing, visual display, visual discrimination, Alphanumeric and related displays, visual codes and symbols, Auditory,

Low Cost Construction Technology

To develop appreciation for low cost construction for building economy and understanding of different issues, types and techniques involved in the design and construction of low cost structures.


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OBJECTIVES: Understanding Architectural Projects as an Economic function and understanding their evaluation techniques

CONTENTS:

Elementary Concepts of Economics Utility, Demand and Supply, Wants, Cost, Value, Price, -Micro & macro Economics

Meaning & Scope of Building Economics

Issues, -Importance of Building Economics
Project Costing , Initial Costing, Elements of Cost Components, Future Costing, Different Types of Costs and their impact on Building Projects , -Non-Monetary Cost
Monetary and Non Monetary Benefits of Buildings

Benefits of Buildings

Economic performance of Building

Types of Economic Performance
Accounting for Risks & Uncertainty
Techniques of Performance Analysis
Cost Benefit Analysis, Incremental Analysis, Break-even Analysis, Life Cycle Cost Analysis, Rate of Return Analysis etc.

Value Engineering

Concept, its application to Architectural Projects, Real Estate PRO-FORMA Analysis

Feasibility Analysis

Concept and Types of Feasibility, Feasibility Analysis

METHODOLOGY;

- Lecture based delivery of Subject exemplified with tutorial Projects.

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Semester VII (Communication Skills and Humanities)**General Guidelines:**

The electives of B. Arch VII and VIII Semesters have been broadly classified into three parts: Communication Skills (DSE I, which will run in VII Semester), Design and Technology (DSE II), and Independent Directions (DSE III).

Discipline Specific Elective II and III will run in VIII Semester. These electives will enable students to initially suit their interests at the undergraduate level and later assist them pursue their specific interests at the postgraduate level. Students are expected to choose one elective from each part, having one elective in Semester VIII and two electives in Semester IX.

The outlines of each elective have been broadly outlined to suit the availability and interests. Considering the broad outline for each elective, in which only viva-voce examinations is to be held, students are expected to submit a minimum of 4 studios/written assignments or equivalent, depending on the type of elective chosen, so as to enable uniformity in awarding sessional marks to the students in different institutions of the university.

Landscape Architecture:

Graphic design as means to explore site planning, development and communication of visual from with emphasis on different elements, typography, organization and signage. Elements, Plants & Construction Technique.

Ceramics:

Introduction to basic properties and techniques of clay including all hand building techniques as well as glaze applications.

Art in Architecture:

To develop an understanding and appreciation of art through study and criticisms of some major art movements of twentieth century and their ways of expression.

Photography:

Fundamental of Photography, image quality, image analysis. An intensive introduction to photography, including darkroom techniques to develop visual perception through observation, composition, colour and light interaction, shades, as well as positive/negative space relationships.

Earthquake Resistant Structures:

Development of attitudes to design as well as understanding the types and issues involved in designing and construction of earthquake resistant structures

OBJECTIVES:

To make the students aware of plant-escape around them;
To familiarize the students with techniques of preparation of simple landscape presentations.

CONTENTS:

Introduction to Landscape: Meaning of landscape and its relevance to architecture.

Landscape graphics: Tools and materials, Graphic techniques: drawing trees with different textures, foliage patterns, tone, contrast and balance, rock and water. Conventional symbols in landscape presentations
Conceptual drawings, Preliminary landscape plans, Planting plans and drawings

Plants : Plant Identification, Botanical and vernacular names of trees, shrubs, grasses and flowers and their ideal use

Construction Techniques: Details of pavements, retaining walls, grass laying, wooden decks and outdoor furniture.

Planned Landscape : Small landscape design proposal incorporating the basics covered above, including circulation.

B. ARCH. SEMESTER - VIII AR - 4005 Building Services ACOUSTICS

Credits - 03

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OBJECTIVES:

- To initiate students into theory and practice of Acoustics.

CONTENTS:

Introduction & terminology: Properties of audible sound, intensity & loudness, frequency & pitch, quality.

Behavior of audible sound: Reflection of sound, absorption, transmission.

Common acoustical defects: Echo, sound foci, dead spots, sound shadow, resonance
Insufficient loudness, external noise.

