FIRST YEAR OF B.ARCH: SEMESTER I

ARC 2100 SOCIAL SERVICE (N G O)-I CONTACT HRS/WK = 03 (L=0,S=0,W=3) CREDITS = 03

Focus :	To develop more sensitive approach towards practical world
Contents:	Students shall apply for 8 weeks of Part-time or 2 Weeks of full-time Work with any Semi-Government / SOS of Any Corporate Sector / Non-GovernmentOrganization from the surrounding area.
Projects	Students shall submit the details about their work profile with the Institute, Responsibility sharing and experience during Internal assessments.
Method:	After the second-semester exam, One month internship. Portfolio and Presentation end of the workshop.
Skill:	Students have the incredible opportunity to develop different various skills like, communication, cultural learning approach, management skill, Accounting, research, punctuality, teamwork, marketing strategies, cooperation and leadership qualities.
Outcome:	To develop a Sensitive approach towards issues being faced in the world outside the construction industry.

ARC 2101 ARCHITECTURAL DESIGN STUDIO-I CONTACT HRS/WK=09 (L=0,S=9,W=0) CREDIT = 09	
Focus :	Develop Understanding of Anthropometrics , Shelter and Visual Perception Enhancement
Contents:	**Visual Perceptions:** Understanding Elements Of Visual Perception-line, form, space, color, texture, patternetc. Relationshipofformsandformspace. Working with various materials relating visual and tactile qualities to the representative Drawings and sketches making basic geometrical forms and simple shapes in various materials and representing sameindrawing from various perspectives,eyelevelsand Viewingangles.(Materials Like Paper sheets,clay, thermal coal,wood,Plaster of Paris,stone, **Anthropometrics :** Human dimensions and proportions; **Basic Shelter:** Understanding Shelterasaresultant Of Various Forces: culture, climate, site & technology: exercises to provide exposure to various types of shelter. Analysis of various types
Projects:	Sketching techniques with different mediums. Site Visits to expose students diversity of shelter spaces.Exercises For analysis of various types/categories of space. Single-function small space design, with emphasis on above topics / issues (A number of design exercises must be done,relating to human scale and spatial requirements for different activities and functions)
Skills :	Sketching and model making for 3D visualization may be stressed. Single line orthographic drawings designed spaces may be attempted for final project, using Models to facilitate visualization.
Outcome:	Students shall be able to understand scale and proportions with reference to human anthropometry. Understanding of Space requirements shall be developed with focused ergonomics. Students shall be able to represent their ideas in 2d and 3d with sketching and model making.

ARC2102 ARCHITECTURAL GRAPHIC TECHNIQUES(AGT–I) CONTACT HRS/WK =03 (L=1,S=2,W=0 CREDITS = 03	
Focus :	Develop graphical and drawing skills as tools for visualization and representation of design.
Contents	**Unit 1** General introduction of Architecture drafting fundamentals, drafting equipment and materials. Drafting techniques, line work, line types, line weights, line quality. Single stroke, letters - uppercase, lowercase, vertical and inclined line. **Unit 2** Architectural lettering **Unit 3** Line Intensity And precision in Plans,sections,elevations tc Principles Plane Solid Geometry, Understanding of scales. **Unit 4** Sections and Surface Development- Paper Models and Drawings Isometric and Axonometric view **Unit 5** Making basic drawings: Plan, elevation and section of a building.
Method:	Hand Drafting with the use of tools as Parallel, Set square etc. on Drawing Boards.
Skill:	Development of Architectural Drafting and Drawing representation skills
Outcome:	Students shall learn to develop technical drawings for simple objects and simpler spaces in coordination with AR 2101 Project development.

ARC2103 BUILDING CONSTRUCTION I CONTACT HRS/WK= 03 (L=2,S=0,W=1) CREDITS = 03	
Focus :	Understanding Basic Building Elements,Introduction Of Basic Building Materials,construction process
Contents:	**Unit 1** Introduction to types of building materials (Materials-Bricks, stone, Mud, Timber, Lime, Cement, etc…) **Unit 2** Introduction to timber and seasoning method (Properties, methods, cross section of trunk, uses, behavioral, Advantages and disadvantages) **Unit 3** Types of brick bonds **Unit 4** Types of Foundation **Unit 5** **Wall Section** (Frame Structure, Load bearing structure and composite structure)
Method :	Lectures on basic construction of buildings; Class exercises, and case studies. Studyofvariouscomponentsofexistingbuildingthroughsketches&models,Sitevisits Lecturesonbuildingmaterials&theiruseinbuilding - Visittomanufacturingsitee.g.brickkiln,sawmills - Exercises,assignments,drawings - Case studies and documentation.
Skill:	To improve the skills and understanding of aspects such as structural systems, Materials understanding and application, construction details, planning, building standards and specifications, different types of modern and traditional construction detailing with materials exposure, and finishes.
Outcome:	Student shall understand the overall qualitative aspects of Basic Construction Materials i.e. Bricks, Mud, Stone, Timber, Lime, Cement etc. and learn implementation techniques in relation to the behavior of the specific materials.

ARC 2104 HISTORY OF ARCHITECTURE I CONTACT HRS/WK= 03 (L=2,S=0,W=1) CREDITS =03	
Focus :	Amappingofarchitecturaldevelopmentsovertheworldfromancienttimesto11thcenturyA.D
Contents :	**Unit 1** Architecture Of ancient civilizations: Harappan civilization, town planning system, social life and economy of this time, architectural developments during harappan civilization **Unit 2** Mesopotamian, Egyptian culture, society ,background, architectural developments, key structures and elements to identify such structures **Unit 3** Central American, European (Greek & Roman), Chinese architecture of ancient time explaining art and **Unit 4** Indianarchitecturefrom Harappa period,throughBuddhisteratoGuptaperiod. Developments Across the subcontinent in the late Classical Period. **Unit 5** Development of Western civilization : Early Christian, Byzantine, Medieval, Gothic Emphasis should be on presenting a chronological picture of architectural developments, with comparison to trends in Indian subcontinent and elsewhere
Method :	Teaching Maybe Lecture-based,alongwith documentaries/films,readings etc.,withanumberof assignments/exercise to encourage self -learning as individuals or in groups
Skill:	Understanding contribution of Architecture
Outcome:	Students shall be able to appreciate the history of evolution of Architecture and develop a basic reasoning towards need and use of specific materials throughout the process of evolution of shelters.

ARC 2105	**SURVEYING and LEVELLING CONTACT HRS/WK= 03 (L=1S=0,W=2) CREDITS =03**
Focus :	To inform students about the field and its topography to prepare maps or drawings; for any civil or architectural work.
Contents:	**Unit 1** Introduction Definition, classification, principles of surveying, Units of measurement, Scale, Signs convention. **Unit 2** **Chain Survey**: - Instruments used, Types of chain, Instruments for ranging, Setting out angles, Erecting perpendiculars, Selection of station, Methods of taking offset and Obstacles in chaining. **Unit 3** **Plane Table Survey**:- Plane table and accessories, Methods of plane table survey, Radiation, Intersection, Traversing and resection. **Unit 4** **Compass Survey**:- The prismatic compass, Surveyor compass and its construction and uses, Reduced and whole circle bearing, Magnetic declination, Effect of local attraction. **Unit 5** Leveling Contouring Definition, Types of level, Booking and reduction of levels, Profile cross section leveling, Errors in leveling. Characteristics of contours, Direct and indirect methods of contouring, Interpolation, Uses of contours, Calculation of area & volume. Theodolite:- Study of instruments, Definition of different terms, Temporary adjustments, Uses, Measuring horizontal and vertical angles, Method of repetition, Extension of lines.
Method :	A series of small practical exercises and demonstrations.
Skill:	To improve knowledge and skills related to surveying and leveling principles, handling and management of site and topography.
Outcome:	This course will help the students to get familiar with the various surveying instruments and will help improve the understanding of topography of building sites. This course will provide an opportunity to develop skills of surveying at primary level.

ARC2106 COMMUNICATION SKILLS CONTACT HRS/WK= 02 (L=1,S=0,W=1) CREDITS =02	
Focus :	To Develop Confident Communication skills, and Soft skills required to address the Audience
Contents:	**Unit 1** **BasicsofCommunication:** Definition and process of Communication Kinesics; Paralinguistic; Phonemics; **Unit 2** **Presentation Strategies :** Defining the purpose, How to make an effective presentation; Analyzing audience and locale; Organizingcontent, Impromptu speeches, Group Discussions, Assignment based interaction, Vocabulary development, Planning, Developing and Delivering speech **Unit 3** **Reading Fluency :** Introduction; Reading strategies; Techniques of Reading Developing Reading **Unit 4** **Comprehension Writing** : Mastering the final skill: Paragraphs writing; Business letters ;Report / MOM Writing ;E-mail etiquette ;Telephone conversation
Method :	A series of small practical exercises and demonstrations.
Skill:	Improve the communication language for writing, listening and speaking.
Outcome:	Students shall be aware of technical terms, body language, professional representation and outlook essential as a representation of an Architect.

