B.Arch. : Syllabus Revision in 2016-17.

S. No	Course Code	Session 2015-16	Session 2016-17	Remark Syllabus Change/ new course
1	1JAR1	**1JAR1** **ENGLISH CMMUNICAITON** **UNIT – I** Basic Communication Model Verbal and Non Verbal Communication Questioning Skills Using English Language Properly • Use of words • Common Errors in English Active and Passive Voice **UNIT – II** **Composition-I** • Précis • Essay • Paragraph Copy Writing for advertisements — characteristics of a good advertisement, aids to make advertisement attractive and effective. **UNIT – III** **Composition-II** • Technical reports and letter writing • Speeches, profile of speaker, characteristics of speech. • Aesthetic and critical writing, kinesics. • Appreciation of scene, figures and images. **UNIT – IV** Business & Professional Letter writing. **UNIT – V** Presentation Skills (for formal design presentations, seminars etc) Listening Skills Preparing Written Reports	**1JAR1** **ENGLISH CMMUNICAITON** **UNIT – I** Basic Communication Model Verbal and Non Verbal Communication Questioning Skills Using English Language Properly • Use of words • Common Errors in English Active and Passive Voice **UNIT – II** **Composition-I** • Précis • Essay • Paragraph Copy Writing for advertisements — characteristics of a good advertisement, aids to make advertisement attractive and effective. **UNIT – III** **Composition-II** • Technical reports and letter writing • Speeches, profile of speaker, characteristics of speech. • Aesthetic and critical writing, kinesics. • Appreciation of scene, figures and images. **UNIT – IV** Business & Professional Letter writing. **UNIT – V** Presentation Skills (for formal design presentations, seminars etc) Listening Skills Preparing Written Reports	**No Change**
2	1JAR2	**1JAR2** **MATHEMATICS** **UNIT – I** **Statistics** Mathematical expression, Moments and M.G.F., Probability-simple problems, Binomial, Poisson and normal distributions-simple applications	**1JAR2** **MATHEMATICS** **UNIT – I** **Statistics** Mathematical expression, Moments and M.G.F., Probability-simple problems, Binomial, Poisson and normal distributions-simple applications	**No Change**

		UNIT – II **Differential Equations** First order and first degree-variables separable, Homogeneous form, reducible to homogeneous form, Linear differential Equation, reducible to Linear form, exact equations, second order ODE with constant coefficients **UNIT – III** **Matrices** Rank of matrix, solutions of linear simultaneous equation, inverse of matrix by elementary transformations, Eigen values, Eigen vectors, Cayley Hamilton Theorem (without proof). **UNIT – IV** **Linear Programme Problems** **UNIT – V** **Coordinate Geometry of Three Dimensions** Sphere, Cylinder, Cone, Equation of Sphere, Cone Right Circular Cone.	**UNIT – II** **Differential Equations** First order and first degree-variables separable, Homogeneous form, reducible to homogeneous form, Linear differential Equation, reducible to Linear form, exact equations, second order ODE with constant coefficients **UNIT – III** **Matrices** Rank of matrix, solutions of linear simultaneous equation, inverse of matrix by elementary transformations, Eigen values, Eigen vectors, Cayley Hamilton Theorem (without proof). **UNIT – IV** **Linear Programme Problems** **UNIT – V** **Coordinate Geometry of Three Dimensions** Sphere, Cylinder, Cone, Equation of Sphere, Cone Right Circular Cone.	
3	**1JAR3**	**1JAR3** **CONSTRUCTION MATERIALS-I** In the context of Materials, Study of the nature of Materials, the Manufacturing Process, Structural, Visual and Textural Properties, Identification and Selection, their application in buildings. STONE BRICK TIMBER	**1JAR3** **CONSTRUCTION MATERIALS-I** In the context of Materials, Study of the nature of Materials, the Manufacturing Process, Structural, Visual and Textural Properties, Identification and Selection, their application in buildings. STONE BRICK TIMBER	**No Change**
4	**1JAR4**	**1JAR4** **ARCHITECTURAL STRUCTURES-I** **UNIT – I** **Concept of Force** Graphical Presentation of Force, Coplanar And Ten Coplanar Forces, Concurrent and Non Concurrent Forces. **UNIT – II** **Built-up Steel Section** Centre of Gravity and Moments of Inertia, Parallel Axes Theorems, Product of Inertia, Use of Steel Tables. **UNIT – III**	**1JAR4** **ARCHITECTURAL STRUCTURES-I** **UNIT – I** **Concept of Force** Graphical Presentation of Force, Coplanar And Ten Coplanar Forces, Concurrent and Non Concurrent Forces. Composition and Resolution of Coplanar Forces Graphical and Analytical Methods. **UNIT – II** **Built-up Steel Section** Centre of Gravity and Moments of Inertia, Parallel Axes Theorems, Product of Inertia, Use of Steel Tables.	**Content Add**

		Stress and Strain l concept units, tensile, compressive and shear stresses, Modulii of Elasticity and their relationship, Linear and Lateral Strains, Poisson's Ratio, Stress Values for Timber, Cast Iron, Mild Steel and for Steel in Tension Compression, Shear and Bending as per ISI Code. **UNIT – IV** **Types of Loads** Dead, Live, Wind, Impact and Earthquake, Concentrated, Uniformly Distributed and Varying Loads, Moment of a Force. **UNIT –V** **Couple and its Moment** Conditions of Statistical Equilibrium of forces, Concept of Beams and Various Support Conditions, Determination of Support Reactions, both Analytically and Graphically.	**UNIT – III** **Stress and Strain** l concept units, tensile, compressive and shear stresses, Modulii of Elasticity and their relationship, Linear and Lateral Strains, Poisson's Ratio, Stress Values for Timber, Cast Iron, Mild Steel and for Steel in Tension Compression, Shear and Bending as per ISI Code. **UNIT – IV** **Types of Loads** Dead, Live, Wind, Impact and Earthquake, Concentrated, Uniformly Distributed and Varying Loads, Moment of a Force. **UNIT –V** **Couple and its Moment** Conditions of Statistical Equilibrium of forces, Concept of Beams and Various Support Conditions, Determination of Support Reactions, both Analytically and Graphically.	
5	**1JAR5**	**1JAR5** **ARCHITECHURAL DRAWING-I** **UNIT – I** Graphical Codes, Symbols and Scales • Architectural letterings • Types of lines • Symbolic representations of building materials • Symbolic Representations of Building parts. • Plane Scales Diagonal Scales **UNIT – II** Principles of Pane Geometric views and Projections • Isometric views • Axonometric views • Oblique views • Isometric projections • Axonometric Projections Oblique Projections UNIT – III **Orthographic projections (One and two Dimensions)** • Points • Lines • Lamina (Planes) **(Parallel, Perpendicular and inclined projections of above)**	**1JAR5** **ARCHITECHURAL DRAWING-I** **UNIT – I** Graphical Codes, Symbols and Scales • Architectural letterings • Types of lines • Symbolic representations of building materials • Symbolic Representations of Building parts. • Plane Scales Diagonal Scales **UNIT – II** Principles of Pane Geometric views and Projections • Isometric views • Axonometric views • Oblique views • Isometric projections • Axonometric Projections Oblique Projections UNIT – III **Orthographic projections (One and two Dimensions)** • Points • Lines • Lamina (Planes) **(Parallel, Perpendicular and inclined projections of above)**	**No Change**

		UNIT – IV **Orthographic projections (Three Dimensions)** Various solid — Parallel, Perpendicular and inclined projections. **UNIT – V** **Sections, Interpenetrations and Development of Surfaces** • Sections of various solid - Parallel, Perpendicular and inclined. Interpenetration of various solid geometrical object	UNIT – IV **Orthographic projections (Three Dimensions)** Various solid — Parallel, Perpendicular and inclined projections. **UNIT – V** **Sections, Interpenetrations and Development of Surfaces** • Sections of various solid - Parallel, Perpendicular and inclined. Interpenetration of various solid geometrical object	
6	**1JAR6**	**1JAR6** **ARTS AND GRAPHICS I** UNIT – I **To learn the utility of pencil as a powerful tool of graphic communication.** UNIT – II Rendering Techniques **UNIT – III** **Human Figures, Vegetation & their Rendering** UNIT – IV To Appreciate the role of different color in Presentation and Rendering Techniques UNIT – V Analytical study of color wheel	**1JAR6** **ARTS AND GRAPHICS I** UNIT – I **To learn the utility of pencil as a powerful tool of graphic communication.** UNIT – II Rendering Techniques **UNIT – III** **Human Figures, Vegetation & their Rendering** UNIT – IV To Appreciate the role of different color in Presentation and Rendering Techniques UNIT – V Analytical study of color wheel	**No Change**
7	**1JAR7**	1JAR7 **BUILDING CONSTRUCTION–I** **Brick:** • Types of bricks. • Bonds in brick masonry for various thicknesses of walls and various situations like ends, junctions, etc. Cavity walls. **Stone:** • Stone dressing of different types. • Stone masonry of different types for various thicknesses of walls. Jointing and pointing / coping **Foundation:** • Types of simple foundations. • In Bricks	1JAR7 **BUILDING CONSTRUCTION–I** **Brick:** • Types of bricks. • Bonds in brick masonry for various thicknesses of walls and various situations like ends, junctions, etc. • Attached and detached pier. • Jointing and pointing. Cavity walls. **Stone:** • Stone dressing of different types. • Stone masonry of different types for various thicknesses of walls. Jointing and pointing / coping **Foundation:**	**Content Add**

		• In Stones, Timbering to excavation. **Arches:** • Type of Arches • Brick Arches Stones Arches **Lintels:** • Type of Lintels • Brick Lintels. • Stone lintels, Centering materials and methods.	• Types of simple foundations. • In Bricks • In Stones, Timbering to excavation. **Arches:** • Type of Arches • Brick Arches Stones Arches **Lintels:** • Type of Lintels • Brick Lintels. • Stone lintels, Centering materials and methods.	
8	**1JAR8**	1JAR8 **INTRODUCTION TO COMPUTERS–I** Unit - I Computer as a Tool for Architects Introduction to Computer and its Peripherals UNIT – II Hardware Brief (Useful For Architects) Viz. CPU, Keyboard, Mouse, Printer, Plotter, Scanner, Digitizer Etc. UNIT – III Introduction to Various Software . UNIT – IV Excel, PowerPoint. UNIT – V Introduction to Basic Internet Applications.	1JAR8 **INTRODUCTION TO COMPUTERS–I** Unit - I Computer as a Tool for Architects Introduction to Computer and its Peripherals UNIT – II Hardware Brief (Useful For Architects) Viz. CPU, Keyboard, Mouse, Printer, Plotter, Scanner, Digitizer Etc. UNIT – III Introduction to Various Software . Relevant to Architects viz. MS Word. UNIT – IV Excel, PowerPoint. UNIT – V Introduction to Basic Internet Applications.	**Content Add**
9	**1JAR9**	**1JAR9** **WORKSHOP PRACTICE (PHOTOGRAPHY, CARPENTRY, WELDING & MODEL MAKING)** **UNIT – I** To Provide Technical know how about Cameras, its Accessories and their Applications Including the Following: Camera-Definition, History, Types and Usage, Aperture, Shutter Speed, Types of Lenses and Accessories **Unit II** Film Rolls, Types and Usages. Flash, Types and Usage **Unit III**	**1JAR9** **WORKSHOP PRACTICE (PHOTOGRAPHY, CARPENTRY, WELDING & MODEL MAKING)** **UNIT – I** To Provide Technical know how about Cameras, its Accessories and their Applications Including the Following: Camera-Definition, History, Types and Usage, Aperture, Shutter Speed, Types of Lenses and Accessories **Unit II** Film Rolls, Types and Usages. Flash, Types and Usage **Unit III**	**Content Add**