Noise control: Indoor noise, planning against indoor noise, outdoor noise, planning against outdoor (traffic & buildings in built - up area) noise

Constructional measures for sound insulation of buildings: Materials, hollow & composite wall construction, flooring & ceiling.

Sound system - a brief study: Sound reinforcement system, public address system, sound system equipment specification.

Acoustic design considerations for the following: Auditorium, conference rooms.

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B. ARCH SEM VII**AR 4015 PRINCIPLE OF HUMAN SETTLEMENT**

2-0-2

Credits -03

Evolution of planning thought:	Beginning of settlements. Social Choices & Ecological determinants Elements & The Science in study of Human Settlement.
Cities in history:	Analytical account of Historical Context Egyptian, Mesopotamian, Greek, Roman Medieval, Renaissance and Baroque.
Development of Modern Cities :	Early utopias, Ebenezer Howard's Garden city, Tony Garnier's Industrial town, Radburn planning, new cities such as Chandigarh, Brasilia etc
Issues related to changing practice:	planning of human settlements, Impact of Technology, Industrial Development of Development of Towns. Beginning of Modern Trends in Town Planning,

Reference

The Design, Dimension of Planning- by John Punter, Mathew Carmona, London 1997

The Architecture of Towns & Cities – by Paul Spreiregen- Mc Graw Hill Book Company New York 1965.

Human Aspects of Urban Form- Amos Rapoport

B. ARCH SEM VII**AR 4017 Project & Construction Managem**

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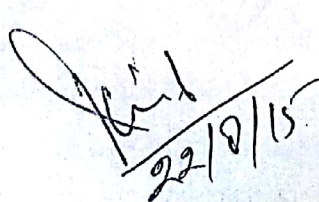
Credits -03

Introduction to Construction Management:	Aims objectives Functions of Construction Management, Construction Industry, Stages of Construction, Role of Project Manager, Causes of Delay & Project Failure
Project Identification & Formulation:	Project Objectives, Planning, Coordination, Control & Monitoring settlement of Disputes
Project Planning	Project Planning & Scheduling, Scheduling Techniques, Organization of Work, Work Break Down, Networking Techniques, CPM PERT, Computer based Project Management
Project Appraisal:	Technical Appraisal, Commercial Appraisal, Financial Appraisal, Management Appraisal, Cost Benefit Analysis, Role of Finance Institution. Project Cost Control, Direct & Indirect Cost.

Reference -

- Nagarjan K ; Project Management K. New age International Publisher
- Mathur B. L Project Management Arihant Publishing House. Jaipur, 1994
- Nagarjan K. Sensitivity Analysis – An approach to Project Appraisal

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Evolution of planning thought:

Beginning of settlements. Social Choices & Ecological determinants Elements & The Science in study of Human Settlement.

Cities in history:

Analytical account of Historical Context Egyptian, Mesopotamian, Greek, Roman Medieval, Renaissance and Baroque.

Development of Modern Cities :

Early utopias, Ebenezer Howard's Garden city, Tony Garnier's Industrial town, Radburn planning, new cities such as Chandigarh, Brasilia etc

Issues related to changing practice:

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Human Aspects of Urban Form- Amos Rapoport

2-0-2

Introduction to Construction Management: Aims objectives Functions of Construction Management, Construction Industry, Stages of Construction, Role of Project Manager, Causes of Delay & Project Failure**Project Identification & Formulation:** Project Objectives, Planning, Coordination, Control & Monitoring settlement of Disputes**Project Planning**

Project Planning & Scheduling, Scheduling Techniques, Organization of Work, Work Break Down, Networking Techniques, CPM PERT, Computer based Project Management

Project Appraisal:

Technical Appraisal, Commercial Appraisal, Financial Appraisal, Management Appraisal, Cost Benefit Analysis, Role of Finance Institution. Project Cost Control, Direct & Indirect Cost.

Reference -

Nagarjan K ; Project Management K. New age International Publisher

Mathur B. L Project Management Arihant Publishing House, Jaipur, 1994

Nagarjan K. Sensitivity Analysis - An approach to Project Appraisal

B. ARCH SEM VII
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AR 4019 RESEARCH IV
Credits -02

1. Professional Summer Training for 5-6 weeks to understand working of Architects Offices & Students can inter relate academic work performed to the actual field works.
2. Book Review

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Credits -25**Intent:**

To prepare a student to independently handle and present all aspects of an architectural design: from its evolution to final solution in totality;
To understand the importance of the evolutionary stages of a design process and various techniques required for a successful presentation of an architectural design;
To develop in students the ability to handle specific aspects of design relevant to the topic.