ARC2107	COMPUTER STUDIO CONTACT HRS/WK= 02 (L=1,S=0,W=1) CREDITS =02
Focus :	To develop skills in basic tools of Microsoft Office
Contents:	**Unit 1 Introduction** Computers and hardware, General idea about popular operating systems and software, Basics of Internet. **Unit 2 MS Offices Word** Create a document that can be used by previous versions of word, Saving Options. Create a document - Open a new document and start typing, Start a document from a template, Delete a document, Add a heading, Adjust the spaces between lines or Paragraphs, Insert a page break, Insert a picture or clip art, Insert or create a table, Headers, Footers, and Page numbers, Create a table of contents, Apply themes to Word documents, Add a cover page. Read documents in Word – Read a document, Markup a document, Find or look up words and phrases, Turn on or off - full screen reading view. **Unit 3 MS Office – MS Excel** Getting Started with Excel – Create a workbook, Enter data in a worksheet, Format a worksheet, Format numbers in a worksheet, Print a worksheet, Create an Excel table, Filter data by using an auto filter, Sort data by using an auto filter, Apply conditional formatting, Apply data validation, Create a formula, Use a function in a formula, Chart your data, Create a macro, Create a pivot table report, Activate and use an add-in Keyboard shortcuts in Excel 2010 – Keyboard access to the ribbon, CTRL combination shortcut keys, Function keys, Other useful shortcut keys. **Unit 4 MSOffice – MS Powerpoint** Create a basic PowerPoint presentation - Name and create a new presentation, Open a presentation, Save a presentation, Insert a new slide, Add, Rearrange and delete slides, Add text to a slide, Apply a template to your presentation, Apply a theme to add color and style to your presentation, Insert a picture or clip art and insert content or insert a screenshot, Add, Change, or Delete shapes, Create a smart art graphic, Add slide numbers, Page numbers, Date and time, Create a hyperlink, Deliver and distribute your presentation, View a slide show and View your speaker notes privately, while delivering a presentation on multiple monitors, Print out a presentation, Tips for creating an effective presentation
Method :	A series of small practical exercises and demonstrations.
Skill:	Improve the software and digital presentation drawings skills in the design field.
Outcome:	Students shall gain a thorough knowledge about Microsoft Office Tools.

ARC2108 WORKSHOP-I	**CONTACT HRS/WK= 02**	**(L=0,S=0,W=2)**	**CREDITS =02**
Focus :	To help students in exploring their aptitudes and in developing skills in any related field like painting, sculpture, sketching ceramic work, photography etc.		
Contents :	Courses That May Be Offered From Time To Time: colour workshops		
Method :	Portfolio and Project Submission.		
Skill:	Students by themselves explore the skills and application that they have learnt electives and Applied in the different subjects and studios.		
Outcome:	Development of creative process of ideas, themes for understanding, of architecture,and design.		

FIRST YEAR OF B.ARCH : SEMESTER II

ARC2200 RELATED STUDY PROGRAMME I CONTACT HRS=3 (L=0,S=3,W=0) CREDITS = 03 (Case Study and Documentation)	
Focus:	To enhance observation and visual perception; develop free hand drawing skills using different techniques, tools and media.
Content:	Visit/stosite/s(preferably historical); sketching various natural and manmade objects and settings, visual representation through tools like pencils, chalk,charcoal,ink,oil paints,watercolours, etc.
Skills:	Students enhance cultural influence and architecture language skills, like observation of foam, sketching, rendering, and free hand presentation drawings.
Outcome:	The Student's work as a guided documentation may be published at Institution level after thorough detailing.

ARC2201 ARCHITECTURAL DESIGN STUDIO-II CONTACT HRS/WK=09 (L=0,S=9,W=0) CREDITS =09	
Focus :	Natural and manmade objects. Space/Form, Concept and the design process.
Contents :	Observing and analyzing design of natural objects and manmade objects including geometry pattern, texture, color composition, solid -void relationships etc. Structure and Composition of shapes and forms. Effectsofcolourandtextureinmodificationofccomposition&itsperception. Workshoponcolorand Composition Human Scale: Concept of Scale & Proportions. Form: Elements of Form, various forms and their characteristics. Space:Elements Of Space Making(Enclosure And Openings)and exploring the principles of combination. Types of Spaces: Activity space, Circulation spaces, Waiting spaces Movement & Linkages: Kinds and spatial values. Quality of Space: Effects of light, color, material, texture, views. DesignProcess:Requirements/needs project,site-analysis,Activity Andotherareasand interrelationships,programming ordering mechanisms,abstract concepts.
Projects :	Small projects of low complexity with focus on above aspects.
Skills:	Students improve the skills of Architecture representation drawings, design level, and construction details.
Outcome:	Models ; application of skills learnt in AGT course such as perspective, basic rendering techniques in architectural drawings ,experience of concept to design development exercise in a simple project

ARC2202 ARCHITECTURAL GRAPHIC TECHNIQUES(AGT–II) CONTACT HRS/WK 03 (L=1,S=0,W=3) CREDITS =03		
Focus :	To develop skills for technical representation of architectural designs Projects.	
Content :	**Unit 1 Perspectives drawings** Three dimensional representations of simple & complex forms and architectural objects and perspective (One-point, two-point and three point). **Unit 2 Axonometric and Isometric drawings** Axonometric and Isometric drawings of given objects advancing the skill to a complex building structure. **Unit 3 Sciography** Three dimensional representations of the interior of spaces: Sectional perspectives, axonometric. Sciography of simple & complex forms, shadows on horizontal, vertical, and inclined planes and on objects' own surfaces. Scio graphic on orthographic, isometric, axonometric and perspective drawings. **Unit 4Measured Drawing Exercises** Basic representational techniques and rendering in various media. Application of skills learnt, to drawings of studio projects. **Unit 5 Development of Surfaces** Development of surfaces of complex solids and building structures. Use of cartridge paper, textured coloured tinted material as a variation of medium. Understanding the techniques of half cut, full cut, circle making etc.	
Method :	A series of exercises to be completed in the studio/classroom.	
Skills:	Development of Architectural Drafting and Drawing representation skills	
Outcome:	Student shall learn various rendering techniques and drawing representation skill	

ARC 2203 BUILDING CONSTRUCTION- II CONTACT HRS/WK=03 ((L=2,S=0,W=1) CREDITS=03	
Focus :	Advanced materials used in construction of Buildings
Content :	**Unit 1** Metal-Ferrous Non–ferrous metals , definitions and basic understanding, uses of metals in construction industry, method of extracting and processing of metal to the market forms, **Unit 2** Brick Masonry(continued)–Acute/obtuse angled joints, , compound wall construction, plan , elevation , section and details, uses of special joints, brick jail construction details **Unit 3** Cavity Wall construction details, types and uses of cavity walls, cavity at openings, cavity construction for different heights, wall section explaining construction technique **Unit 4** Arches – types and their construction , uses and support structures of arches, key elements and terms related to arch construction, construction technique, plan ,elevation ,section **Unit 5** Simple wooden joinery used for openings, door frames, sill, lintel, paneled doors etc.
Method :	StudioExercisesandcasestudiesforabove.SiteVisittovariousffactories,processingsitesetc.
Skills:	To improve the skills and understanding of aspects such as structural systems, materials understanding, and application, construction details, planning, building standards and specifications, different types of modern and traditional construction detailing with materials exposure and finishes.
Outcome:	Understanding of materials and construction building elements,conventional practices etc.

ARC2204 HISTORY OF ARCH-II	CONTACT HRS/WK = 03 (L=2,S=0,W=1) CREDITS = 03
Focus :	To familiarize students with architectural developments since about 11th century AD to 19th Century A.D.
Contents:	**UNIT I (A) INTRODUCTION TO ISLAMIC ARCHITECTURE** History of Islam: birth, spread, and principles - Islamic architecture as Raising from Islam as a socio-cultural and political phenomenon- the evolution of building types in phrases of forms and functions: mosque, tomb, minaret, madrasa, palace, caravanserai, market - the character of Islamic Architecture: principles, structure, materials, and techniques of construction, factors of decoration, color, geometry, light. **(B) ISLAMIC ARCHITECTURE IN INDIA & ARCHITECTURE OF THE DELHI SULTANATE.** The advent of Islam into the Indian subcontinent and its effects such as the alternate in the architectural scene- assessment of improvement based on political history and the corresponding classification of architecture - Islamic structure in India: sources and impacts Establishment of the Delhi Sultanate- the evolution of architecture under the Slave, Khalji, Tughlaq, Sayyid and Lodhi Dynasties – tombs in Punjab- vital examples for every period. **(C) MUGHAL ARCHITECTURE** Mughals in India- political and cultural history- synthesis of Hindu-Muslim culture, Sufi movement - the evolution of architecture and description of Mughal towns and gardens under the Mughal rulers: Babur, Humayun, Akbar, Jahangir, Shahjahan, Aurangazeb- vital examples- the decline of the Mughal empire. **UNIT II CROSS-CULTURAL INFLUENCES** Cross-cultural impacts throughout India and secular architecture of the princely states: Oudh, Rajput, Sikh, Vijayanagara, Mysore, Madurai- essential examples. **UNIT III COLONIAL ARCHITECTURE IN INDIA** Process of Colonisation , Colonial architecture in India- Imported styles and trends. **UNIT IV MEDIEVAL PERIOD IN EUROPE** Developments in Europe after the Medieval period- The Renaissance, Baroque, Rococo, Mannerism, till Neo-Classicism. etc
Method :	Lectures, Case-Studies, analytical exercises on built -form of various periods to understand t he Architectural images of various times and places .
Skills:	To improve students' skills in Analysis, criticism, self-criticism, and assessment of Architecture designs providing for the due transfer of the skill to project work in Architecture and urban design.
Outcome:	Students shall learn to identify various architectural styles, elements and construction techniques with climatic, sociological and historical context.