		Digital Photography, Technical details of Digital Camera like Pixels, white balance, night shots etc. Editing and formatting Digital Images **Unit IV** Composition-Settings with respect to view finder, Weather, Place, Colour, Mood and purpose. Architectural-Exteriors and Interiors with respect to Scale, Composition, Texture, Colour, Skyline, Light and Shade **Unit V** Carpentry: Handling different carpentry tools, carpentry processes, carpentry joints and wood working machines Types of joints in wood and metals	Digital Photography, Technical details of Digital Camera like Pixels, white balance, night shots etc. Editing and formatting Digital Images **Unit IV** Composition-Settings with respect to view finder, Weather, Place, Colour, Mood and purpose. Architectural-Exteriors and Interiors with respect to Scale, Composition, Texture, Colour, Skyline, Light and Shade **Unit V** Carpentry: Handling different carpentry tools, carpentry processes, carpentry joints and wood working machines Masonry: Handling the bricks, mixing the mortar, bond work of bricks, stones and masonry tools. Types of joints in wood and metals	
10	**1JAR11**	**1JAR11** **BASIC DESIGN AND FIELD TRIP** **Unit I** Points, Lines, Planes, Color theory and compositions. Introduction to modern Arts and various other techniques. Principles of Design, Scale in Architecture. **Unit II** Forms, Properties of forms, variations in forms with inter-relationship among planes, colours, tones, textures. Application of them in two and three-dimensional compositions, presented in form of scaled drawings, views, and freehand sketches to develop the skill and understanding of forms, proportions etc. in various media viz. pencil, pens, colors etc. **Unit III** Study through models of different materials viz. paper, clay, wax, soap, wires etc. The idea is mass and space handling with understanding the roles of form, colour and texture. **Unit IV** Anthropometric study and ergonomics of human figure, dimensions of furniture and relationship with human anthropometrics (like in kitchens, toilets, bedrooms, staircases etc) with freehand drawing of human figures, vehicles, trees, buildings etc. to have a better understanding of proportion. **Unit V** Designing of basic building components (like kitchens, bedrooms, toilets etc.)	**1JAR11** **BASIC DESIGN AND FIELD TRIP** **Unit I** Points, Lines, Planes, Color theory and compositions. Introduction to modern Arts and various other techniques. Principles of Design, Scale in Architecture. **Unit II** Forms, Properties of forms, variations in forms with inter-relationship among planes, colours, tones, textures. Application of them in two and three-dimensional compositions, presented in form of scaled drawings, views, and freehand sketches to develop the skill and understanding of forms, proportions etc. in various media viz. pencil, pens, colors etc. **Unit III** Study through models of different materials viz. paper, clay, wax, soap, wires etc. The idea is mass and space handling with understanding the roles of form, colour and texture. **Unit IV** Anthropometric study and ergonomics of human figure, dimensions of furniture and relationship with human anthropometrics (like in kitchens, toilets, bedrooms, staircases etc) with freehand drawing of human figures, vehicles, trees, buildings etc. to have a better understanding of proportion. **Unit V** Designing of basic building components (like kitchens, bedrooms, toilets etc.)	**Content Add**

11	2JAR1	**2JAR1** **ECOLOGY &** **ENVIRONMENT** **Unit I** **Ecosystems:** • Concept of eco-system, • Fundamental of eco-logy and ecosystem, • Components of ecosystem, • Food chain, food web, trophic levels, energy flow, cycling of nutrients, • Major ecosystem types (forest, grassland, and aquatic eco-system). Fundamentals of Ecosystem, our Earth's Environment **Unit II** **Waste (Solid / Liquid / Gaseous):** Generated by Human Habitat and Treatment thereof (in Brief) **Air pollution:** • Atmospheric composition • Classification of air pollutants, • Source and effect of pollutants — green house effect, global warming, ozone depletion, atmospheric stability and temperature inversion etc. • Ambient air quality standards. **Water Conservation and Harvesting (in Brief):** **Water pollution:** • Hydrosphere, Natural water • Classification of water pollutants, trace elements, contamination of water, • Sources and effects of water pollution, types of pollutants • Determination and significance of DO, BOD and COD in waste water. **Land and noise pollution:** • Lithosphere, • Pollutants (agricultural, industrial, urban waste, hazardous waste)— their origin and effect. • Collection of solid waste, solid waste management, recycling and reduction of solid waste and their disposal techniques (open dumping, sanitary land filling, thermal, composting). • Sources, effects, standards and control measures. Architectural measures for reducing land and noise pollution.	**2JAR1** **ECOLOGY &** **ENVIRONMENT** **Unit I** **Ecosystems:** • Concept of eco-system, • Fundamental of eco-logy and ecosystem, • Components of ecosystem, • Food chain, food web, trophic levels, energy flow, cycling of nutrients, • Major ecosystem types (forest, grassland, and aquatic eco-system). Fundamentals of Ecosystem, our Earth's Environment **Unit II** **Waste (Solid / Liquid / Gaseous):** Generated by Human Habitat and Treatment thereof (in Brief) **Air pollution:** • Atmospheric composition • Classification of air pollutants, • Source and effect of pollutants — green house effect, global warming, ozone depletion, atmospheric stability and temperature inversion etc. • Ambient air quality standards. • Architectural measures for reducing air pollution. • **Water Conservation and Harvesting (in Brief):** **Water pollution:** • Hydrosphere, Natural water • Classification of water pollutants, trace elements, contamination of water, • Sources and effects of water pollution, types of pollutants • Determination and significance of DO, BOD and COD in waste water. • Eutrophication, methods and equipments used in waste water treatment (Preliminary, secondary and tertiary) • Architectural measures for reducing water pollution. • **Land and noise pollution:** • Lithosphere, • Pollutants (agricultural, industrial, urban waste, hazardous waste)— their origin and effect. • Collection of solid waste, solid waste management, recycling and reduction	**Content Add**

		Unit III **Eco-friendly Architecture:** • Urban eco-system and rural ecosystems • Inter-relationship of manmade development with eco-processes. • Eco-friendly materials, • Eco-friendly energy systems. Works of various architects who have worked in the field of eco-friendly architecture. **Unit IV** • Environmental Planning and Design Guidelines • Basics Concepts of Green Architecture Geological aspects of Land strata for construction **Unit V** • Global environmental issues such as global Warming, Ozone depletion, green house effect etc. Awareness about Natural and Built Heritage	of solid waste and their disposal techniques (open dumping, sanitary land filling, thermal, composting). • Noise pollution — definitions and causes. • Sources, effects, standards and control measures. Architectural measures for reducing land and noise pollution. **Unit III** **Eco-friendly Architecture:** • Urban eco-system and rural ecosystems • Inter-relationship of manmade development with eco-processes. • Eco-friendly materials, • Eco-friendly energy systems. Works of various architects who have worked in the field of eco-friendly architecture. **Unit IV** • Environmental Planning and Design Guidelines • Basics Concepts of Green Architecture Geological aspects of Land strata for construction **Unit V** • Global environmental issues such as global Warming, Ozone depletion, green house effect etc. Awareness about Natural and Built Heritage	
12	**2JAR2**	**2JAR2** **CONSTRUCTION MATERIAL-II** **Unit I** In the context of material, study of The Nature of Materials, Structural, Visual and Textural Properties, The Manufacturing Process, Identification and Selection, Their Application in Buildings Mud **Unit II** Lime **Unit III** Cement **Unit IV** Sand **Unit V** Stone Grit	**2JAR2** **CONSTRUCTION MATERIAL-II** **Unit I** In the context of material, study of The Nature of Materials, Structural, Visual and Textural Properties, The Manufacturing Process, Identification and Selection, Their Application in Buildings Mud **Unit II** Lime **Unit III** Cement **Unit IV** Sand **Unit V** Stone Grit	**No Change**
13	**2JAR3**	**2JAR3** **ARCHITECTURAL STRUCTURES-II** **Unit I** • Shear force and bending moment diagram for simply supported beam, cantilever beam, overhang beam	**2JAR3** **ARCHITECTURAL STRUCTURES-II** **Unit I** • Shear force and bending moment diagram for simply supported beam, cantilever beam, overhang beam	**No Change**

		(subjected to point load, U.D.L and point load/U.D.L.) • Point of contra flexure, Member subjected to couple. **Unit II** • Theory of bending (simple and pure) • Bending equation, • Section modulus (only for Rectangular, hollow rectangular) • Shear stress distribution for rectangular beam section • Introduction of flitched beam. Equation of flexure and its derivation; section modulus; distribution of normal stress due to bending **Unit III** Composite beams; shear stress distribution in rectangular, circular, T and I sections **Unit IV** Plane frames; components of plane frames; determination of forces in members by method of joints and graphical method **Unit V** Lifting machines; mechanical advantage; velocity ratio and efficiency of machines; law of machine; pulley and pulley blocks	(subjected to point load, U.D.L and point load/U.D.L.) • Point of contra flexure, Member subjected to couple. **Unit II** • Theory of bending (simple and pure) • Bending equation, • Section modulus (only for Rectangular, hollow rectangular) • Shear stress distribution for rectangular beam section • Introduction of flitched beam. Equation of flexure and its derivation; section modulus; distribution of normal stress due to bending **Unit III** Composite beams; shear stress distribution in rectangular, circular, T and I sections **Unit IV** Plane frames; components of plane frames; determination of forces in members by method of joints and graphical method **Unit V** Lifting machines; mechanical advantage; velocity ratio and efficiency of machines; law of machine; pulley and pulley blocks	
14	**2JAR4**	**2JAR4** **INTRODUCTION TO ARCHITECTURE** **Unit I** Role of an Architect in an Architectural Project and in society Through History; Disciplines and Skills to be learnt by an Architect **Unit II** Factors Influencing Architecture of a Place, Climate, Materials, Socio Cultural, Technological, Etc. **Unit III** Introduction to Old and New Architectural Works; **Unit IV** Understanding the Terms Such as Vernacular, traditional, Classical, Modern, Post Modern and Neo Modern Renaissance, European, Oriental; **Unit V** Vastu and its science.	**2JAR4** **INTRODUCTION TO ARCHITECTURE** **Unit I** Role of an Architect in an Architectural Project and in society Through History; Disciplines and Skills to be learnt by an Architect **Unit II** Factors Influencing Architecture of a Place, Climate, Materials, Socio Cultural, Technological, Etc. **Unit III** Introduction to Old and New Architectural Works; Understanding to Old and New Architectural Works; **Unit IV** Understanding the Terms Such as Vernacular, traditional, Classical, Modern, Post Modern and Neo Modern Renaissance, European, Oriental; **Unit V** Vastu and its science.	**Content Add**

15	2JAR5	2JAR5 **ARCHITECTURAL DRAWING-II** **Unit I** **Development of Surface:** **Unit II** **Perspective Drawings-I:** • Introduction to basic terms, principles, types and techniques of perspective drawings for expression of ideas. • Two point perspective of simple geometrical objects • One point perspective of simple geometrical objects **Perspective Drawings –II** • Two point perspective of complex geometrical objects and buildings • One point perspective of complex geometrical objects and building interiors/ exteriors. Freehand perspective drawings with various techniques of buildings. **Unit III** **Sciagraphy-I** • Introduction to basic principles of Sciagraphy and its application on two dimensional objects in plans and elevations. **Sciagraphy-II** • Sciagraphy of three dimensional objects in plan, elevations and views (isometric, axonometric and perspective). • Sciagraphy of simple building elements **Practical applications:** Development of perspective projections of buildings with sciagraphy and rendering techniques, multiple point perspectives. **Unit IV** **Graphical Presentation** **Unit V** **Surface development for massing models**	2JAR5 **ARCHITECTURAL DRAWING-II** **Unit I** **Development of Surface:** **Unit II** **Perspective Drawings-I:** • Introduction to basic terms, principles, types and techniques of perspective drawings for expression of ideas. • Two point perspective of simple geometrical objects • One point perspective of simple geometrical objects **Perspective Drawings –II** • Two point perspective of complex geometrical objects and buildings • One point perspective of complex geometrical objects and building interiors/ exteriors. Freehand perspective drawings with various techniques of buildings. **Unit III** **Sciagraphy-I** • Introduction to basic principles of Sciagraphy and its application on two dimensional objects in plans and elevations. **Sciagraphy-II** • Sciagraphy of three dimensional objects in plan, elevations and views (isometric, axonometric and perspective). • Sciagraphy of simple building elements **Practical applications:** Development of perspective projections of buildings with sciagraphy and rendering techniques, multiple point perspectives. **Unit IV** **Graphical Presentation** **Unit V** **Surface development for massing models**	**No Change**