Thesis Programme:

The multiple challenges of 'built environment' offer unlimited scope for the choice of an architectural design thesis. The selection of the thesis subject may result either from issue/s involved, or from the challenges of design, or the inherent and acquired aptitude of a student, which he/she wishes to perfect and present. The variety of the intentions give students the choice to select the topic of the thesis from a purely hypothetical to a 'live' programme, as long as the topic can result in tangible 'built environment' solution. Consequently, the size of the project has no relevance in the selection of the topic; the riding clause being the topic's relevance to serve the laid down specific objectives inherent in the philosophy of the institution.

For reasons of maintenance of uniformity in results and standards, the thesis presentation shall be in two distinct compartments: a report comprising of all the preliminary studies required for the thesis topic, and the final design solution.

The Thesis report shall consist of all relevant contextual studies: of user, place and time to enable the formulation of design criteria.

The design solution shall be in the form of sheets and models of the concept and design and shall further include the presentation of at least one specific aspect relevant to the selected topic in complete detail.

The report, in triplicate, shall be submitted in bound form together with prints/photographs of all the drawings and model/s.

Thesis Jury:

The final Thesis Jury for students of each school shall consist of the following:

The Head of the Department of the parent school,

The Thesis Guide,

and two from the following

A Director/Principal of an Institution other than the parent institution,

An eminent architect from the profession with at least 15 years of field experience, and a representative of the Council of Architecture, India.

The Thesis Jury of the students will be held in their parent Department as per dates finalized by the parent Institution and will held over three days.

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B. ARCH. SEMESTER – IX

AR - 5001 DEVELOPMENT LEGISLATION

OBJECTIVES: To acquaint the students about an elementary knowledge of various instruments of law and legislation to safeguard the professional interest.

CONTENTS:

Jurisprudence and Legal Theory: Nature and source of law, brief history and evolution of Urban Development laws.

Law Related to land: The land acquisition Act, The effect of Urban Land Ceiling Act 1976, UP Urban Development Act 1973.

Law related to slum up gradation: Law of environment.

Law related to Development and management of population: Elements and effect of the Rent Control Act, The Apartment ownership Act.

Laws of Controls: The partnership Act 1932.

Law related to Conservation: The elements of the Ancient monument, (site and remains) Act 1956.

APPROACH: The spectrum of course will be covered through lectures drawings and citing the appropriate ease law. Specialist will supplement the courses through extension lectures.

B. ARCH. SEMESTER – IX

AR - 5003 PROFESSIONAL PRACTICE - II

OBJECTIVES:

- To acquaint the students with most of the general aspects of valuation and arbitration.
- To familiarize the students with Easement rights and organization of an architect's office.

CONTENTS:

Valuation: Valuation of immovable properties, elements of valuation and factors affecting valuation; Techniques of valuation of landed and building property; Value classification and types of valuation.

Easement: Introduction to various easements processes, and precautions to protect easement rights.

Arbitration: Arbitration, Arbitrator, Umpire, Nature, of arbitration, Appointment, Conduct, Powers, and duties of arbitrators and umpires; Procedure of arbitration and preparation of awards.

Office organization & Administration: Professional organization, setting of practice, salaried appointments, public sector, private sector jobs, procedure of operation in government organization

APPROACH: Lectures should cover practical examples. Specialist should supplement the courses through extension lectures.

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Credits -25**Intent:**

To prepare a student to independently handle and present all aspects of an architectural design: from its evolution to final solution in totality;
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Professional Internship with Practicing Architect
Duration : 20 Weeks Credits :18

PRACTICAL TRAINING

Each student will be required to proceed on 'Practical training' for the IX semester after appearing at the IX semester examination. The Principal/ Head of the Department of Architecture of the concerned institute will approve the office of the 'Practical training' for the student.

The marks for Practical training will be awarded to each student in accordance with the Regulations and guidelines issued separately by Gautam Buddha University.

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