ARC 2205 APPLIED MECHANICS CONTACT HRS/WK=03 (L=2,S=0,W=1) CREDITS =03	
Focus :	Introduction to the basic principles governing structural systems. Concept of direct force mechanism in structures, concept of resultant force, tension and compression. Equilibrium of forces, concept of structure and tie
Content :	**Unit 1 Introduction:** · Introduction Fundamental principles of Engineering Mechanics, Newton's laws of motion, law of parallelogram of forces, principle of transmissibility, concept of rigid body, particle. **Unit 2** Natural forms : · Understanding Nature- a creative base for understanding structure, correlation between natural & manmade structure. **Unit 3 Forces :** · Introduction to types of forces, Static loading, Time dependent loading, Impact loading, Cause & effect of various forces like Dead load, Imposed load, Wind load, Earthquake load, Hydrostatic load, erection force etc on building. Effect of physical form on load transfer i.e. Forces acting through point, distributed forces on line, & area. · Force systems : · Free body diagram, Resolution of forces into components, Types of force systems, concurrent, coplanar, non-concurrent etc. forces in plane & space. · Calculation of resultant for coplanar parallel & coplanar concurrent force system, calculation of moment. **Unit 4 Equilibrium:** · Introduction to Equilibrium, Conditions of equilibrium for the coplanar parallel & coplanar concurrent force system, Types of supports, Determinacy, & · Stability, Basic behavior of elements in load transfer i.e. bending, torsion, shear, tension, compression etc. **Unit 5 Tension and Compression** · Introduction as a flexural element, simply supported, overhanging & cantilever beams, determinacy, calculation of Reaction at supports for beam, Application. · Introduction, Types of truss, Analysis of a plane truss. Use of graphical method. · Introduction to space truss, Application. – Concept of Deformable Bodies, Types of Stress (compressive, tensile, bending, shear) and strain (axial, shear, volumetric). Simple problems. · Bending Moment and Shear Force Diagrams – Concept of Shear force and bending moment. BMD and SFD for statically determinate beams subjected to combinations of concentrated and uniformly distributed load. · Relationship among Load, Shear force and Bending Moment
Method :	Mainly lecture-based, illustrations & case studies.Type/optionsandLayout inthe studio project in progress.
Skills:	Students improve the skills of structure and mechanism analysis and practical knowledge in small-scale and large-scale building components.
Outcome:	Student shall develop understanding of Stresses and Concepts of Load Transfer in different type of structures with the base of Applied Mechanics

ARC2206	CAD-I	CONTACT HRS/WK= 02	(L=1,S=0,W=1)	CREDITS =02
Focus :	FundamentalsofComputerandgettingacquaintedwithbasiccommandsforcomputerdrawings.			
Contents:	**Unit 1** FundamentalsofComputer,terminology used,basics of various operating systems;Terminology of Windows; Introduction toAutoCAD **Unit 2** Creating Drawings: Line, Circle, rectangle, Polygon, Arc commands and using them in practical project **Unit 3** ModifyingDrawings:Move,copy,offset,mirror,trim,extend etc.commands and using them in practical project **Unit 4** Drawing Tools: Using coordinate system, polar and ortho dynamic Input, object snap etc.Dimensioning and Text: Creating single line text and multiline text.			
Method :	Practice in Computer Lab			
Skills:	Students improve the skills for architectural graphical representation via computing tools/methods. Interactive and unique learning experience for students. The structure of this course has been specially designed to enhance the skill set of the students.			
Outcome:	Develop and train students to use computers and digital media as tools to explore, develop, evaluate and present architectural ideas. To equip the student with a range of digital tools and techniques in 2D drafting, 3D modeling, visualization of projects.			

ARC 2207 VERNACULAR ARCHITECTURE I CONTACT HRS/WK= 02 (L=0,S=0,W=2) CREDITS =02	
Focus :	Skill and understanding development about Vernacular Elements of Building Construction.
Contents:	**Unit 1** Introduction to Local Vernacular Construction Technique. **Unit 2** Identifying region **Unit 3** specific construction elements **Unit 4** Specialized method of construction.
Method :	Case Study, Documentation and Presentation based learning
Skills:	Students improve their skills in design foam, structure, and local construction methods.
Outcome:	Develop sensitivity and awareness about traditional methods and materials of construction

ARC 2208	WORKSHOP-II	CONTACT HRS/WK= 02	(L=0,S=0,W=2)	CREDITS =02
Focus :	To help students exploring their aptitudes and in developing skills in any related field like painting, sculpture, sketching ceramic work, photography etc.			
Content :	Anumberofsubjectsshallbeoffereddependingonfacultyavailability. WOODEN JOINERY AND CARPENTRY			
Method :	Portfolio and Project Submission.			
Skills:	Students by themselves explore the skills and application that they have learnt AND Applied in the different subjects and studios.			
Outcomes:	Development of creative process of ideas, themes for understanding, of architecture, and design.			

SECOND YEAR OF B.Arch: SEMESTER III

ARC-2300 NGO II **CONTACT HRS/W= 03** **(L=0,S=0,W=3)** **CREDITS = 03**

Focus :	Bringing Awareness of social issues and responsibility
Contents:	Students shall apply for 8 weeks of Part-time or 2 Weeks of full-time Work with any Semi-Government / SOS of Any Corporate Sector / Non-Government Organization from the surrounding area. **List of NGO'S (References)** Backward class develop committee –Anand Foundation for ecological security –Anand Rotary club Anand Grafting better future social educational welfare foundation Gujarat sangeet natya akademi–Anand Indian council for training and development –Anand Jivan Jyoti Gramin and shahri vikas sanstha - Anand Mukta Arts –Anand JeevandeepSarvoday Centre, At.Khambhat,Dist.Anand Society For Indian Development, Anand Annacharan education and charitable trust, DODGAM, Gujarat All India Disaster Mitigation Institute, Ahmedabad Center for Environment Education, Ahmedabad Anusandhan (Environment, Urban Development.), Ahmedabad
Method :	After the second-semester exam, One month internship. Portfolio and Presentation end of the workshop.
Skills:	Students have the incredible opportunity to develop different various skills like, communication, cultural learning approach, management skill, Accounting, research, punctuality, teamwork,marketing strategies, cooperation and leadership qualities.
Outcomes:	Students will learn about the social problem and solution. Interpersonal skill development. As a student when you work for an NGO, it gives you an insight into developing various skill communications.

ARC 2301 ARCHITECTURE DESIGN STUDIO - III	**CONTACT HRS/WK =12 (L=0,S=12,W=0) CREDITS = 12**
Focus :	Material and Structure as determinants of Architectural Form.
Contents:	**Unit 1** Understanding of different Materials – properties and characteristics. **Unit 2** Basic structural system in various materials (timber, mud, brick, Fabric etc.) Structure as a form given for various materials. **Unit 3** Developing skills in manual presentation techniques, use of various media of presentation, Principles of 2-D& 3-D compositions of Design. **Unit 4** Behavior and effects of colored compositions (enlargement, shrinkage of spaces, emphasis, warmth and coolness etc.). Rhythm, discord, Harmony, Golden Section. **Unit 5** Design of elementary three dimensional and architectural spaces and their a) Study and analysis b) Presentation of Architectural Designs c) Block models for exercises in three-dimensional composition **Unit 6** Elements of Space making like Floor, Wall, Door, Window, Column, Stairs, Roofs etc.
Projects:	Project/s in different contexts to address variations in material Time Problems may be set as exercises based on other material. Design problem & use of at least two building materials to make a structure. Studio project base model making exercises 3 dimension and explore materials and color
Skills :	This studio addresses spatial Composition, site constraints, various materials exposure, Architecture representation drawings and materials application, materials base, different construction techniques, selection and detailing of building materials. Thus developing skills for architectural design drawings through models, Site Visits, and case studies.
Outcome :	● The students shall learn and understand climate-responsive techniques in different materials innovatively architectural design, and skills develop in various aspects in concept ideas, designing, technical presentation drawings, and material properties and its construction details. ● Students gain knowledge of properties of various special materials and construction details.

ARC 2302	HISTORY OF ARCH-III CONTACT HRS/WK = 03 (L=2,S=0,W=1) CREDITS = 03
Focus :	Understand the evolution of architecture and its transformation in the contemporary times, both at the international end level well as at the national level.
Contents:	**UNIT I** Study of cutting-edge masters, responses to mechanization and new area conceptions, natural structure and architectural machine **UNIT II** Frank Lloyd Wright, Le Corbusier's quest for ideal form and factors of a new architecture, Walter Gropius and Bauhaus movement, Mies, minimalism and international style, Problem of Regional Identity - movements in Scandinavia and Japan, etc. **UNIT III** Study of second-era masters Kahn, Saarinen, Goff, Nervi, Johnson, etc. past due modern transformations, post - modernism, deconstruction, architectural philosophy, and works of Meier, Venturi, Tange, Isozaki, Graves, Gehry, Hadid, Foster, Piano, Rogers, etc. **UNIT IV** Architectural tendencies in the east and south-east Asia; Japan & China, tropical architecture in Singapore, Indonesia & Thailand, Architecture in SAARC nations with a unique emphasis on Pakistan, Bangladesh, and Sri Lanka **UNIT V** Architectural traits in India, architectural developments post-independence, the primary era masters Correa, Doshi, Stein, Lauri Baker, Nari Gandhi, etc. the emergence of recent typologies inclusive of housing colonies, malls, airports, information technology parks, present-day practice
Method :	Lectures, Case-Studies, analytical exercises on built-forms of various periods to understand the architectural images of various times and places.
Skills:	To improve skills and understanding of different styles of Architecture and Planning, Climate change, social, economic, & geographical aspects, political aspects, Materials, Technology, construction details, elements, movements, and timeframe.
Outcome :	Understand the relationship between history of architecture and practical work. Develop skills in written and graphic analysis of art works and buildings. Compare, analyses and make critique of the relationship: built environment and the social, political, economic & cultural formative Students understand the history of building analysis that explodes during that era, use of materials, large-scale structural systems, and construction techniques systems.