16	2JAR6	2JAR6 **ARCHITECTURAL DESIGN (Basic Design & Field Trip)** **Unit I** Principles of Aesthetics and introduction to aesthetical terms like form, balance, rhythm, harmony, texture, color, symmetry, contrast, discord, accentuation, monotony etc. **Unit II** Introduction of Architectural design with an approach of functional understanding and analysis of problems with studies of space requirement for different furniture (objects), activities and circulation, Relationship between occupied and unoccupied spaces. **Unit III** Design of small shelters and study of multi units involving 3 to 4 functional spaces, Natural and manmade objects of functional and aesthetic value. Aspects of area determination in conjunction with relevant building Bye Laws and area relationship. **Unit IV** Case studies for measured drawing of small buildings and furniture. Introduction of presentation drawings. Small views (isometric and perspective) of the studied building. **Unit V** Study and design of small structures like ceremonial gates, temporary exhibition stalls, kiosks, bus stop, small pavilions etc.	2JAR6 **ARCHITECTURAL DESIGN (Basic Design & Field Trip)** **Unit I** Principles of Aesthetics and introduction to aesthetical terms like form, balance, rhythm, harmony, texture, color, symmetry, contrast, discord, accentuation, monotony etc. **Unit II** Introduction of Architectural design with an approach of functional understanding and analysis of problems with studies of space requirement for different furniture (objects), activities and circulation, Relationship between occupied and unoccupied spaces. **Unit III** Design of small shelters and study of multi units involving 3 to 4 functional spaces, Natural and manmade objects of functional and aesthetic value. Aspects of area determination in conjunction with relevant building Bye Laws and area relationship. **Unit IV** Case studies for measured drawing of small buildings and furniture. Introduction of presentation drawings. Small views (isometric and perspective) of the studied building. **Unit V** Study and design of small structures like ceremonial gates, temporary exhibition stalls, kiosks, bus stop, small pavilions etc.	**No Change**
17	2JAR7	2JAR7 **ARTS AND GRAPHICS-II** **Unit I** Principle of art and design study (Rhythm / Balance / Contrast / Harmony etc.) **Unit II** 2D compositions in different mediums (Poster Color / Water Color / Pencil Color) **Unit III** 2D to 3D development compositions (Paper / Cardboard / Wire Mash etc.) **Unit IV** Exploration in different mediums (Clay / Wood / POP / MDF etc.) **Unit V**	2JAR7 **ARTS AND GRAPHICS-II** **Unit I** Principle of art and design study (Rhythm / Balance / Contrast / Harmony etc.) **Unit II** 2D compositions in different mediums (Poster Color / Water Color / Pencil Color) **Unit III** 2D to 3D development compositions (Paper / Cardboard / Wire Mash etc.) **Unit IV** Exploration in different mediums (Clay / Wood / POP / MDF etc.) **Unit V**	**No Change**

		Introduction to Indian history of art artistic tradition and theories Major art styles of Indian art with cultural reference, techniques i.e. miniature paintings, fresco paintings etc.	Introduction to Indian history of art artistic tradition and theories Major art styles of Indian art with cultural reference, techniques i.e. miniature paintings, fresco paintings etc.	
18	**2JAR8**	**2JAR8** **BUILDING CONSTRUCTION-II** **Unit I** **Doors:** **a) Timber:** • Ledged braced and battened door • Panel door • Glazed door • Flush door • Sliding folding doors in wood **b) Metal:** • Pressed steel • 'Z' section, with and without fanlight. Swing doors **Unit II** **Windows:** **a) Timber:** • Side and Top hung • Pivoted • Louvers • Ventilators • Fixed and openable fanlights. • Composite window. **b) Metal:** • Pressed steel • 'Z' section, • Top and side hung, fixed • Pivoted • Louvers Ventilators **Unit III** **a) Timber Floors:** • Single • Double • Triple • Various joints between joists, lengthening of wall plates, etc. • Herring bone and solid strutting. **b) Timber Canopies, Staircase & Balconies:** **Canopies:**	**2JAR8** **BUILDING CONSTRUCTION-II** **Unit I** **Doors:** **c) Timber:** • Ledged braced and battened door • Panel door • Glazed door • Flush door • Sliding folding doors in wood **d) Metal:** • Pressed steel • 'Z' section, with and without fanlight. Swing doors **Unit II** **Windows:** **c) Timber:** • Side and Top hung • Pivoted • Louvers • Ventilators • Fixed and openable fanlights. • Composite window. **d) Metal:** • Pressed steel • 'Z' section, • Top and side hung, fixed • Pivoted • Louvers Ventilators **Unit III** **c) Timber Floors:** • Single • Double • Triple • Various joints between joists, lengthening of wall plates, etc. • Herring bone and solid strutting. **d) Timber Canopies, Staircase & Balconies:** **Canopies:** • Designing of Porch, Canopies in	**No Change**

		• Designing of Porch, Canopies in Timber. • Designing of Covered ways in Timber. • Fixing details of lighting fixtures, rain water drainage systems, etc. in canopy. **Balconies and Stairs:** • Balconies in Timber. • Steel balconies. Stairs (timber). **Unit IV** **Timber Roofs:** • Lean to type • Couple • Close couple • Collar. **Timber trussed roofs:** • King post • Queen post Built up roof truss. **Unit V** **Opening accessories:** • Jamb casing • Architrave • Palmate • Moldings • Skirting • Door and window fixtures. Door cum window in timber and metal.	Timber. • Designing of Covered ways in Timber. • Fixing details of lighting fixtures, rain water drainage systems, etc. in canopy. **Balconies and Stairs:** • Balconies in Timber. • Steel balconies. Stairs (timber). **Unit IV** **Timber Roofs:** • Lean to type • Couple • Close couple • Collar. **Timber trussed roofs:** • King post • Queen post Built up roof truss. **Unit V** **Opening accessories:** • Jamb casing • Architrave • Palmate • Moldings • Skirting • Door and window fixtures. Door cum window in timber and metal.	
19	**2JAR9**	**2JAR9** **INTRODUCTION TO COMPUTER–II** **Unit I** Computer as a tool for Architects. Introduction to Various Softwares Relevant to Architects Viz. Auto CAD **Unit II** 3DS Max **Unit III** CorelDraw, Adobe Photoshop **Unit IV** MS Power point, PageMaker etc. **Unit V** Advanced Internet Applications.	**2JAR9** **INTRODUCTION TO COMPUTER–II** **Unit I** Computer as a tool for Architects. Introduction to Various Softwares Relevant to Architects Viz. Auto CAD **Unit II** 3DS Max **Unit III** CorelDraw, Adobe Photoshop **Unit IV** MS Power point, PageMaker etc. **Unit V** Advanced Internet Applications.	**No Change**
20	**3JAR1**	**3JAR1** **HISTORY OF ARCHITECTURE -I** **Unit I** **Architecture of different times:** Indus valley and Vedic civilization	**3JAR1** **HISTORY OF ARCHITECTURE -I** **Unit I** **Architecture of different times:** Indus valley and Vedic civilization	**No Change**

		Unit II Brief about *Sthaptya Kala* as in ancient Indian texts **Unit III** **Buddhist Architecture.** • Development at Asian level (China, Japan, SE Asia, Afghanistan etc.) Indian examples and influences. **Unit IV** Hindu empires (with emphasis on Northern, Central and Southern style of temples) **Unit V** Indo Islamic architecture: basic features, Study of various indo Islamic styles in chronological order In terms of design parameters such as cross cultural theories relating to art and architecture construction methods etc.	**Unit II** Brief about *Sthaptya Kala* as in ancient Indian texts **Unit III** **Buddhist Architecture.** • Development at Asian level (China, Japan, SE Asia, Afghanistan etc.) Indian examples and influences. **Unit IV** Hindu empires (with emphasis on Northern, Central and Southern style of temples) **Unit V** Indo Islamic architecture: basic features, Study of various indo Islamic styles in chronological order In terms of design parameters such as cross cultural theories relating to art and architecture construction methods etc.	
21	**3JAR2**	**3JAR2** **BUILDING SCIENCE–I (CLIMATOLOGY)** **Unit I** **Elements of climate:** • Constituents of climate, definition. • Measurement and Data collection with use of meteorological data, solar charts etc. • Classification of climate on global level and national level • Study of Microclimate and Macroclimate. Effect of climate on man, shelter and environment **Unit II** **Principles of thermal comfort:** • Physiological impact of climate. • Comfort indices. Human comfort conditions – Comfort chart, Comfort Zone, Effective temperature, etc. Natural and artificial methods of achieving thermal comfort — landscaping, building materials (U-values) etc. **Unit III** **Parameters of comfort conditions:** • Ventilation and air movement — spatial organization in buildings, layout and orientation of buildings in	**3JAR2** **BUILDING SCIENCE–I (CLIMATOLOGY)** **Unit I** **Elements of climate:** • Constituents of climate, definition. • Measurement and Data collection with use of meteorological data, solar charts etc. • Classification of climate on global level and national level • Study of Microclimate and Macroclimate. Effect of climate on man, shelter and environment **Unit II** **Principles of thermal comfort:** • Physiological impact of climate. • Comfort indices. Human comfort conditions – Comfort chart, Comfort Zone, Effective temperature, etc. Natural and artificial methods of achieving thermal comfort — landscaping, building materials (U-values) etc. **Unit III** **Parameters of comfort conditions:** • Ventilation and air movement — spatial organization in buildings, layout and orientation of buildings in housing.	**Content Add**

		housing. • Natural Illumination and day lighting. Artificial illumination and night lighting. **Unit IV** **Climate conscious design-I**: • Introduction to traditional design measures / Vernacular architecture in various climates at Global level. Architectural design considerations in various climatic zones in India-hot dry, warm humid, cold dry, cold humid, temperate, composite etc. **Unit V** **Climate conscious design-II:** • Use of different design aids at various climatic conditions • Study of materials and construction techniques for climate conscious design. • Case studies of climate conscious designs. Application of wind and solar oriented architecture, introduction to climate oriented software and other analytical techniques.	• Natural Illumination and day lighting. Artificial illumination and night lighting. **Unit IV** **Climate conscious design-I**: • Introduction to traditional design measures / Vernacular architecture in various climates at Global level. Architectural design considerations in various climatic zones in India-hot dry, warm humid, cold dry, cold humid, temperate, composite etc. Effects of climate on building envelope: heat flow, heat transfer **Unit V** **Climate conscious design-II:** • Use of different design aids at various climatic conditions • Study of materials and construction techniques for climate conscious design. • Case studies of climate conscious designs. Application of wind and solar oriented architecture, introduction to climate oriented software and other analytical techniques. Effects of climate on building envelope: heat flow, heat transfer	
22	**3JAR3**	**3JAR3** **CONSTRUCTION MATERIAL-III** **Unit I** Cement product: **Mortars, concrete and R.C.C.** preparation, application techniques, tests concreting under special conditions, special varieties of concretes. **Unit II** Plastics, **Unit III** Glass **Unit IV** Derivatives of Wood **Unit V** Ply's and Boards	**3JAR3** **CONSTRUCTION MATERIAL-III** **Unit I** Cement product: **Mortars, concrete and R.C.C.** preparation, application techniques, tests concreting under special conditions, special varieties of concretes. **Unit II** Plastics, **Unit III** Glass **Unit IV** Derivatives of Wood **Unit V** Ply's and Boards	**No Change**
23	**3JAR4**	**3JAR4** **ARCHITECTURAL STRUCTURES-III** **Unit I** Calculation of slope and deflections in determinate beams using, Double integration method and Moment area	**3JAR4** **ARCHITECTURAL STRUCTURES-III** **Unit I** Calculation of slope and deflections in determinate beams using, Double integration method and Moment area method.	**No Change**

		method. **Unit II** Long and short columns or struts; slenderness ratio; buckling load; various end conditions and effective lengths; struts with eccentric loading; struts with initial curvature; Assumptions and limitations of EULER theory; Rankine Gordon formula; crippling and crushing load calculations for struts using Euler and Rankine formula. **Unit III** Soil and soil mass constituents; Introduction to three phase diagram and two phase diagrams; water content; specific gravity; void ratio; porosity; degree of saturation; air voids and air content; unit weights; density index etc. Inter -relationships of the above. **Unit IV** Determination of water content and specific gravity; particle size distribution; sieve and sedimentation analysis; consistency limits; void ratio and density index; classification of soil for general engineering purposes as per IS -classification. **Unit V** Bearing capacity of soils; types of shear failures in soil; shallow foundation; relation for depth of foundation; TERZAGHI's theory, formula and limitations; Meyerhof's formula; plate loading test; standard penetration test.	**Unit II** Long and short columns or struts; slenderness ratio; buckling load; various end conditions and effective lengths; struts with eccentric loading; struts with initial curvature; Assumptions and limitations of EULER theory; Rankine Gordon formula; crippling and crushing load calculations for struts using Euler and Rankine formula. **Unit III** Soil and soil mass constituents; Introduction to three phase diagram and two phase diagrams; water content; specific gravity; void ratio; porosity; degree of saturation; air voids and air content; unit weights; density index etc. Inter -relationships of the above. **Unit IV** Determination of water content and specific gravity; particle size distribution; sieve and sedimentation analysis; consistency limits; void ratio and density index; classification of soil for general engineering purposes as per IS -classification. **Unit V** Bearing capacity of soils; types of shear failures in soil; shallow foundation; relation for depth of foundation; TERZAGHI's theory, formula and limitations; Meyerhof's formula; plate loading test; standard penetration test.	
24	**3JAR5**	**3JAR5** **ARCHITECTURAL DESIGN–I** Objective analysis of activities and spaces in a given predomination function; It's representation in graphic form. Design exercise evolving out of single function such as ticket counters/reception offices, security offices, Kiosks, booths, Information Cells, small residences, farm house etc. Multiple function such as primary health centers, convenient shopping etc. As least one design problem to concentrate on comprehensive graphic representation to form a prelude to measure drawing.	**3JAR5** **ARCHITECTURAL DESIGN–I** Objective analysis of activities and spaces in a given predomination function; It's representation in graphic form. Design exercise evolving out of single function such as ticket counters/reception offices, security offices, Kiosks, booths, Information Cells, small residences, farm house etc. Multiple function such as primary health centers, convenient shopping etc. As least one design problem to concentrate on comprehensive graphic representation to form a prelude to measure drawing.	**No Change**

25	3JAR6	3JAR6 **THEORY OF DESIGN–I** **Unit I** Formulation of design concepts through elements and principles of architectural Design. **Unit II** Study of space usage and its implications. Classification of spaces, Inter dependence of Form, Structure, Function and Space, Relationship of Plan, Section and Elevation. **Unit III** Architectural Scale as manifestation of functional requirements. Appreciating Architecture through important building examples. **Unit IV** Awareness about Vastu Principals. Space as architectural raw material. **Unit V** Structure and Form Architectural Programming.	3JAR6 **THEORY OF DESIGN–I** **Unit I** Formulation of design concepts through elements and principles of architectural Design. **Unit II** Study of space usage and its implications. Classification of spaces, Inter dependence of Form, Structure, Function and Space, Relationship of Plan, Section and Elevation. **Unit III** Architectural Scale as manifestation of functional requirements. Appreciating Architecture through important building examples. **Unit IV** Awareness about Vastu Principals. Space as architectural raw material. **Unit V** Structure and Form Architectural Programming.	**No Change**
26	3JAR7	3JAR7 **ARTS & GRAPHICS-III** **Unit I** Emphasis is to be laid on graphic skill/presentation techniques/model making etc. **Unit II** Indoors and outdoors sketching in pencil/ crayons/ color/ charcoal/ ink of objects/ building/ automobiles/ vegetation/ human figure etc. **Unit III** Sculpture/ mural exercises in clay/ POP/ ceramics/ metal/ junk and scrap material etc. **Unit IV** Study of 3D forms and spaces with basic principles of design like repetition, symmetry, rotation and rhythm. **Unit V** Study of various color scales.	3JAR7 **ARTS & GRAPHICS-III** **Unit I** Emphasis is to be laid on graphic skill/presentation techniques/model making etc. **Unit II** Indoors and outdoors sketching in pencil/ crayons/ color/ charcoal/ ink of objects/ building/ automobiles/ vegetation/ human figure etc. **Unit III** Sculpture/ mural exercises in clay/ POP/ ceramics/ metal/ junk and scrap material etc. **Unit IV** Study of 3D forms and spaces with basic principles of design like repetition, symmetry, rotation and rhythm. **Unit V** Study of various color scales.	**No Change**
27	3JAR8	3JAR8	3JAR8	**No Change**

		BUILDING CONSTRUCTION-III **Unit I** Emphasis should be laid on understanding of constructions in R.C.C. in different part of building through basic building elements. **Unit II** **Foundation I:** • R.C.C. column footings, • Foundations for workshops and machines. • Formwork of foundation with column. **Foundation II:** • Raft foundations, • Grillage foundations. Special Foundations, shallow foundations. **Unit III** Structure: Simple R.C.C. Frame with beams and columns & Slab. **Unit IV** Roof: Flat R.C.C. roof with water proofing details study of different R.C.C. roof forms and its connection with structure. **Unit V** **Staircases & Ramps:** • Types of staircases • Detail of R.C.C. • R.C.C. ramps. Formwork of Staircases & Ramps.	**BUILDING CONSTRUCTION-III** **Unit I** Emphasis should be laid on understanding of constructions in R.C.C. in different part of building through basic building elements. **Unit II** **Foundation I:** • R.C.C. column footings, • Foundations for workshops and machines. • Formwork of foundation with column. **Foundation II:** • Raft foundations, • Grillage foundations. Special Foundations, shallow foundations. **Unit III** Structure: Simple R.C.C. Frame with beams and columns & Slab. **Unit IV** Roof: Flat R.C.C. roof with water proofing details study of different R.C.C. roof forms and its connection with structure. **Unit V** **Staircases & Ramps:** • Types of staircases • Detail of R.C.C. • R.C.C. ramps. Formwork of Staircases & Ramps.	
28	**3JAR9**	**3JAR9** **STRUCTURE LAB – I** To determine fineness modulus of fine aggregate To determine fineness modulus of coarse aggregate. To determine specific gravity of : **MMM.** Coarse Agg. II. Fine Agg. III. Sand IV. Soil To determine moisture content of : **MMM.** Coarse Agg. II. Fine Agg. III. Sand IV. Soil To determine water absorption of Brick To determine compressive strength of brick To determine Impact value of coarse Agg. To determine the Grain size distribution of soil	**3JAR9** **STRUCTURE LAB – I** To determine fineness modulus of fine aggregate To determine fineness modulus of coarse aggregate. To determine specific gravity of : **MMMI.** Coarse Agg. II. Fine Agg. III. Sand IV. Soil To determine moisture content of : **MMMI.** Coarse Agg. II. Fine Agg. III. Sand IV. Soil To determine water absorption of Brick To determine compressive strength of brick To determine Impact value of coarse Agg. To determine the Grain size distribution of soil	**No Change**
29	**3JAR10**	**3JAR10** **COMPUTER APPLICATION IN**	**3JAR10** **COMPUTER APPLICATION IN**	**Content Add**

		ARCHITECTURE-I **Unit I** Application of Word processors. Available contents and tools in the latest versions of popular softwares like MS Word, Lotus, Pagemaker etc. Special emphasis on drawing tools in the softwares. **Unit II** Application of AutoCAD. Available contents and tools in the latest versions of the same. Special emphasis on drawing tools in the softwares. **Unit III** Introduction to various 2D and 3D tools and drawing of plans, elevations, sections through AutoCAD software. **Unit IV** Drafting simple geometrical objects & plans in 2 dimensions. **Unit V** Usage and understanding of Peripheral Hardware like Printers and Scanner.	**ARCHITECTURE-I** **Unit I** Application of Word processors. Available contents and tools in the latest versions of popular softwares like MS Word, Lotus, Pagemaker etc. Special emphasis on drawing tools in the softwares. Introduction to various presentation linked softwares like MS Power point, Corel Draw and Photoshop and their usage. **Unit II** Application of AutoCAD. Available contents and tools in the latest versions of the same. Special emphasis on drawing tools in the softwares. **Unit III** Introduction to various 2D and 3D tools and drawing of plans, elevations, sections through AutoCAD software. **Unit IV** Drafting simple geometrical objects & plans in 2 dimensions. **Unit V** Usage and understanding of Peripheral Hardware like Printers and Scanner.	
30	**4JAR1**	**4JAR1** **HISTORY OF ARCHITECTURE-II** **Unit I** Study of evolution of design concepts, philosophy construction techniques, materials and structural solutions with the help of selected examples, with reference to social, cultural, geographical political and intellectual climate of the place and period. **Unit II** **Western Classical Architecture** —Greek and Roman (with examples from temples, public buildings, palaces etc.) • Orders • Visual Corrections • Construction techniques **Egyptian Architecture** • Mastaba and tombs • Pyramids • Temples **West Asiatic Architecture** • Sumerian • Assyrian Babylonian	**4JAR1** **HISTORY OF ARCHITECTURE-II** **Unit I** Study of evolution of design concepts, philosophy construction techniques, materials and structural solutions with the help of selected examples, with reference to social, cultural, geographical political and intellectual climate of the place and period. **Unit II** **Western Classical Architecture** —Greek and Roman (with examples from temples, public buildings, palaces etc.) • Orders • Visual Corrections • Construction techniques **Egyptian Architecture** • Mastaba and tombs • Pyramids • Temples **West Asiatic Architecture** • Sumerian • Assyrian Babylonian	**No Change**

		Unit III Greek, Roman, Romanesque **Unit IV** **Christian Architecture (Churches)** • Early Christian Byzantine **Unit V** **Romanesque and Gothic (Churches)** Study of various European styles with construction techniques, aesthetical principles, architectural philosophy.	**Unit III** Greek, Roman, Romanesque **Unit IV** **Christian Architecture (Churches)** • Early Christian Byzantine **Unit V** **Romanesque and Gothic (Churches)** Study of various European styles with construction techniques, aesthetical principles, architectural philosophy.	
31	**4JAR2**	**4JAR2** **SURVEYING** **Unit I** **Introduction of surveying:** • Aspects of surveying for the Architect. • Formulae used in measurement of land with geometrical and abstract configurations to work out Areas, volumes and other quantities. **Introduction** Principles and classification of survey, Basic measurements in surveying, Basic methods of surveying, Different types of transverse. **Chain Survey** Introduction, Instruments, Types of chains and tapes, their uses and construction details. **Compass Survey** Introduction, Different type of compass, Meridians, Bearings, Dip, Declination, Local attraction, Adjustment of angles, Loose needle and fast needle method. Compass transverse. **Unit II** **Chain survey:** • Instrument used. • Selection of survey station. • Chain line, Offset, oblique offset, tie line, check lines, ranging. Field book plotting. **Unit III** **Leveling and Contouring** Basic definitions, Types of leveling, sources of errors, Computations & Permanent adjustment of levels, Contouring and Earth work calculations.	**4JAR2** **SURVEYING** **Unit I** **Introduction of surveying:** • Aspects of surveying for the Architect. • Formulae used in measurement of land with geometrical and abstract configurations to work out Areas, volumes and other quantities. **Introduction** Principles and classification of survey, Basic measurements in surveying, Basic methods of surveying, Different types of transverse. **Chain Survey** Introduction, Instruments, Types of chains and tapes, their uses and construction details. **Compass Survey** Introduction, Different type of compass, Meridians, Bearings, Dip, Declination, Local attraction, Adjustment of angles, Loose needle and fast needle method. Compass transverse. **Unit II** **Chain survey:** • Instrument used. • Selection of survey station. • Chain line, Offset, oblique offset, tie line, check lines, ranging. Field book plotting. **Unit III** **Leveling and Contouring** Basic definitions, Types of leveling, sources of errors, Computations & Permanent adjustment of levels, Contouring and Earth work calculations. **Leveling:** • Various parts of dumpy level.	**Content Add**