AR 2303 BUILDING CONSTRUCTION III CONTACT HRS/WK = 03 (L=2,S=0,W=1) CREDITS = 03	
Focus :	Understanding basic Structural Systems, Structural Materials, Construction & erection process.
Contents:	**Unit 1 Introduction** New Materials and their use in Building Construction. **Unit 2** Building Elements made out of wood, steel, PVC, aluminum etc.various types of doors and windows & Ventilation, including treatment of sills, lintels etc. / m. s. grill, various types of fittings & Hardware. **Unit 3** Types and details of Paneled door shutters and Mosquito proof door shutter 1. Timber Panel Door 2. Timber Flush Door 3. Metal (Aluminum) Glazed Door **Unit 4** Types of Windows / Ventilators and details of glazed window and ventilator shutters and frames. 1. Timber Casement Window 2. Metal (Aluminum) Window 3. Metal (steel) Casement Window **Unit 5** Types of materials used in wall construction, slab, staircase and floor and flooring
Method :	Illustrated lectures, case studies of Traditional / Conventional practices. A number of studio Exercises for making drawings of typical details.
Skills:	To improve the skills and understanding of aspects such as structural systems, Materials understanding and application, construction details, planning, building standards and specifications, different types of modern and traditional construction detailing with materials exposure, and finishes.
Outcome :	This subject helps the students to understand and learn the various materials exposure and construction details in all types of openings. Ability to integrate knowledge of properties, characteristics and strength of materials and construction methods.

ARC-2304 Structures I	**CONTACT HRS/WK = 03** **(L=2,S=0,W=1)** **CREDITS = 03**
Focus :	Basic understanding of structural foam and systems
Contents:	**Unit 1History of structural design in the pre and post industrial era** Development of monolithic, rock-cut structures, tabulated construction, accurate construction, vaults, flying buttresses, tents, mastered structures & bridges through ancient & medieval history. Post Industrial modular construction of large span & suspension structures in steel and concrete- examples of iconic projects. **Unit 2 Physical properties of basic building materials** Characteristics and strength of natural and manmade building materials like stone, clay, brick, terracotta, cement and aggregate. **Unit 3 Introduction to forces and moments** Primary elements of structure and their behavior ,Concept of Load bearing and Frame structure , Importance of foundations **Unit 4Analysis of load** Types of loads, supports and their reactions (only point and U.D.L.). Numerical on Shear force and bending moment Diagrams for Simply supported beams, Cantilever Beams and Overhang beams Definition of Point of Contra flexure. **Unit 5** Center of Gravity and Moment of Inertia Definition Examples -Center of Gravity(One and Two Dimensional) Examples -Moment of Inertia (parallel and perpendicular axis theorem).
Method :	Mainly lecture-based, illustrations & case studies. Type/options and Layout in the studio project is discussed.
Skills:	Students shall develop understanding of structure with reference to building materials and building components.
Outcome :	At the end of the course the students will have the ability to understand the mechanics of forces acting on rigid bodies and the structural properties. Understand the interdependence of architectural form and structural system of a structure. Students understand and learn what is structural Materials and elements inside the building and which materials to be constructed.Students learn and technically understand types of loads acting on structures for buildings and other structures can be broadly classified as vertical loads, horizontal loads and longitudinal loads, and learn distribution patterns.

ARC-2305 CAD- II	**CONTACT HRS/WK= 02**	**(L=1,S=0,W=1)**	**CREDITS =02**

Focus :	Thorough application of knowledge of 2 D and 3D drawings.
Content :	**Unit 1** Layer, Block and XRef Creating layers and assigning objects Using layer properties manager Editing object properties **Unit 2** Inserting blocks Attaching external references Preparing layout and plotting; **Unit 3** Annotation; Hatch, Super hatch Dimension editing Presentation & detail drawing preparation **Unit 4** Isometric view Introduction to 3 D Solid modeling Editing and visualizing solids Rendering and presentation
Method :	Practice in Computer Lab
Skills:	Students should enhance their skills in 2D and 3D drawing in AutoCAD and apply them in the Architecture presentation techniques.
Outcome :	Use a computer as a tool to generate drawings and presentations. Understanding CAD as a basic tool for Architectural Design. Develop and train students to use computers and digital media as tools to explore, develop, evaluate and present architectural ideas. To equip the student with a range of digital tools and techniques in 2D drafting, 3D modeling, visualization of projects. The concepts of CAD drafting methods and techniques in 2D and 3D through various architectural communications.

ARC-2306 Climatology	**CONTACT HRS/WK= 02**	**(L=1,S=0,W=1)**	**CREDITS =02**

Focus :	Understanding of Climate and its impact on architectural design, fundamentals of climatology and environmental studies
Content :	**Unit 1** Climate – Constituent elements, Classification of tropical climatic zones. **Unit 2** Micro & Macro climate. **Unit 3** Thermal comfort & principles of Thermal Design. Ventilation – Air movement & fenestration, solar orientation, Sun path pattern & shading devices. **Unit 4** Traditional House Form & Settlement pattern in various tropical climates; vernacular architecture Design Tools – Mahoney Tables, Sun Path diagrams, etc. Day lighting – components, architectural methods of borrowing day light; control of glare.
Method :	The concepts shall be taught with the help of lectures, practical examples and lab exercises.
Skills:	To improve the skills and understand elementary principles of climatic design as an important aspect in the design of spaces.
Outcome:	To develop the knowledge required for understanding the influence of Climate on architecture including the environmental processes which affect buildings, such as thermal, lighting, etc.

ARC-2307 Workshop-III	**CONTACT HRS/WK= 02**	**(L=0,S=0,W=2)**	**CREDITS =02**
Focus :	To help students in exploring their aptitudes and in developing skills in any related field like painting, sculpture, sketching ceramic work, photography etc.		
Contents :	A number of subjects shall be offered depending on faculty availability. METAL WORKSHOP		
Method :	Portfolio and Project Submission.		
Skills:	Students by themselves explore the skills and application that they have learnt and Applied in the different subjects and studios.		
Outcome :	Development of creative process of ideas, themes for understanding, of architecture, and design.		

SECOND YEAR OF B.Arch: SEMESTER IV

ARC-2400	**Related Study Program CONTACT HRS/WK= 03 (L=0S=3,W=0) CREDITS =03**
Focus:	Document an area/locality through measured drawings, reading of history, morphological development etc.
Content:	Select a small area or locality for documentation through measured drawings, observations, dialogues etc. for the purpose of designing in the physical context.
Skills:	Students improve the Skills will be developed for intervention which reflects context-responsive concepts and understanding of critical analysis of the built environment. Technicalskill improves in Architecture representation drawings, traditional construction details and house foam.
Outcome :	Related study programmer outcome Students learning and experience, observe and document traditional (and contemporary?) built environment and natural & formal responses at scale of dwelling, cluster of dwellings, settlements and institutions so as to understand relation of traditional and historical practices and architectural manifestation in a place (Learning's of the past knowledge system) Contextual study and observation skills help students in understanding relation between culture, tradition, construction and details of house form and other living spaces. They enhance their architectural drawing presentation and detailing through this study program.

ARC-2401ARCHITECTURAL Design Studio IV (Contextual and Site Planning) **CONTACT HRS/WK = 12 (L=0,S=12,W=0) CREDITS = 12**	
Focus :	Analysis of context as a determinant of Architectural character. Study of built form with special reference to climate, material , social & cultural context, physical environment
Contents :	Cluster & community - street pattern Traditional design and construction principles Issues of modernity and tradition
Projects :	Housing studies of existing settlements. Complete architectural design of project/s of different nature at level of residence & small institution/ work place in the context of a traditional settlement. Dwelling cluster design project (15-20 units to form a small community). Work done in the Related Study Program or the measured drawing of traditional settlement may be used as the context. Interior design may be included as part of program.
Skills :	Documentation & analysis of existing / traditional settlements; programmed and unprogrammed spaces; Full range of architectural graphic techniques and model making in various media must be applied.
Outcome :	Understanding the human and design in physical context (space, location, time). Understanding the context as surroundings containing tangible and intangible components, helps greatly in defining Architecture and design. Understanding of contexts plays great role in appropriate design evolution and development

ARC-2402 History of Architecture - IV	**CONTACT HRS/WK = 03 (L=2,S=0,W=1) CREDITS = 03**
Focus :	To acquaint the students with the development in the field of Town Planning/Urban Design / Settlement design
Contents :	**UNIT I:** History of Town Planning/Settlement design/Urban design. **UNIT II:** Theories and approaches. Examples of various historical experiments across the world. **UNIT III:** Developments in India from early times to the present day. Vedic Planning concept, Islamic planning, **UNIT IV:** western planning. Role of Sir Patrick Geddess & others in planning processes **UNIT V:** Contemporary practices-evolution of sustainable, smart, resilient cities Role of Urban laws in city making. Development plan & its procedure.
Method :	Lectures, Case-Studies, analytical exercises on built form to understand the townplanning images of various times and places..
Skills:	To improve the skills and understanding to a comparative study of a Town type across cultures and time periods the student is able to arrive at the core understanding of the Type and its application in the design program.
Outcome:	The students might expand suitable capabilities of reading, writing, and expertise in the physical and aesthetic experience of town, material of observing geographical, geological, social, cultural, and political elements that influenced early society and its architecture. They may even recognize the usage of materials and structural/construction systems that are explored throughout that era.

ARC-2403 Building Construction - IV	**CONTACT HRS/WK = 03 (L=2,S=0,W=1)**	**CREDITS = 03**
Focus :	Understanding of various building components, their place and composition within the systems, possibilities of different material use. Understanding principles & possibilities of various constructions Technology & their applications.	
Content :	**Unit 1** Building Components : - Floor and Floorings **Unit 2** Staircase, Stairs, Steps, Ramps. **Unit 3** Steel windows **Unit 4** Wooden roof construction details **Unit 5** Retaining walls, basement **Unit 6** Compound wall/Gates	
Method :	Market survey & Resource file to be maintained. Conventional practices, documentation. Case studies & Studio exercise	
Skills:	Students improve the skills in building construction details of modern construction techniques and traditional construction methods, and experiment types of materials used in different construction techniques.	
Outcomes:	The students are able to understand in detail the method of construction of various building components using steel, aluminum, and wood. Students understand the materials with their properties, environmental impact and relationship with architectural design and building construction. Students learn different types of materials used in construction methods from retaining walls to parapet walls (Traditional and modern construction details) Increase the technical construction skills (List of construction details):- Floor and Floorings, Staircase, Stairs, Steps, Ramps, Steel windows, Wooden roof construction details, Retaining walls, basement, and Compound wall/Gates	

ARC-2404 STRUCTURES-II	**CONTACT HRS/WK= 03**	**(L=2,S=0,W=1)**	**CREDITS =03**

Focus :	Understanding of structure system and various load distribution Pattern and calculation method
Contents :	**Unit 1** Architectural considerations in material selection for structural use. Concept of strength elastic and plastic material. **Unit 2** Concept different mechanical properties of material (tensile, compressive, flexure, toughness, and malleability, fatigue with definition) **Unit 3** Concept of stress-strain. Types of stress, its importance, elastic limit, yield point, permissible stress, ultimate stress and elongation, concept of stress-strain curve, example based on above topics **Unit 4** Analysis of fixed Beam-numerical (Central Point load and Uniformly distributed load with Derivation) only using formula and shear force & Bending moment diagram) Analysis of Continuous Beam (Definition of Fixed end moment, carry over moment, Relative stiffness and Distribution factors, --numerical for all end with fixity) Analysis of Truss –numerical (methods of joint only for small truss, up to 8-10 members) Analysis of Frames – non-sway type Portal frames, reason of sway, difference (No examples only concept) **Unit 5** Types of Arch, and analysis of three hinged parabolic Arch (only reparation at supports) Concept and importance of deflection in design of structures, Derivation for standard loading condition. (No examples only concept)
Method :	Mainly lecture-based, illustrations & case studies. Type/options and Layout in the studio project is discussed.
Skills:	Logical structure design skills in building.
Outcome:	Basic knowledge of students about the various types of forces, stress, and their concept, and analysis learning through structure diagrams and the analysis of a load distribution pattern in buildings, and then simple numerical calculations and models.

ARC-2405 Digital Graphics and Art CONTACT HRS/WK= 02 (L=0,S=0,W=2) CREDITS =02	
Focus :	Various software learning for designing & presentations, for Building modeling, poster, visiting card, report front page and collage to visualization software applied to architectural design. Learning software (AutoCAD 3D, Sketch Up and Photoshop)
Contents :	**Unit 1** Fundamentals of software and its use in designing and making presentation **Unit 2** Learning and working with basic tools and techniques, Photoshop. **Unit 3**. Corel draw **Unit 4** AutoCAD 3D
Method :	Lecture and practice
Skills:	Students improve their software skills and apply various concepts in the Academic and professional fields.
Outcome:	The students benefit by learning software that helps them to better visualize complicated forms and also helps in producing photo-realistic images of those 3D forms. The students benefit by learning software that helps them with digital drafting in AutoCAD, final sheets editing and poster design in Photoshop, and building visualization in 3d in Sketch Up.

ARC-2406 Conservation	**CONTACT HRS/WK= 02 (L=1,S=0,W=1)**	**CREDITS =02**
Focus :	Conservation of historical monuments, buildings and sites.	
Contents :	**Unit 1** Architectural Conservation: Need and Importance of conservation of historical monuments, buildings. **Unit 2** Urban Conservation: Identification of areas for conservation. **Unit 3** Approaches and techniques. Landscaping, maintenance and management of conserved areas or buildings. **Unit 4** Case studies from India and abroad. Restoration of old buildings - materials used techniques and equipment. Deterioration and preventive measures.	
Method :	Case studies, illustrations, assignments & presentation	
Skills:	Students learn practical strategies and skills needed for solving design project problems about specific conservation policies such as adaptive reuse, rehabilitation, redesign in a historic context, reconstruction, documentation …etc.	
Outcomes:	The students understood the role of Urban Conservation discipline, and its role in understanding and interpreting a city. Various reading methods were explored, to understand the historical as as well as the present urban form. They also looked at addressing Architectural Conservation issues in terms of awareness creation as well as with possible ways to address them.	

ARC-2407	**Workshop - IV**	**CONTACT HRS/WK= 02**	**(L=0,S=0,W=2)**	**CREDITS =02**
Focus :	To help students in exploring their aptitudes and in developing skills in any related field like painting, sculpture, sketching ceramic work, photography etc.			
Contents :	A number of subjects shall be offered depending on faculty availability. CLAY AND CERAMIC WORKSHOP			
Method :	Portfolio and Project Submission.			
Skills:	Students by themselves explore the skills and application that they have learnt and Applied in the different subjects and studios.			
Outcome :	Development of creative process of ideas, themes for understanding, of architecture, and design.			

THIRD YEAR OF B.Arch : SEMESTER V	
ARC-2501 ARCHITECTURAL DESIGN STUDIO V (Institutional) CONTACT HRS/WK = 12 (L=0,S=12,W=0) CREDITS =12	
Focus :	Understanding the character of Institution. Design of Institutional Campus/Complex
Contents :	Organization and disposition of spaces. Relationship of different functional, service and movement areas. Diversity of user groups, circulation routes. User group needs and client requirements. Influence of culture, climate & technology. Site planning/layout/zoning/ circulation. Landscaping. Idea of an Institutional image/character Ordering theme / idea / concept.
Method :	Design of an Institution of medium level complexity with a mix of functions. Analytical case studies of Institutions in different cultures and time periods may be done as group work. Design to be prepared keeping Working Drawings exercise in view. NASA Briefs for ANDC or other trophies may be refined to be taken up as studio programs in part or full.
Skills:	Develop Understanding characteristics of Institution.
Outcomes:	Students should demonstrate their understanding of Institutional building and the coordination thereof through a comprehensive resolution of the conceptualization, design and execution of a building.

ARC-2502 LANDSCAPE	**CONTACT HRS/WK = 03**	**(L=2,S=0,W=1)**	**CREDITS =03**

Focus :	Principles of Landscape design, its techniques and application. Understanding Ecology, Ecosystem, environmental conservation
Content :	Unit 1 Ecology, Environment, Components, Ecosystem at various levels, conservation of natural resources, rainwater harvesting. Unit 2 Elements of Landscape: Landforms, plant materials, water, rocks, lighting etc. Unit 3 Types of Soils, plant materials (trees, shrubs, ground covers, creepers, flowering and non-flowering rocks and stones, water bodies. Surfacing Materials, landforms, man made elements. Unit 4 Historical and contemporary attitudes to landscape in Indian and other contexts. Principles of landscape design :surfacing, enclosure vistas, visual corridor, composition of plant and other material, etc. Unit 5 Preparing Landscape design presentation drawing (using symbols etc.)
Method:	Studio Exercise, Site Visit, Seminar, Presentation etc. Design assignment may be done as part of a Studio project.
Skills :	Develop the ability to analyze ecologic & Landscape.
Outcome:	Students should develop the ability to analyze ecological and geomorphologic characteristics of a site; use site analysis information to propose appropriate site planning and landscape design.

ARC-2503 BUILDING CONSTRUCTION V (SERVICES)CONTACT HRS/WK = 03 (L=2,S=0,W=1) CREDITS =03	
Focus :	**(A)** Building Electrical Services, Communication Systems and Air conditioning. **(B)** Mechanical Circulation, automated system, artificial water bodies (SWIMMING POOLS).
Content:	**Unit 1** (A) Electrical Services - Power Connection, A.C. & D.C., conduits, distribution board and fuses, **Unit 2** (B) Wiring System (concealed & open) fixtures, design of layout and symbols for representation. Communication systems (telephone, fax, EPABX etc.) and their layouts and connections. **Unit 3** (C) Air conditioning and mechanical ventilation, Importance of Air-conditioning, Types of A/C., components of an A.C. system. , ducting, layout and design drawings. ARSCUE treatment. Lifts: General design, Classification & Installations of Lifts. NBC norms & guidelines, capsule lift; Escalators Elevators, Moving pumps and walks. **Unit 4** (D) Automated systems: Alarm systems, automatic lighting and A.C. systems, door closing / opening etc. **Unit 5** (E) Swimming pools, garden pools, fountains system.
Method :	Mainly lecture-based, illustrations & case studies. Layout, installation in studio project is discussed.
Skills:	Building Electrical Services, Communication Systems and Air conditioning.
Outcomes:	Ability to work out electrical networks for a simple building, determine general lighting and acoustic and Air-conditioning requirements and performance for a space.

ARC-2504 BUILDING ECONOMICS CONTACT HRS/WK = 03 (L=2,S=0,W=1) CREDITS =03	
Focus:	Understanding economic process in society and the economics of building housing etc. Problem of economics, Market economy, Wants vs. Means
Content:	**Unit 1** Basic concepts of the economics, demand and supply economic cycle, **Unit 2** different types of economics, traditional and modern approaches. **Unit 3** Production process, need-demand and supply, economics of scale, Forecasting demand. Economics of building industry, **Unit 4** National Income & types **Unit 5** Housing markets, Land Markets, concept of affordability, invisible law theory, price control.
Method:	Assignments, Article presentation
Skills:	Develop basic understanding of Economics & its relative measures.
Outcome:	Ability to understand basic economic concepts and learn their applications in Architecture.