		Leveling: • Various parts of dumpy level. • Temporary adjustment. • Interrelationship of bubble tube axis. • Line of collimation and vertical axis. • Leveling staff, technical term used in leveling. • Fly leveling (study of reciprocal leveling). **Theodolite Survey** Introduction, Basic definitions, Construction details, Temporary adjustment, Measurement of vertical and horizontal angle, Area computations by planimeter. **Unit IV** **Plain table surveying:** • Introduction. • Equipment required. • Working with plain table. • Errors in plain table. • Advantage and disadvantage. **Plane Table Surveying** Elements of plane table survey, Plane table transverse. **Total Station** Introduction and basics of using total station for field survey **Unit V** **Construction surveying:** • Introduction. • Equipment for setting out. • Horizontal and vertical control. • Setting out a pipe line. • Setting out a building and structure (complete layout). **Setting out works for Buildings** Introduction, Controls for setting out, horizontal control, Vertical control, setting out in vertical direction, Positioning of a structure, Setting out of foundation trenches.	• Temporary adjustment. • Interrelationship of bubble tube axis. • Line of collimation and vertical axis. • Leveling staff, technical term used in leveling. • Fly leveling (study of reciprocal leveling). • Introduction of contouring. **Theodolite Survey** Introduction, Basic definitions, Construction details, Temporary adjustment, Measurement of vertical and horizontal angle, Area computations by planimeter. **Unit IV** **Plain table surveying:** • Introduction. • Equipment required. • Working with plain table. • Errors in plain table. • Advantage and disadvantage. **Plane Table Surveying** Elements of plane table survey, Plane table transverse. **Total Station** Introduction and basics of using total station for field survey **Unit V** **Construction surveying:** • Introduction. • Equipment for setting out. • Horizontal and vertical control. • Setting out a pipe line. • Setting out a building and structure (complete layout). • Staking out a highway. **Setting out works for Buildings** Introduction, Controls for setting out, horizontal control, Vertical control, setting out in vertical direction, Positioning of a structure, Setting out of foundation trenches.	
32	**4JAR3**	**4JAR3** **CONSTRUCTION MATERIALS-IV** Study of physical, chemical visual and textural properties of metals and alloys and their application in building and Metal and alloys like steel, iron, brass, aluminum and copper are to be studied as structural and non structural applications.	**4JAR3** **CONSTRUCTION MATERIALS-IV** Study of physical, chemical visual and textural properties of metals and alloys and their application in building and Metal and alloys like steel, iron, brass, aluminum and copper are to be studied as structural and non structural applications.	**No Change**

		Protective finishes on metal. Study of Metal applications in hard wares.	Protective finishes on metal. Study of Metal applications in hard wares.	
33	**4JAR4**	**4JAR4** **ARCHITECTURAL STRUCTURES-IV** **Unit I** Constituent of concrete and functions of each constituent; storage of aggregates; properties of coarse and fine aggregates; flakiness and elongation index and its determination; fineness modulus impurities; introduction to admixtures (accelerators and retarders). **Unit II** Cement; raw materials for cement; manufacturing of cement; types of cements and their properties; IS tests on cement; field tests for cement; bouge's compounds and their influences on properties of cement. **Unit III** Concrete mixing; batching of concrete; introduction to mix design methods; workability and determination of workability of fresh concrete; factors affecting workability; effect of w/c ratio on strength; segregation and bleeding of concrete; properties of fresh and hardened concrete; tests on hardened concrete. **Unit IV** Requirements of good structures, safety, stability, economy; design concept of factor of safety and limit state; failure modes of a structure; permissible stresses and deflections; **Unit V** Types of loads and combinations of loads; necessity of reinforcement; characteristics of reinforcing material; introduction to mild steel and high tensile steel; factors of safety; live loads on various types of floors and roofs; introduction to IS 875 part 2 , IS 456:2000 and IS 800:2007.	**4JAR4** **ARCHITECTURAL STRUCTURES-IV** **Unit I** Constituent of concrete and functions of each constituent; storage of aggregates; properties of coarse and fine aggregates; flakiness and elongation index and its determination; fineness modulus impurities; introduction to admixtures (accelerators and retarders). **Unit II** Cement; raw materials for cement; manufacturing of cement; types of cements and their properties; IS tests on cement; field tests for cement; bouge's compounds and their influences on properties of cement. **Unit III** Concrete mixing; batching of concrete; introduction to mix design methods; workability and determination of workability of fresh concrete; factors affecting workability; effect of w/c ratio on strength; segregation and bleeding of concrete; properties of fresh and hardened concrete; tests on hardened concrete. **Unit IV** Requirements of good structures, safety, stability, economy; design concept of factor of safety and limit state; failure modes of a structure; permissible stresses and deflections; **Unit V** Types of loads and combinations of loads; necessity of reinforcement; characteristics of reinforcing material; introduction to mild steel and high tensile steel; factors of safety; live loads on various types of floors and roofs; introduction to IS 875 part 2 , IS 456:2000 and IS 800:2007.	**No Change**
34	**4JAR5**	**4JAR5** **ARCHITECTURAL DESIGN-II** **(Including Measured Drawing Camp)** Introduction to basic design methodologies including emphasis on case studies, time activities studies, anthropometrics and their presentation as a prelude to design solution. Due emphasis is to be given on concurrent subjects like Climatology, construction techniques etc. Incorporation of building materials in design solution to be	**4JAR5** **ARCHITECTURAL DESIGN-II** **(Including Measured Drawing Camp)** Introduction to basic design methodologies including emphasis on case studies, time activities studies, anthropometrics and their presentation as a prelude to design solution. Due emphasis is to be given on concurrent subjects like Climatology, construction techniques etc. Incorporation of building	**No Change**

		emphasized. Exercise may include building with multiple uses such as clubs, clinics, motel, secondary schools and community centre. Measure drawing camp to include study of building/group of building/settlements of architectural important, involving detailed drawings, constructional details, material used giving due importance to the given context.	materials in design solution to be emphasized. Exercise may include building with multiple uses such as clubs, clinics, motel, secondary schools and community centre. Measure drawing camp to include study of building/group of building/settlements of architectural important, involving detailed drawings, constructional details, material used giving due importance to the given context.	
35	**4JAR6**	**4JAR6** **THEORY OF DESIGN-II** **Unit I** Study of time, life, works and philosophies of Louis Suillvan, Frank Lloyd Wright, Walter Gropius, and Mies Vander – Rohe, Le Corbusier. Introductory note on the Chicago school and ultimately more stress should be given on development of concepts of their individual works as entity in itself. **Unit II** **Louis Sullivan** Guaranty Building, Wainwright building, Auditorium building etc. **Unit III** **Frank Lloyd Wright** Parie Houses, Organic Architecture etc. **Unit IV** **Le Corbusier** Early and later works as well as specific study of Chandigarh. **Unit V** **Introduction to following terms** Brutalism, Purism, Expressionism, Modernism, Post Modernism, Neo-modernism, Deconstructivism etc.	**4JAR6** **THEORY OF DESIGN-II** **Unit I** Study of time, life, works and philosophies of Louis Suillvan, Frank Lloyd Wright, Walter Gropius, and Mies Vander – Rohe, Le Corbusier. Introductory note on the Chicago school and ultimately more stress should be given on development of concepts of their individual works as entity in itself. **Unit II** **Louis Sullivan** Guaranty Building, Wainwright building, Auditorium building etc. **Walter Gropius** Bauhaus, Fagus Shoe Last Factory etc. **Unit III** **Meis Van Der–Rohe** Farnsworth House, Lake shore Apartment, Seagram Building etd. **Frank Lloyd Wright** Parie Houses, Organic Architecture etc. **Unit IV** **Le Corbusier** Early and later works as well as specific study of Chandigarh. **Unit V** **Introduction to following terms** Brutalism, Purism, Expressionism, Modernism, Post Modernism, Neo-modernism, Deconstructivism etc.	**Content Add**
36	**4JAR7**	**4JAR7** **ART & GRAPHICS-IV** **Unit I** **Emphasis** is to be laid on various presentation techniques and renderings of drawings.	**4JAR7** **ART & GRAPHICS-IV** **Unit I** **Emphasis** is to be laid on various presentation techniques and renderings of drawings.	**Content Add**

		Unit II **Perspectives** of buildings and interior views. **Rendering** in different mediums like pencil, ink, watercolors etc. **Unit III** **Study** of light and shade with reference to objects, buildings etc. **Unit IV** **Making** collages, murals, sculptures at a bigger scale leading to a art project, using different materials like metals, clay, Plaster of Paris, wood, paper, ceramics, glass etc. **Unit V** **History** of art, artists and their work, Various movements and schools of thought like cubism, fauvism, impressionism etc	**Unit II** **Perspectives** of buildings and interior views. **Rendering** in different mediums like pencil, ink, watercolors etc. **Unit III** **Study** of light and shade with reference to objects, buildings etc. **Unit IV** **Making** collages, murals, sculptures at a bigger scale leading to a art project, using different materials like metals, clay, Plaster of Paris, wood, paper, ceramics, glass etc. **Unit V** **History** of art, artists and their work, Various movements and schools of thought like cubism, fauvism, impressionism etc Introduction to Indian Schools/ styles of Arts; Traditional art forms in India.	
37	**4JAR8**	**4JAR8** **BUILDING CONSTRUCTION-IV** **Unit I** **Emphasis** is to be laid on understanding of construction in steel in different parts of buildings. **Unit II** **Foundation** Grillage foundation, Structure; Steel columns and beams structure, Structural floor **Unit III** **Steel** trusses structures with riveted and welded joints; Tubular Truss **Unit IV** **Roofing** Roof covering in G.I., Asbestos and Fiber sheets etc. **Unit V** **Staircase** Metal staircase.	**4JAR8** **BUILDING CONSTRUCTION-IV** **Unit I** **Emphasis** is to be laid on understanding of construction in steel in different parts of buildings. **Unit II** **Foundation** Grillage foundation, Structure; Steel columns and beams structure, Structural floor **Unit III** **Steel** trusses structures with riveted and welded joints; Tubular Truss **Unit IV** **Roofing** Roof covering in G.I., Asbestos and Fiber sheets etc. **Unit V** **Staircase** Metal staircase.	**No Change**
38	**4JAR9**	**4JAR9** **COMPUTER APPLICATION IN ARCHITECTURE-II** 3D drafting in any popular architectural	**4JAR9** **COMPUTER APPLICATION IN ARCHITECTURE-II** 3D drafting in any popular architectural	**Content Add**

		software e.g. ACAD (latest version) Simple calculation functions like addition, average and sorting to be learnt.	software e.g. ACAD (latest version) Management of data in a data processing software e.g. MS Excel, Tools related to bar charts, Pie charts and Tables to be introduced. Simple calculation functions like addition, average and sorting to be learnt.	
39	**4JAR10**	**4JAR10** **SURVEYING LAB** To measure horizontal distances and marking of offsets. To measure Fore Bearings and Back Bearings for open & close traverse. To find out differences in elevations of two stations. To determine horizontal angle by Repetition and Reiteration Method . To determine vertical angle for elevations of tower & Building. To locate two distinct points on sheet.	**4JAR10** **SURVEYING LAB** To measure horizontal distances and marking of offsets. To measure Fore Bearings and Back Bearings for open & close traverse. To find out differences in elevations of two stations. To determine horizontal angle by Repetition and Reiteration Method . To determine vertical angle for elevations of tower & Building. To locate two distinct points on sheet.	**No Change**
40	**5JAR1**	**5JAR1** **HISTORY OF ARCHITECTURE-III** **Unit I** British – Colonial Architecture, Indo – Gothic Architecture, Indo – Renaissance Architecture and the design and Architecture of New Delhi by sir Edwin Lutyens. **Renaissance Architecture:** • Italian • French • English German **Unit II** Modern Architecture and its development during industrial revolution and its influence thereby the great international exhibitions, various movements, thoughts and philosophies pertinent **Early Islamic Architecture** • Development of ancient Islamic Architecture (global) Development of Islamic Architecture (Indian) pre-Mughal rule (Delhi Sultanate) **Unit III** **Indian Islamic Provincial Architecture —** • Central India	**5JAR1** **HISTORY OF ARCHITECTURE-III** **Unit I** British – Colonial Architecture, Indo – Gothic Architecture, Indo – Renaissance Architecture and the design and Architecture of New Delhi by sir Edwin Lutyens. **Renaissance Architecture:** • Italian • French • English German **Unit II** Modern Architecture and its development during industrial revolution and its influence thereby the great international exhibitions, various movements, thoughts and philosophies pertinent **Early Islamic Architecture** • Development of ancient Islamic Architecture (global) Development of Islamic Architecture (Indian) pre-Mughal rule (Delhi Sultanate) **Unit III** **Indian Islamic Provincial Architecture —** • Central India • East India	**Content Add**

		• East India • West India South India **Unit IV** **Indian Islamic Architecture during Mughal Rule** • Pre Akbar period • Akbar –Jahangir period **Unit V** **Colonial Architecture** • Introduction • Regional influence	• West India South India **Unit IV** **Indian Islamic Architecture during Mughal Rule** • Pre Akbar period • Akbar –Jahangir period • Reign of Shajahan • Aurangzeb and after **Unit V** **Colonial Architecture** • Introduction • Regional influence • Indo-saracenic style • Influence of early industrialization	
41	**5JAR2**	**5JAR2** **BUILDING SERVICES–I (Water Supply & Sanitation)** **Unit I** **Sanitation-I** • Basic principles of sanitation • Introduction to modern plumbing system. • Study of Indian standards and plumbing byelaws (NBC). General introduction to various sanitary fitting & fixtures, their placement, functions and constructional details. **Unit II** **Sanitation-II** • Study of various types of sanitary pipes, construction of joints and laying of pipes. • Study of Traps, Inspection chambers, Manholes, Septic tanks, Soak pits, and Public sewage line. • Study of Disposal systems for domestic effluent from fitting to sewer line. Study of storm water disposal at site and settlement level. **Unit III** **Sanitation-III**	**5JAR2** **BUILDING SERVICES–I (Water Supply & Sanitation)** **Unit I** **Sanitation-I** • Basic principles of sanitation • Introduction to modern plumbing system. • Study of Indian standards and plumbing byelaws (NBC). General introduction to various sanitary fitting & fixtures, their placement, functions and constructional details. Study of internal & external drainage system including study of duct for various buildings including small residences, apartments, block of houses, public buildings etc. **Unit II** **Sanitation-II** • Study of various types of sanitary pipes, construction of joints and laying of pipes. • Study of Traps, Inspection chambers, Manholes, Septic tanks, Soak pits, and Public sewage line. • Study of Disposal systems for domestic effluent from fitting to sewer line. Study of storm water disposal at site and settlement level.	**Content Add**

		• Importance of sanitary services in the economics of buildings. • Study of refuse chutes and service floors in multistoried buildings. • Planning & design for disposal of urban /rural effluent. • Traps, ventilation of drains are sewers. Drainage in non municipal areas – soak wells, septic tanks, water closets, flushing valves, flushing tanks, basins and its accessories, rain water, drainage pipes, spouts, sizing of rain water pipes, disposal system of rain water ground level, storm water drainage. Introduction to Indian Bureau of Standards. **Unit IV** **Water Supply-I** • Sources of water, types of water. • Water treatment for domestic purpose. • Quality of potable water. • Rain water harvesting system. • Recycling of water. Principles of design of drainage lines, drainage layouts for building premises, longitudinal sections of drains. **Unit V** **Water Supply-II** • Study of water storage and supply network. • Calculation of water supply requirements based on Indian standards (BIS and NBC). • Architectural approach to plan the domestic water storage facilities and water distribution system in a building and settlement, along with study of fixtures, fittings, accessories, equipments and construction details thereof. • Requirements of water supply to different types of building. Sources of water, modes and methods of conveyance of water, fixtures and appliances. Distribution of water, method of distribution, different distribution systems and their principles of layout.	**Unit III** **Sanitation-III** • Importance of sanitary services in the economics of buildings. • Study of refuse chutes and service floors in multistoried buildings. • Planning & design for disposal of urban /rural effluent. • Various methods of collection, treatment, disposal, and recycle of urban /rural effluent including wastewater and city solid wastes. • Traps, ventilation of drains are sewers. Drainage in non municipal areas – soak wells, septic tanks, water closets, flushing valves, flushing tanks, basins and its accessories, rain water, drainage pipes, spouts, sizing of rain water pipes, disposal system of rain water ground level, storm water drainage. Introduction to Indian Bureau of Standards. **Unit IV** **Water Supply-I** • Sources of water, types of water. • Water treatment for domestic purpose. • Quality of potable water. • Rain water harvesting system. • Recycling of water. Principles of design of drainage lines, drainage layouts for building premises, longitudinal sections of drains. Suilage, toilet waste and storm was collection and disposal system. Requirements for various building types for solid waste management systems, disposal of toxic and hazardous wastes, General principles of drainage, manholes, grease chambers, etc. **Unit V** **Water Supply-II** • Study of water storage and supply network. • Calculation of water supply requirements based on Indian standards (BIS and NBC). • Architectural approach to plan the domestic water storage facilities and	

			water distribution system in a building and settlement, along with study of fixtures, fittings, accessories, equipments and construction details thereof. • Requirements of water supply to different types of building. Sources of water, modes and methods of conveyance of water, fixtures and appliances. Distribution of water, method of distribution, different distribution systems and their principles of layout. Design water distribution system in a campus, and in a building, overhead and underground water storage tanks.	
42	**5JAR3**	**5JAR3** **CONSTRUCTION MATERIALS-V** **Unit I** Decorative finishes, wooden flooring, wooden staircase, wooden paneling, glazed floor wall finishes, ceramic tile finishes. **Unit II** Materials Damp Proof. **Unit III** Thermal Insulation. **Unit IV** Sound Insulation. **Unit V** Fire-Proof Finish.	**5JAR3** **CONSTRUCTION MATERIALS-V** **Unit I** Decorative finishes, wooden flooring, wooden staircase, wooden paneling, glazed floor wall finishes, ceramic tile finishes. **Unit II** Materials Damp Proof. **Unit III** Thermal Insulation. **Unit IV** Sound Insulation. **Unit V** Fire-Proof Finish.	**No Change**
43	**5JAR4**	**5JAR4** **ARCHITECTURAL STRUCTURES-V** **Unit I** Method of RCC design i.e. LIMIT STATE METHOD OF DESIGN Limit state of flexure; analysis and design for singly and doubly reinforced RCC beams. **Unit II** Analysis and design for flanged beams and L – beams; design for shear and bond; anchorage and development length; design of stirrups for beams (vertical stirrups only). **Unit III** Introduction to slabs i.e. one – way and two – way slabs; various load distribution patterns for slabs; design of one – way slab.	**5JAR4** **ARCHITECTURAL STRUCTURES-V** **Unit I** Method of RCC design i.e. LIMIT STATE METHOD OF DESIGN Limit state of flexure; analysis and design for singly and doubly reinforced RCC beams. **Unit II** Analysis and design for flanged beams and L – beams; design for shear and bond; anchorage and development length; design of stirrups for beams (vertical stirrups only). **Unit III** Introduction to slabs i.e. one – way and two – way slabs; various load distribution patterns for slabs; design of one – way slab. Various corner conditions for slabs; design of	**No Change**

		Various corner conditions for slabs; design of two – slabs. **Unit IV** Introduction to RCC columns; long and short columns; slenderness ratio criteria; eccentricity criteria; design and analysis of axially loaded short RCC columns (rectangular, square and circular in section). **Unit V** Types of footings; various types of failures of footings; design of isolated footing. Introduction to retaining walls and RCC walls; design moments and design shear force calculations for retaining walls and RCC walls.	two – slabs. **Unit IV** Introduction to RCC columns; long and short columns; slenderness ratio criteria; eccentricity criteria; design and analysis of axially loaded short RCC columns (rectangular, square and circular in section). **Unit V** Types of footings; various types of failures of footings; design of isolated footing. Introduction to retaining walls and RCC walls; design moments and design shear force calculations for retaining walls and RCC walls.	
44	**5JAR5**	**5JAR5** **ARCHITECTURAL DESIGN–III & FIELD TRIP** Design of an institution or public building at the community scale or infill scale; Understanding essential character of an institution or public building; Influence of culture, land, climate, technology and finance on the building design; Part detail of the project to understand design resolution.	**5JAR5** **ARCHITECTURAL DESIGN–III & FIELD TRIP** Design of an institution or public building at the community scale or infill scale; Understanding essential character of an institution or public building; Influence of culture, land, climate, technology and finance on the building design; Part detail of the project to understand design resolution.	**No Change**
45	**5JAR6**	**5JAR6** **QUANTITY SURVEYING & SPECIFICATION** **Unit I** **Specifications-I:** • Importance and methods of drafting specification in buildings • Use of Indian standard specification and PWD/ CPWD handbook, specifications affecting cost. • Method of specification writing (trade wise practice, item of completed works) • Standard clauses/ instructions for various items of work for the contractor, owner, Architect, sub-contractor. Explanation of extra items, their necessity and other items created for change of specifications. **Unit II** **Specifications-II:** • Specification for a structure from excavation up to finishing in superstructure. • Material specification (timber and	**5JAR6** **QUANTITY SURVEYING & SPECIFICATION** **Unit I** **Specifications-I:** • Importance and methods of drafting specification in buildings • Use of Indian standard specification and PWD/ CPWD handbook, specifications affecting cost. • Method of specification writing (trade wise practice, item of completed works) • Standard clauses/ instructions for various items of work for the contractor, owner, Architect, sub-contractor. Explanation of extra items, their necessity and other items created for change of specifications. **Unit II** **Specifications-II:** • Specification for a structure from excavation up to finishing in superstructure. • Material specification (timber and its	**Content Add**

		its products, metals, water proofing materials, materials used in roofing and roof covering, etc.) Exercise on specification writing of load bearing structure, R. C. C. frame structure and steel frame structure. **Unit III** **Introduction to Estimation:** • Types of estimates. • Methods of preparing estimates. • Data required for making an estimate. • Introduction to Quantity Survey. • Taking off quantities for principal building works, electrical works. • Introduction to procedure of estimating, data required for framing an estimate, type of estimates. **Unit IV** **Methods of estimation and rate analysis:** • Mensuration, Standard Mode of measurements, Schedule of rates, Commercial abbreviations, Methods and procedure of taking off abstractions, Working up and Billing, Examples and exercises for above from excavations to finishing. • Rate analysis, Cost of materials and labour for various works, Measurement of work for interim and final certificates for payment to contractors. **Unit V** Composition of rate – percentage – distribution for materials, labor, tools plant and contractor's Profit.	its products, metals, water proofing materials, materials used in roofing and roof covering, etc.) Exercise on specification writing of load bearing structure, R. C. C. frame structure and steel frame structure. **Unit III** **Introduction to Estimation:** • Types of estimates. • Methods of preparing estimates. • Data required for making an estimate. • Introduction to Quantity Survey. • Taking off quantities for principal building works, electrical works. • Introduction to procedure of estimating, data required for framing an estimate, type of estimates. • Approximate and detailed estimate, Abstract of Estimates, Bills of quantities, Contingencies. **Unit IV** **Methods of estimation and rate analysis:** • Mensuration, Standard Mode of measurements, Schedule of rates, Commercial abbreviations, Methods and procedure of taking off abstractions, Working up and Billing, Examples and exercises for above from excavations to finishing. • Rate analysis, Cost of materials and labour for various works, Measurement of work for interim and final certificates for payment to contractors. • Analysis of Rate for Principal civil works, item rate considering current market rate for building materials and labor wages as well as P.W.D. scheduled of rates. **Unit V** Composition of rate – percentage – distribution for materials, labor, tools plant and contractor's Profit.	