ARC-2505 DESIGN SEMINAR CONTACT HRS/WK = 03 (L=0,S=3,W=0) CREDITS =03	
Focus:	Theory, techniques and issues in design of residential areas.
Contents:	**Unit 1** Definition and scope of Housing, residential areas as a part of urban areas. **Unit 2** Structure and elements of Residential Areas - Built-form, Open spaces and Circulation, Infrastructure & Amenities Hierarchy of linkages, **Unit 3** Concepts of density - gross density, net residential density, areas per person. **Unit 4** Building Typologies and forms, relationship of built form density, F.S.I. etc. **Unit 5** Theories & approaches to residential area, design issues in Housing.
Method:	Basic information to be in the form of lectures with case studies and illustrations. Students are to examine views related to housing design through assignments concluding with a seminar presentation.
Skills:	Develop an understanding of the scope of residential housing & its needs.
Outcome:	Ability to source information on a chosen topic, clearly understand, collate, analyze, reflect upon it by means of a strategic discussion within the research group synthesizing research outcomes in seminar presentation using multimedia techniques.

ARC-2506 NPTEL COURSE	**CONTACT HRS/WK = 02 (L=0,S=0,W=2) CREDITS =02**
Focus:	To help students in exploring their aptitudes and in developing skills in fields of their choice.
Contents:	Through NPTEL Programme
Method:	As per NPTEL Course
Skills	As per the course chosen

ARC-2507 Green Building (GRIHA) CONTACT HRS/WK = 02 (L=0,S=0,W=2) CREDITS =02	
Focus :	Getting acquainted with green concepts in general and knowing design strategies for high performance green/energy efficient buildings/sites
Contents:	**Unit 1** Introduction to sustainability, Green buildings & intelligent buildings, impart of building construction/industry on environment, **Unit 2** Methods and tools of building assessment, the green building process, **Unit 3** green rating systems and documentation, site and landscape strategies, building energy system strategies, **Unit 4** material selection strategies, Indoor environmental quality, carbon accounting, green building codes; energy management systems
Method:	Theory, case studies and analysis
Skills	Learn green rating concepts & various rating systems.
Outcomes:	Students should be able to conduct preliminary resource audits, understand sustainable and resource efficient integration systems and services, prepare green rating checklists and relevant documentation for projects.

ARC-2508 Research Methodology - I CONTACT HRS/WK = 02 (L=0,S=0,W=2) CREDITS =02	
Focus:	Understanding the methodological approach to carry out a research based program in order to design an architectural project involving a set of complex issues.
Contents:	**Unit 1** Nature and function of research, scientific research, meaning of research in the field of architectural design. **Unit 2** Pure and applied research. Stages of research and design. **Unit 3** Design and research methodology Techniques of data collection Forms of research reporting, structure of a report Writing skills. **Unit 4** Presentation aids Use of primary and secondary references, bibliography, notations, cross reference etc. Nature of an undergraduate thesis, its structure and other requirements.
Method:	The course must be conducted as a mix of lectures/discussions with a number of assignments and exercises to impart the skills necessary for carrying out the dissertation. Preparation of a viable proposal for the next semester's dissertation work is expected by the end of the semester.
Skills	Develop skill about how to start any research & its methodology.
Outcomes:	Ability to independently handle an Architectural Design Project, research the requirements of a project, Prepare a brief, try alternative approaches/ concepts, and evaluate them on way to make a final comprehensive proposition.

THIRD YEAR OF B.Arch : SEMESTER VI	
ARC- 2601 ARCHITECTURAL DESIGN STUDIO - VI (Working Drawing) **CONTACT HRS/WK = 12 (L=0,S=12,W=0) CREDITS =12**	
Focus :	Architectural Detailing And Execution Drawings.
Contents :	Execution drawing systems and methods. Trade literature, detailing methods, architectural working drawing. Choice of materials, fixtures, fittings, availability and constructional feasibility. Integration of building systems and services. Detailed drawings to include all components of building like doors, windows, lifts, staircases, elevators etc.
Projects :	Construction drawings of previous semester design project (part or full) including specifications & estimations. Additional design project (small) may be taken alongside for development to complete architectural detailing. Full set of working drawings for the project.
Methods :	Lecture, case study, sketching, drafting, field trip (Material study and construction study), market survey, measure drawing, technical drafting and projects
Skills	Architectural Detailing And Execution Drawings.
Outcomes:	Ability to organize building design information in a working drawing format suitable for various purposes related to the execution of the project along with an ability to read building working drawings to extract specific information.

ARC- 2602 ESTIMATION,COSTING & SPECIFICATIONS **CONTACT HRS/WK =03 (L=2,S=0,W=1) CREDITS =03**	
Focus :	Understanding Quantity Surveying & Estimate preparation.
Content :	**Unit 1** ● Specification: Specification of different building items - general specification and detailed specification. **Unit 2** ● Rate Analysis: Meaning, Importance, Purpose and use, factors affecting rate analysis. Rate analysis of major items of building work. Factors affecting, cost of Work task work general information regarding S.O.R. **Unit 3** ● Estimates : Method of computing quantities, mode of measurement of all items of work, units of measurement IS 1200. Estimates of different items of work:- * Compound wall. * Small residential building 1 room with verandah. * Small residential building with 2 room kitchen with Bath W.C. * Two storied residential buildings. * R.C.C. work column, flooring, Beam - T Beam, Slab - One way/Two way; Slab including centering, shuttering & reinforcement. **Unit 4** ● Steel truss. * Material requirement for above items including Brick work; R.C.C.; Wooden items; doors, windows, Glass. **Unit 5** * Measurement Book its entry checking and preparation of Bill etc. Standard M.B. Term Work : Over and above the mentioned items, Estimate of Septic Tank, Soak Pit, Sanitary item – Plumbing, Electrification. Rate analysis of all major item to be prepare
Method :	Studio Exercise, Site Visit, Seminar, Presentation etc. Design assignment may be done as part of Studio project.
Skills	Students learn various Estimation methods techniques.
Outcomes:	Ability to use project management software and quantitative methods in project definition, administration of contracts, billing and verification, monitoring quality at site and participating in preparation of Detailed Project Report.

ARC- 2603 BUILDING CONSTRUCTION CONTACT HRS/WK = 03 (L=2,S=0,W=1) CREDITS =03	
Focus :	Understanding the construction process of Interior Construction and material use.
Content :	**Unit 1** Interior Construction - Partitions / Paneling **Unit 2** False Ceilings **Unit 3** Elevators, Escalators **Unit 4** Cabinets and Furniture &Kitchen platform **Unit 5** Internal/External finishes Glazing
Method:	Lecture, case study, sketching, drafting, field trip (Material study and construction study), market survey, measure drawing, technical drafting and projects
Skills	Develop the Construction process of Interior Construction and material use.
Outcomes:	Understanding of concepts taught in the semester through simple numerical calculations and models

ARC- 2604 ACOUSTICS	**CONTACT HRS/WK = 03**	**(L=2,S=0,W=1)**	**CREDITS =03**
Focus :	Understanding sound control as an important element in creating comfortable functional spaces.		
Content :	**UNIT 1:** Sound -Properties of Sound , room Acoustics . Acoustical defects, sound absorbing materials and sound proof construction. **UNIT 2:** Reverberation, Reverberation time for speech and music and its calculation. UNIT 3: Acoustical requirement of various building type. Acoustics and Building Materials. **UNIT 4:** Understanding Auditorium design – defects, ways of overcoming these defects. Acoustical requirements of a good Auditorium Design. Factors affecting Auditorium Design. **UNIT 5:** Noise Control : Means and measures for control, noise insulation, noise control requirements, constructional details and performance. Environmental Noise Control		
Method :	Lecture, case study, sketching, drafting, field trip (Material study and construction study), market survey, measure drawing, technical drafting and projects		
Skills	Material study and execution.		
Outcomes:	Ability to workout acoustic requirements and performance for a space.		

ARC- 2605 ADVANCED STRUCTURES CONTACT HRS/WK = 03 (L=2,S=0,W=1) CREDITS =03	
Focus :	Understanding Design and Detailing of the Steel Structures.
Content :	**Unit 1** Understanding types of joints in steel structures, riveted, welded and bolted joints Types of steel sections and their properties. **Unit 2** Use Of code of special practice for Steel members (Indian Standards) **Unit 3** Introduction to structural steel Rolled steel sections, Criteria for selection of steel sections for design. **Unit 4** Design and Detailing of a steel structure. Analysis of Tension members, compression members & flexural members. Concept of built up beams and columns – recommended uses. Concept of lacings, battening & importance of bracings. **Unit 5** Introduction and analysis of footings for steel columns. Conceptual study of general connections – Beam to beam connections – Beam to column connections – column to column connections – column to foundation connection.
Method :	Lecture, case study, sketching, drafting, field trip (Material study and construction study), market survey, measure drawing, technical drafting and projects
Skills	Drafting, Detailing & its application.
Outcomes:	Ability to configure the service core and external building skin using appropriate materials and building technologies available in the industry with an understanding of energy efficient, time-saving, precision-oriented approaches to quality construction.