46	5JAR7	5JAR7 **SOCIOLOGY** **Unit I** Man, environment and society. **Unit II** Distinguishing features of Rural and Urban society. **Unit III** The concept of social stratification urbanization and modernization. **Unit IV** Concept of social structure, cultural and social aspects of housing for different economic classes with focus on urban poor, Urban Slums and problems of slums. **Unit V** Community participation in development of public assets like schools.	5JAR7 **SOCIOLOGY** **Unit I** Man, environment and society. **Unit II** Distinguishing features of Rural and Urban society. **Unit III** The concept of social stratification urbanization and modernization. **Unit IV** Concept of social structure, cultural and social institutions, relation between social structure and spatial structure social aspects of housing for different economic classes with focus on urban poor, Urban Slums and problems of slums. **Unit V** Community participation in development of	**Content Add**
47	5JAR8	5JAR8 **BUILDING CONSTRUCTION-V** **Unit I** **Wall Finishes:** • Cavity Wall Construction • Wood Paneling Stone Paneling **Unit II** **Floor Finishes:** • Terrace Water Proofing • Basement Damp Proof Construction Industrial Steel Floor **Unit III** False Ceiling Partitions **Unit IV** **Special flooring and roofing:** • Industrial steel floor. • Fire proof roofing / flooring. • Stone slab roofing. Stone floor on girder support. **Unit V** **Flooring** • R.C.C. Flooring,	5JAR8 **BUILDING CONSTRUCTION-V** **Unit I** **Wall Finishes:** • Cavity Wall Construction • Wood Paneling Stone Paneling **Unit II** **Floor Finishes:** • Terrace Water Proofing • Basement Damp Proof Construction Industrial Steel Floor **Unit III** False Ceiling Partitions **Unit IV** **Special flooring and roofing:** • Industrial steel floor. • Fire proof roofing / flooring. • Stone slab roofing. Stone floor on girder support. **Unit V** **Flooring** • R.C.C. Flooring,	**Content Add**

		Mosaic Flooring & Cement Tile Flooring,	Mosaic Flooring & Cement Tile Flooring, • Interlocking Paving Blocks in ground and upper floors, Industrial Flooring.	
48	**5JAR9**	**5JAR9** **COMPUTER APPLICATION IN ARCHITECTURE-III** **Unit I** Making Interior **Unit II** Exterior views of buildings in 3D Max. Model **Unit III** Rendering **Unit IV** Application of Light, Background, Camera, etc. **Unit V** Walkthroughs & Flyovers.	**5JAR9** **COMPUTER APPLICATION IN ARCHITECTURE-III** **Unit I** Making Interior **Unit II** Exterior views of buildings in 3D Max. Model **Unit III** Rendering **Unit IV** Application of Light, Background, Camera, etc. **Unit V** Walkthroughs & Flyovers.	**No Change**
49	**5JAR10.1**	**5JAR10.1** **ELECTIVE-I - INTERIOR DESIGN** **Unit I** **Introduction** • Understanding the role of interior design in total design process. • Procedure of Interior design. Historical background of interior design on global level. **Unit II** **Elements and components of interior design** • Study of considerations for interior design such as Space, planes, Form, Color, texture. Principles of space planning through Orientation, Privacy, Grouping, Flexibility, Circulation, Furniture arrangements, etc. **Unit III** **Materials in interior:** • Surfaces, viz. walls, floor , ceilings etc. • Furniture, lose and built-in. • Upholstery, drapery. • Rugs ,carpets and other floor coverings. • Water bodies, planters and	**5JAR10.1** **ELECTIVE-I - INTERIOR DESIGN** **Unit I** **Introduction** • Understanding the role of interior design in total design process. • Procedure of Interior design. • Impact of the interior space on human psychology and behavior. • Historical background of interior design on global level. **Unit II** **Elements and components of interior design** • Study of considerations for interior design such as Space, planes, Form, Color, texture. • Abstract and formal configuration, geometrical disciplines, visual controls, illusions with their separate and combined impact. • Generating character in interiors through use of materials, colors, styles etc. Principles of space planning through	**Content Add**

		plantation. Decorative features like paintings, sculptures. **Unit IV** **Services in interior design:** • Impact of elements used for thermal comfort, Electrical wiring system and fixtures **Unit V** **Design scheme:** Complete design scheme of interiors for spaces having different uses and requirements such as Reception halls, Waiting lounges, Restaurants, foyers, Drawing halls, Offices, Residential spaces, Exhibition halls, Hotels, Theatres, Assembly Halls etc.	Orientation, Privacy, Grouping, Flexibility, Circulation, Furniture arrangements, etc. **Unit III** **Materials in interior:** • Surfaces, viz. walls, floor , ceilings etc. • Furniture, lose and built-in. • Upholstery, drapery. • Rugs ,carpets and other floor coverings. • Water bodies, planters and plantation. Decorative features like paintings, sculptures. **Unit IV** **Services in interior design:** • Impact of elements used for thermal comfort, Electrical wiring system and fixtures • Acoustical treatment in interiors and their role in design, • Illumination, light sources and fixtures, Building services etc and design measures to handle them. **Unit V** **Design scheme:** Complete design scheme of interiors for spaces having different uses and requirements such as Reception halls, Waiting lounges, Restaurants, foyers, Drawing halls, Offices, Residential spaces, Exhibition halls, Hotels, Theatres, Assembly Halls etc.	
50	**5JAR10.2**	**5JAR10.2** **ELECTIVE-I - HISTORY OF RAJASTHAN ART** **Unit I** Introduction **Unit II** Brief History – Prehistoric to modern period **Unit III** **Regional division** • Mewar – Udaipur, Nathdwara, Devgarh Marwar – Kishangarh, Jodhpur, Bikaner **Unit IV** Fresco Painting – Techniques, Styles **Unit V**	**5JAR10.2** **ELECTIVE-I - HISTORY OF RAJASTHAN ART** **Unit I** Introduction **Unit II** Brief History – Prehistoric to modern period **Unit III** **Regional division** • Mewar – Udaipur, Nathdwara, Devgarh Marwar – Kishangarh, Jodhpur, Bikaner • Haroti – Kota, Bundi Dhundhar – Jaipur, Alwar, Shekhawati, Udaipur	**Content Add**

		• Miniature Painting – Techniques, Styles Phad Painting – Techniques, Artist	**Unit IV** Fresco Painting – Techniques, Styles **Unit V** • Miniature Painting – Techniques, Styles Phad Painting – Techniques, Artist	
51	**5JAR12**	**5JAR12** **LANDSCAPE AND SITE PLANNING** **Unit I** Introduction to landscape architecture. Elements of landscape design and their relation to built environment. • Definition of landscape its scope and importance in architecture • Planning levels of landscape planning (micro to macro level). • Role of Landscape Architecture in Sustainable Development • Landscape design process, information needed for landscape survey. • Land, water & plants as landscape elements, their functional & aesthetical considerations in landscape design. Man made elements in landscape design-lamp posts, sign boards, garbage bins, fences etc. **Unit II** Plant characteristics – The structure, color, form and foliage of various trees and shrubs and climbers and ground covers. Study and identification of Indian Plants and trees etc. Plant propagation. • Plantation – Understanding plant material as a design tool. Design characteristics of plants, selection of plant materials for roof gardens, atriums, avenues, road side plantation, court yards, parking areas, near water bodies, indoor areas, etc. gardening notes including study of soil, fertilizers etc. **Unit III** Study of landscape in Historical perspective – Indian, Persian, Chinese, Indian 1850 etc. Principles and design philosophy of history	**5JAR12** **LANDSCAPE AND SITE PLANNING** **Unit I** Introduction to landscape architecture. Elements of landscape design and their relation to built environment. • Definition of landscape its scope and importance in architecture • Planning levels of landscape planning (micro to macro level). • Role of Landscape Architecture in Sustainable Development • Landscape design process, information needed for landscape survey. • Land, water & plants as landscape elements, their functional & aesthetical considerations in landscape design. Man made elements in landscape design-lamp posts, sign boards, garbage bins, fences etc. **Unit II** Plant characteristics – The structure, color, form and foliage of various trees and shrubs and climbers and ground covers. Study and identification of Indian Plants and trees etc. Plant propagation. • Plantation – Understanding plant material as a design tool. Design characteristics of plants, selection of plant materials for roof gardens, atriums, avenues, road side plantation, court yards, parking areas, near water bodies, indoor areas, etc. gardening notes including study of soil, fertilizers etc. **Unit III** Study of landscape in Historical perspective – Indian, Persian, Chinese, Indian 1850 etc. Principles and design philosophy of history of	**Content Add**

		of landscape architecture • Mughal • Japanese gardens • Renaissance • Dutch Landscape English Landscape. **Unit IV** Landscape designing – site analysis and development. Designing and presentation of landscape schemes for building projects, gardens/parks, historical monuments, places of tourist interest and Public Art etc. **Unit V** Contemporary attitudes to landscape design. Design of road layouts. Parking and campus planning.	landscape architecture • Mughal • Japanese gardens • Renaissance • 18th century – Brownian • 19th century – Botanical gardens. • • Dutch Landscape English Landscape. Contemporary Landscape Architecture. **Unit IV** Landscape designing – site analysis and development. Designing and presentation of landscape schemes for building projects, gardens/parks, historical monuments, places of tourist interest and Public Art etc. **Unit V** Contemporary attitudes to landscape design. Design of road layouts. Parking and campus planning.	
52	**6JAR1**	**6JAR1** **History of Architecture-IV** **Unit I** **Modern Architecture** Walter Gropius, Mies Van Der Rohe, Le Corbusier. **Unit II** **Post-Modern Architecture** Michael Graves, Frank Gehry, James Sterling, Peter Eisenman, Ricardo Bofill. **Unit III** **Deconstruction Architecture** Bernard Tschumi, Zaha Hadid, Daniel Libeskind. **Unit IV** **Post-independence Architecture in India** Le-Corbusier, Louis Khan, Achyut Kanvinde, B.V. Doshi, Stien, Charles Correa, Uttam Jain, Raj Rewal, A.D. Raje	**6JAR1** **History of Architecture-IV** **Unit I** **Modern Architecture** Walter Gropius, Mies Van Der Rohe, Le Corbusier. **Unit II** **Post-Modern Architecture** Michael Graves, Frank Gehry, James Sterling, Peter Eisenman, Ricardo Bofill. **Unit III** **Deconstruction Architecture** Bernard Tschumi, Zaha Hadid, Daniel Libeskind. **Unit IV** **Post-independence Architecture in India** Le-Corbusier, Louis Khan, Achyut Kanvinde, B.V. Doshi, Stien, Charles Correa, Uttam Jain, Raj Rewal, A.D. Raje	**No Change**
53	**6JAR2**	**6JAR2** **BUILDING SERVICES–II** **(ELECTRICAL SERVICES)** **Unit I**	**6JAR2** **BUILDING SERVICES–II** **(ELECTRICAL SERVICES)** **Unit I**	**Content Add**