ARC- 2606 REVIT/RHINO CONTACT HRS/WK = 02 (L=0,S=0,W=2) CREDITS =02	
Focus :	Advanced proficiency in architectural office software; transposing textual, numerical and graphic information across software platforms and devices to describe concepts holistically.
Content :	**Unit 1** Isometric views, perspectives, manipulation of camera angles, viewpoints, etc. **Unit 2** Rendering 3D views using material palettes, colors, textures, shades and shadows. **Unit 3** Inserting objects from digital libraries and other sources, using software such as 3DS Max. **Unit 4** 3D animation, walk-through sequences, superimposing animated videos over base images. Data-base management: Information filing and profiling, Technical Record-keeping and document transmission.
Method :	Lab Based learning
Skills	Software Skills.
Outcomes:	Ability to make photorealistic imagery of architectural objects with 3D CAD software through rendered perspective and walk-through presentations. Basic programming and scripting for architectural applications will be introduced.

ARC- 2607 FURNITURE DESIGN CONTACT HRS/WK = 02 (L=0,S=0,W=2) CREDITS =02	
Focus :	Understanding Ergonomics as a scientific base to develop comfort criteria for human activity specifically in furniture design.
Content :	**Unit 1** Ergonomics-its basic theory and relationship with human comfort criteria, **Unit 2** Furniture Design awareness ergonomics principle in furniture design. **Unit 3** Analysis of elements of furniture design in residential interior. **Unit 4** Designing furniture including storage units, sitting elements etc.
Method :	Lecture, case study, sketching, drafting, field trip (Material study and construction study), market survey, measure drawing, technical drafting and projects
Skills	Modeling and Designing skills
Outcomes:	Ability to relate the history of furniture and design.

ARC- 2608 RESEARCH METHODOLOGY - II CONTACT HRS/WK = 02 (L=0,S=0,W=2) CREDITS =02	
Focus :	Understanding the methodological approach to carry out a research based program in order to design an architectural project involving a set of complex issues.
Content :	**Unit 1** Nature and function of research, scientific research, meaning of research in the field of architectural design. **Unit 2** Pure and applied research. **Unit 3** Stages of research and design; design and research methodology Techniques of data collection Forms of research reporting. **Unit 4** Structure of a report Writing skills, presentation aids Use of primary and secondary references, bibliography, notations, cross reference etc. Nature of an undergraduate thesis, its structure and other requirements.
Method :	The course must be conducted as a mix of lectures/discussions with a number of assignments and exercises to impart the skills necessary for carrying out the dissertation. Preparation of a viable proposal for the next semester's dissertation work is expected by the end of the semester.
Skills:	Research and Report Writing Skills.
Outcomes:	Ability to independently handle an Architectural Design Project, research the requirements of a project, Prepare a brief, try alternative approaches/ concepts, and evaluate them on way to make a final comprehensive proposition.

FOURTH YEAR OF B.Arch : SEMESTER VII

ARC-2701 ARCHITECTURAL DESIGN STUDIO VII (office Training)
CONTACT HRS/WK =35-40 (L=0,S=36 ,W=0) CREDITS = 24

Focus :	To make students aware of and to inculcate a sense of appreciation in all the operations that take place- right from the preliminary sketch design to the completion of the project.
Contents:	● The students must complete a minimum of sixteen-eighteen weeks (minimum 90 working days) of training in a registered architectural practice firm. ● They are required to participate in each activity of the organization for a minimum period of one week. ● Maintaining a weekly report file and recording their activities during training period in detail The student is also expected to do case study of one project that he is associated with, during his training period. This study should include a complete documentation and analysis of the architectural / structural and constructional aspects of the project. ● Details which are deemed confidential by the firm should not be included in the study report, which must be submitted along with the Weekly Report File. ● A student is expected to work on preparation of Municipal drawings, basic knowledge about documentation, tender work, marking of layout on site, sanitary fittings, office administration etc.
Learning Outcomes	Students must demonstrate an understanding of: i. The design philosophy, or vision of the architectural office and its implementation ii. How the architectural design process evolves when structural and service issues are Integrated to create the final product based on the projects handled by the student. iii. How drawings are used at site and an insight into the relationship between the site and the office based on the projects handled by the student.
Methods:	A student shall work in a well-established private architect's office, or government, semi – government office related to architectural work.

ARC-2702 ARCHITECTURAL JOURNALISM (CONTACT HRS/WK = 06) (L=0,S=0,W=6) CREDITS = 06	
Focus :	Introduction to basic skills relevant to the practice of professional journalism.
Contents :	**Unit 1** Fundamentals of writing, Technologies and journals. **Unit 2** Contemporary architectural journalism; Code of Ethics and Press Laws. **Unit 3** Regional, National and International discussion forums; Public Discourse on the Internet, **Unit 4** Mass Media and Public Opinion; Critique on selected pieces of journalism. **Unit 5** Introduction to Photojournalism; contributions of photography to the professional practice of architecture; modern photography techniques.
Learning Outcomes	Ability to develop counseling skills, interpersonal ability and communication skills in areas relating to architecture projects.
Skill	Develop skills relevant to the practice of professional journalism.

FOURTH YEAR OF B.Arch : SEMESTER VIII

ARC-2801 ARCHITECTURAL DESIGN STUDIO VIII (Housing) CONTACT HRS/WK = 15
(L=0,S=15,W=0) CREDITS = 15

Focus :	Housing Design.
Contents:	● Study of Housing designs & urban neighborhoods to understand the nature and character of user groups, historical development and future growth trends, socio-economic and environmental characteristics, issues of density, land use, ground coverage. ● Analysis of land use, ground coverage, density, building line, housing typology, transport and circulation systems, form & character of built- environment and open spaces. ● Relationship between socio-economic & cultural aspects and physical fabric of the settlement. Influence of climate and geo-physical attributes of the location.
Project :	Housing design for a rapidly urbanizing settlement in the vicinity or a sector of a large urban area.
Learning Outcomes:	Ability to identify user needs of housing and translate them into a program and thereafter use the program to manifest them in a design in terms of space, materials and construction methodology that is appropriate in a particular context.
Skill :	Analysis of multiple aspects of emergent design pattern of settlement, synthesis of diverse requirements. Resolution of diverse demands/requirements. Application of social, environmental, economic and political issues in the shaping of settlements.

ARC-2802 Environmental & Ecology in Architecture CONTACT HRS/WK = 03 (L=2,S=0,W=1) CREDITS = 03	
Focus :	To make the students understand the basic concepts of ecology, Urban Ecology, natural systems and environment.
Contents:	**Unit 1** Introduction to Urban Ecosystems. Basis of environmental science. Ecology, Ecosystems, Habitat, **Unit 2** Structure of the ecosystem, major ecosystems, productivity of ecosystems adaptation. **Unit 3** Flow of energy, food chain, ecological pyramids, predation, regulatory forces. Components of the natural and built environment. **Unit 4** Different types of life supporting services provided by nature. General concept of urban ecological planning. Impact of urbanization and industrialization on nature. Resilience and Biodiversity, resources planning and climate resilient urban development. **Unit 5** Examination of critical issues underlying the current and future environmental problems. Human impact on the environment. Modification of the natural environment – Current conditions of natural resources like land, water, air. Over exploitation of natural resources, agriculture, fishing, mineral resources, energy resources, forest wealth etc.
Project :	Lecture, case study, sketching, drafting, field trip (Material study and construction study), market survey, measure drawing, technical drafting and projects
Learning Outcomes:	Classroom lecture based study
Skill :	Awareness of a wide range of environmental concerns and ability to act at their own level to protect the environment we all live in.

ARC-2803 ADVANCED CONSTRUCTION TECHNIQUES	**CONTACT HRS/WK = 03 (L=2,S=0,W=1) CREDITS = 03**
Focus:	(A) Understanding construction of complicated buildings and structures. (B) Techniques for planning and implementation of construction projects
Content :	(A) CONSTRUCTION TECHNOLOGY Geodesic forms. Shell structures. Long span structures / Lightweight structures - space frame, Cable/ catenary structure Construction of High Rise Buildings Intelligent Buildings and automation systems Building Engineering and system design Passive buildings Life safety concerns Fire protection (B) PROJECT MANAGEMENT Nature of construction projects, need for proper planning and Management Processes and Equipment used. Techniques for scheduling : bar charts, Network diagram, project Evaluation and Review Techniques, Critical path Method. Practical implementation and application of PERT and CPM to typical construction projects. Maintenance of records, bills and method of making payments.
Method	Lecture, case study, sketching, drafting, field trip (Material study and construction study), market survey, measure drawing, technical drafting and projects
Skills:	Develop skill howsocialdimensionsplayanimportantroleinshapingBuilt Environment &awarenesstowardsthePsychologicalresponses.
Learning Outcomes	• Analyses various approaches to construction in relation to their historical and cultural context. • Evaluate the relationship between construction and design through a theoretical framework. • Carry out research into construction and construction practices through personally guided research.

ARC-2804 PROJECT MANAGEMENT CONTACT HRS/WK = 03 (L=2,S=0,W=1) CREDITS = 03	
Focus :	Techniques for planning and implementation of construction projects.
Contents:	**Unit 1** Nature of construction projects, need for proper planning and Management Processes and Equipment used. **Unit 2** Techniques for scheduling : bar charts, Network diagram, project Evaluation and Review Techniques, Critical path Method. **Unit 3** Practical implementation and application of PERT and CPM to typical construction projects. **Unit 4** Maintenance of records, bills and method of making payments. **Unit 5**
Method :	Lecture, case study, sketching, drafting, field trip (Material study and construction study), market survey, measure drawing, technical drafting and projects
Skills :	Students learn Techniques for planning and implementation of construction projects.
Learning Outcomes	Ability to use project management skill and quantitative methods in project definition, administration of contracts, billing and verification, monitoring quality at site and participating in preparation of Detailed Project Report.

ARC-2805 BIM	**CONTACT HRS/WK = 03 (L=2,S=0,W=1)**	**CREDITS = 03**
Focus :	Building information modeling in architecture	
Contents:	**Unit 1** Lab based course to build comprehensive Building Information Models (BIM) using appropriate Digital software and Media. **Unit 2** BIM for building energy simulation. **Unit 3** BIM for cost estimating, project phasing and administration.	
Learning Outcomes	Ability to use & understand Building information modeling.	
Skills	Develop skill on Building information modeling in architecture.	

ARC-2806 EARTHQUAKE RESISTANT ARCHITECTURE CONTACT HRS/WK = 03 (L=2,S=0,W=1) CREDITS = 03	
Focus :	Understanding of structure form & Structural system, Material and Construction Techniques for seismic resistance architecture.
Contents:	**Unit 1** Fundamentals of Earthquake and the basic terminology. **Unit 2** Historical experience; Site Planning and Performance of Ground and Buildings; Seismic codes and building configuration. **Unit 3** Seismic design and detailing of non-engineered construction. **Unit 4** Seismic design and detailing of Reinforced Concrete and steel buildings; Design of non-structural. **Unit 5** Elements of architectural design for Seismic resistance.
Learning Outcomes:	To demonstrate an understanding of concepts taught during the semester through simple calculations and models.
Skills	Develop Understanding of structure form & Structural system, Material and Construction Techniques for seismic resistance architecture.
Methods	Lecture, case study, sketching, drafting, field trip (Material study and construction study), market survey, measure drawing, technical drafting and projects

FIFTH YEAR OF B.Arch : SEMESTER IX

ARC-2901 ARCHITECTURAL DESIGN STUDIO IX CONTACT HRS/WK = 18
(L=0,S=18,W=0) CREDITS = 18

Focus :	To evaluate the ability of students to deal with and resolve complex issues into a valid expression of architectural character and contextually. Focus is on the architecture for the collective design of Settlement level Institution/Housing/Amenity.
Contents:	● Architecture for the Public Domain is emphasized through detailed analysis & study of a town/ or Parts. ● Design resolution for a project in the urban fabric selected within a given town, with the intention of developing individual designs for diverse projects within on overall conceptual development For the settlement. ● A comprehensive resolution of all aspects of the project- detailed design, control mechanisms, Structure and materials, landscaping etc. must be stressed.
Projects :	Projects could be of the following nature :Urban infill, Slum Up-gradation, Conservation and Revitalization of core areas, new development etc.
Methods:	Lecture, case study, sketching, drafting, field trip (Material study and construction study), market survey, measure drawing, technical drafting and projects
Learning Outcomes	● Ability to comprehend architecture at the urban scale, understand the problematic issues in a given urban area after a methodical analysis and contemplate possible urban design solutions that will guide built-form and open-space morphology.

ARC-2902 AGRO ARCHITECTURE (CONTACT HRS/WK = 03 (L=2,S=0,W=1) CREDITS = 03	
Focus :	
Contents:	
Projects :	
Method:	
Outcome:	

ARC-2903 PROFESSIONAL PRACTICE CONTACT HRS/WK = 03 (L=2,S=0,W=1)) CREDITS = 03	
Focus :	Creating an awareness of the role & responsibilities of an architect.
Contents:	**Unit 1** Role of an architect, responsibilities and liabilities with respect to client and society. Duties, Powers and functions. Architects Act 1972- aims, objectives, provisions for registration with Council of Architecture. Rules and regulations under the Act, Indian Institute of Architects and its role. **Unit 2** Professional work and scale of fees, mode of working and payments, phasing of projects etc. **Unit 3** Architectural Competitions- need, procedures for conducting , rules and regulations etc. **Unit 4** Arbitration - settling of disputes through arbitration, the Arbitration Act, procedures and method of working. Role of an architect as an Arbitrator. **Unit 5** Tendering, contracts and articles of agreement, execution of contract, appointment of clerk of works, site supervisor, contractor and subcontractor etc. Office Management: Types of firms and legal implications. Accounts and Finance, Procedures for loans. Maintaining office records. Office personnel and legal provisions Regarding employees of small firms. Settling problems and disputes arising out of contract Conditions, extra items variation in work quality, insurance and compensation of workers etc.
Learning Outcome:	Familiarity with the procedures for tendering, arbitration, valuation of works and real estate and aspects of international practice. Proficiency in preparation of projects proposals and presentations for procuring projects.
Skill :	Develop awareness of the role & responsibilities of an architect.
Methods:	Lecture, case study, sketching, drafting, field trip (Material study and construction study), market survey, measure drawing, technical drafting and projects

ARC-2904 RESEARCH PROJECT CONTACT HRS/WK = 03 (L=1,S=0,W=2) CREDITS = 03	
Focus :	Understanding the methodological approach to carry out a research based program in order to Design an architectural project involving a set of complex issues.
Contents:	**Unit 1** Nature and function of research, scientific research, meaning of research in the field of architectural design. **Unit 2** Pure and applied research, Stages of research and design; design and research methodology **Unit 3** Techniques of data collection, Forms of research reporting, structure of a report. **Unit 4** Writing skills, presentation aids **Unit 5** Use of primary and secondary references, bibliography, notations, cross reference etc. Nature of an undergraduate thesis, its structure and other requirements.
Learning Outcomes :	● The student will develop the skill to identify, decipher and interpret issues relating to architecture based on research enquiry methods. ● The student will gain knowledge of different methods of conducting research and research writing.
Method :	The course must be conducted as a mix of lectures/discussions with a number of assignments and exercises to impart the skills necessary for carrying out the dissertation. Preparation of a viable proposal for the next semester's dissertation work is expected by the end of the semester.

ARC-2905 SUSTAINABLE CITIES CONTACT HRS/WK = 03 (L=2,S=0,W=1) CREDITS = 03	
Focus :	Focus on Sustainability concepts & various Theories.
Contents:	**Unit 1** Introduction to Green concepts. **Unit 2** Depleting resources and climate change. **Unit 3** Sustainable site selection and development of sustainable building materials and technologies. **Unit 4** Low impact construction – Biomimicry, Dimensions of sustainable, sustainable community. **Unit 5** Case studies of eco- cities/ communities.
Skill	Study Global scenario of Sustainability concepts & various Theories.
Methods	Lecture, PPT, Domestic & Global case study .
Learning Outcomes:	By the end of the course students should be aware of basic components of sustainable city development.

FIFTH YEAR OF B.ARCH : SEMESTER X

ARC-21001 ARCHITECTURAL DESIGN STUDIO X (THESIS) CONTACT HRS/WK = 18 (L=0,S=18,W=0) CREDITS = 18

Focus :	Inquiry by Design / Research
Contents:	The Thesis is intended to evaluate the student's capacity and maturity in the field of Architecture. Study in the chosen field to be carried out in two stages : A) Data collection & analysis - An in depth investigation into the aspects of the chosen area. - Analysis of data, inferences to establish underlying principles. - Reviews of existing practices / theory in view of current contexts. B) Design / Research - Prepare a detailed program. - Design or Research on the basis of studies carried out in Part A.
Learning Outcomes:	Ability to independently handle an Architectural Design Project, research the requirements of a project, Prepare a brief, try alternative approaches/ concepts, and evaluate them on way to make a final comprehensive proposition.

ARC-21002 ENTREPRENEURSHIP CONTACT HRS/WK = 03 (L=2,S=0,W=1) CREDITS = 03	
Focus :	Understanding the value of entrepreneurship in architecture and the design professions.
Contents:	**Unit 1** Introduction to entrepreneurship; leadership skills and self-motivation; marketing and finance management; **Unit 2** starting a small business; future-oriented design principles to increase the design organization‘s innovative and competitive qualities; **Unit 3** Sustainability; Risk-taking; Job procurement; Employee management; marketing; Social entrepreneurship and its relevance to the practice of architecture.
Method:	Lecture, case study, sketching, drafting, field trip (Material study and construction study), market survey, measure drawing, technical drafting and projects
Skills:	Develop skill on Understanding the value of entrepreneurship in architecture and the design professions.
Learning Outcomes:	● Develop awareness about entrepreneurship and successful entrepreneurs. ● Develop an entrepreneurial mind-set by learning key skills such as design, personal selling, and communication.

ARC-21003 WEBSITE DESIGN (CONTACT HRS/WK = 03) (L=1,S=0,W=2) CREDITS = 03	
Focus :	Inquiry on website designing
Contents:	**Unit 1** Build a website. **Unit 2** Discover interesting web design tools, and start your path to becoming a web designer.
Method:	Lecture,case study.
Skills:	**Develop a basic Ideas about website designing**

ARC-21004 PRODUCT DESIGN CONTACT HRS/WK = 06 (L=0,S=6,W=0) CREDITS = 06	
Focus :	Creation and design of products for industry. Understanding of the initial process of innovation in all of its facets: creative, aesthetic, social and technological.
Contents:	**Unit 1** Graphic design elements, principles and applications. **Unit 2** Unit Concept of form and space in product design; Relating Form to Materials and Processes of Manufacture. **Unit 3** Use of Computers for Form generation; Creativity techniques; product **Unit 4** Detailing and manufacture; exploratory mockup models for concept development, refinement and detailing; product design prototyping and advanced manufacturing processes.
Method:	Lecture, case study, sketching, drafting, field trip (Material study and construction study), market survey, measure drawing, technical drafting and projects
Skills:	Develop design of products for industry. Understanding the initial process of innovation.
Learning Outcomes:	● Understand modern product development processes. ● Understand and explain the concept of Industrial design and robust design concepts. ● Understand the concept of Design for manufacture and assembly. ● Understand the legal factors, social issues, engineering ethics related to product design

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