		Basic Electrical Services: • Fundamentals of electricity. • Principles of wiring. Study of various fixtures, fittings, accessories and equipments used in installation of electrical services in buildings. **Unit II** **Planning and design of electrical services in various types of buildings:** • Study of special fixtures like lightning conductors, earthing, waterproof and spark proof installations, stabilizers, circuit breakers etc. and installation thereof. • Study and application of relevant rules and regulations of Electricity boards. • Switches and controls. Earthing and lightening protection in building. **Unit III** Layout system for lighting, fans, telephones, etc. Electrical distribution systems in buildings – mains and sub distribution.	**Basic Electrical Services:** • Fundamentals of electricity. • Principles of wiring. Study of various fixtures, fittings, accessories and equipments used in installation of electrical services in buildings in small, large and multistoried buildings of various types viz. residential, commercial, public, industrial etc. **Unit II** **Planning and design of electrical services in various types of buildings:** • Calculation of electric load and its phasing. • Schematic diagram of electric installations with use of symbols. • Study of special fixtures like lightning conductors, earthing, waterproof and spark proof installations, stabilizers, circuit breakers etc. and installation thereof. • Study and application of relevant rules and regulations of Electricity boards. • Switches and controls. Earthing and lightening protection in building. **Unit III** Layout system for lighting, fans, telephones, etc. Electrical distribution systems in buildings – mains and sub distribution.	
54	**6JAR3**	**6JAR3** **CONSTRUCTION MATERIALS–VI** Ferro cement, Precast construction pre-stressed construction. Low cost building materials.	**6JAR3** **CONSTRUCTION MATERIALS–VI** Ferro cement, Precast construction pre-stressed construction. Low cost building materials.	**No Change**
55	**6JAR4**	**6JAR4** **ARCHITECTURAL STRUCTURES–VI** **Unit I** **Introduction** Introduction to steel structures, their advantag Design requirements; limit state philosophy; design strength; deflection limits and other serviceability limits; introduction to IS 800:2007 and steel tables; important definitions and various sectional properties.	**6JAR4** **ARCHITECTURAL STRUCTURES–VI** **Unit I** **Introduction** Introduction to steel structures, their advantages Design requirements; limit state philosophy; design strength; deflection limits and other serviceability limits; introduction to IS 800:2007 and steel tables; important definitions and various sectional properties.	**No Change**

		Unit II **Bolted Connections** Introduction to bolted and riveted connections; types of bolts; advantages and disadvantages of bolted connections; types of bolted joints; IS specifications for spacing and edge distances of bolt holes, types of failures in bolted connections; design and analysis of bolted connections as per IS 800:2007; eccentric connections. **Unit III** **Welded Connections** Introduction to welded connections; types of welded joints; advantages and disadvantages of welded connections; important specifications; design stress in welded joints; reduction in design strength for long joints; design and analysis of welded connections. Design of tension members; design strength of tension member; design procedure for tension members. **Unit IV** **Design of Compression Members** Buckling class of section; slenderness ratio; effective length & actual length; shapes of compression members (single and combined sections); introduction to composite sections i.e. lacing and battening systems; design of column base **Unit V** **Design of Beams** Plastic moment carrying capacity of a section; sectional classification; design procedure; bending strength of laterally supported beams; shear strength of laterally supported beams; deflection limits; web buckling; web crippling; flange curtailment; introduction to built up sections; purlin design; design of grillage beams.	**Unit II** **Bolted Connections** Introduction to bolted and riveted connections; types of bolts; advantages and disadvantages of bolted connections; types of bolted joints; IS specifications for spacing and edge distances of bolt holes, types of failures in bolted connections; design and analysis of bolted connections as per IS 800:2007; eccentric connections. **Unit III** **Welded Connections** Introduction to welded connections; types of welded joints; advantages and disadvantages of welded connections; important specifications; design stress in welded joints; reduction in design strength for long joints; design and analysis of welded connections. Design of tension members; design strength of tension member; design procedure for tension members. **Unit IV** **Design of Compression Members** Buckling class of section; slenderness ratio; effective length & actual length; shapes of compression members (single and combined sections); introduction to composite sections i.e. lacing and battening systems; design of column base **Unit V** **Design of Beams** Plastic moment carrying capacity of a section; sectional classification; design procedure; bending strength of laterally supported beams; shear strength of laterally supported beams; deflection limits; web buckling; web crippling; flange curtailment; introduction to built up sections; purlin design; design of grillage beams.	
56	**6JAR5**	**6JAR5** **ARCHITECTURAL DESIGN–IV & FIELD TRIP** Design of a building to understand the relation between function and structure; The idea of form follows function and vice versa; The structural system as a design element, this design concept is to be constructed with	**6JAR5** **ARCHITECTURAL DESIGN–IV & FIELD TRIP** Design of a building to understand the relation between function and structure; The idea of form follows function and vice versa; The structural system as a design element, this design concept is to be constructed with the	**No Change**

		the understanding of material and construction techniques and various services needed for the functions of the building.	understanding of material and construction techniques and various services needed for the functions of the building.	
57	**6JAR6**	**6JAR6** **WORKING DRAWINGS** **Unit I** Introduction to various building components and precise purpose of set of working drawings. Study of each drawing with reference to specification & schedules of various building materials. Preparing Construction drawings - plan, section, elevations, details, electrical, plumbing finishes, flooring, etc. **Unit II** Preparations of check list as guide for list of working drawings. Study of building byelaws for various construction details. Method of representing various contents & specific information in working drawings. Preliminary estimates. **Unit III** Preparation of municipal drawings and importance of working drawing as a legal document and tender document. **Unit IV** One set of working drawing of any load bearing structure along with large-scale details of any specifically designed situations. **Unit V** List of drawings (Sample) • Corporation drawing / Municipal Drawing • Center line plan • Excavation plan • Footing layout plan, footing detail • Beam (ground beam and plinth beam),beam detail • Sill level plan, schedule of openings • Lintel level plan • Slab level ,slab beam detail Frame detail etc.	**6JAR6** **WORKING DRAWINGS** **Unit I** Introduction to various building components and precise purpose of set of working drawings. Study of each drawing with reference to specification & schedules of various building materials. Preparing Construction drawings - plan, section, elevations, details, electrical, plumbing finishes, flooring, etc. **Unit II** Preparations of check list as guide for list of working drawings. Study of building byelaws for various construction details. Method of representing various contents & specific information in working drawings. Preliminary estimates. **Unit III** Preparation of municipal drawings and importance of working drawing as a legal document and tender document. **Unit IV** One set of working drawing of any load bearing structure along with large-scale details of any specifically designed situations. **Unit V** List of drawings (Sample) • Corporation drawing / Municipal Drawing • Center line plan • Excavation plan • Footing layout plan, footing detail • Beam (ground beam and plinth beam),beam detail • Sill level plan, schedule of openings • Lintel level plan • Slab level ,slab beam detail Frame detail etc.	**No Change**
58	**6JAR7**	**6JAR7** **BUILDING ECONOMICS**	**6JAR7** **BUILDING ECONOMICS**	**No Change**

		Unit I General economic concepts, demand and supply consumption, production distribution and its relevance to economics, Money, banking and bank credits, cost and cost indices inflation and inflationary pressures. **Unit II** Economics of private and public housing development, Concepts of Project Life Cycle from pre-feasibility studies to monitoring and evaluation. **Unit III** Introduction to Social Cost Benefit Analysis, Economics of use of different building materials and construction methods (labor vs. capital intensive). **Unit IV** Pricing of utilities and services, Concept of Toll and User Charges, Globalization and impact of global economy on India.	**Unit I** General economic concepts, demand and supply consumption, production distribution and its relevance to economics, Money, banking and bank credits, cost and cost indices inflation and inflationary pressures. **Unit II** Economics of private and public housing development, Concepts of Project Life Cycle from pre-feasibility studies to monitoring and evaluation. **Unit III** Introduction to Social Cost Benefit Analysis, Economics of use of different building materials and construction methods (labor vs. capital intensive). **Unit IV** Pricing of utilities and services, Concept of Toll and User Charges, Globalization and impact of global economy on India.	
59	**6JAR8**	**6JAR8** **BUILDING CONSTRUCTION–VI** **Unit I** Sky Light, North Light. **Unit II** **Curtain walls** • Introduction to curtain wall construction, its advantages, shading, structural glazing, etc. • Metal and aluminum sectioned curtain wall. • R.C.C. curtain wall Special purpose curtain wall with reflective glazing, insulation, etc. **Unit III** Structural Glazing, Mental Cladding, **Unit IV** Section windows, Aluminum windows. **Unit V** Pre-cast construction.	**6JAR8** **BUILDING CONSTRUCTION–VI** **Unit I** Sky Light, North Light. **Unit II** **Curtain walls** • Introduction to curtain wall construction, its advantages, shading, structural glazing, etc. • Metal and aluminum sectioned curtain wall. • R.C.C. curtain wall Special purpose curtain wall with reflective glazing, insulation, etc. **Unit III** Structural Glazing, Mental Cladding, **Unit IV** Section windows, Aluminum windows. **Unit V** Pre-cast construction.	**No Change**
60	**6JAR9.1**	**6JAR9.1** **ELECTIVE–II - CONSTRUCTION MANAGEMENT** **Unit I**	**6JAR9.1** **ELECTIVE–II - CONSTRUCTION MANAGEMENT** **Unit I**	**Content Add**

		Introduction: • Introduction to project management concepts, objectives, goals and different aspects of management. • Traditional management system. • Gantt's approach, bar charts, project programming, time estimates etc. • Need of Construction Management: Importance and aspects Role of Architect in Construction Management **Unit II** • Project programming, • Resource balancing, • Phasing of activities, Modern management concepts. **Unit III** Project Assessment & project cost jobs size, divisions of responsibilities, liason with owners and their representatives, feasibility study, project report, construction-financing facilities etc. **Unit IV** **Construction Management:** • Conditions of contract, their application, quality and quantity controls, time and cash contract, recording, checking and certifying with coordination of all building activities. Safety Management **Unit V** **Project monitoring:** C.P.M. P.E.R.T. & other one-dimensional techniques for project planning scheduling and control.	**Introduction:** • Introduction to project management concepts, objectives, goals and different aspects of management. • Traditional management system. • Gantt's approach, bar charts, project programming, time estimates etc. • Need of Construction Management: Importance and aspects Role of Architect in Construction Management Cost Management **Unit II** • Project programming, • Resource balancing, • Phasing of activities, • Programme scheduling, • Project control, reviewing, updating and monitoring, Modern management concepts. **Unit III** Project Assessment & project cost jobs size, divisions of responsibilities, liason with owners and their representatives, feasibility study, project report, construction-financing facilities etc. **Unit IV** **Construction Management:** • Conditions of contract, their application, quality and quantity controls, time and cash contract, recording, checking and certifying with coordination of all building activities. Safety Management • Total Quality Management (TQM) Risk Management **Unit V** **Project monitoring:** C.P.M. P.E.R.T. & other one-dimensional techniques for project planning scheduling and control.	
61	**6JAR9.2**	**6JAR9.2** **ELECTIVE–II – SUSTAINABLE ARCHITECTURE** **Unit I** **Introduction to Sustainable Development and Architecture**	**6JAR9.2** **ELECTIVE–II – SUSTAINABLE ARCHITECTURE** **Unit I** **Introduction to Sustainable Development and Architecture**	**Content Add**

		a. Definitions and Principles b. Environmental Impact of Buildings c. Sustainable design priorities d. Cultural and Economic aspects e. Life Cycle Design Selected Examples of Sustainable Architecture – Vernacular, Historical and Contemporary **Unit II** **Sustainable Building Materials and Technology** Sustainable building materials and technologies are being introduced in the building industry every day. These are being codified and standardized. We are living in an era of catalogue architecture, this unit would therefore would lay more emphasis on traditional building systems, methodologies and on the use of alternate/ substitute and environment friendly materials, local and/ or low coast building materials which are cost effective, environment friendly and appropriate to the context of the site, climate and culture. ***Topics to be covered:*** **1. <u>Bamboo</u>** a. Traditional Methods b. Rope joints and split bamboo c. Bamboo as roofing, wall and floor material d. Insulation material and bamboo mats **2. <u>Wood</u>** a. Traditional methods and classification b. International and National Certifications c. Reconstructed timber i. Plywood ii. Block board iii. MDF, HDF etc. d. Types of joints and workshops **3. <u>Mud</u>** a. Traditional and vernacular methods in India b. Rammed earth const. c. Auroville construction d. Mud/ clay bricks **4. <u>Conventional Construction Material</u>** a. Brick b. Cement and concrete **5. <u>Contemporary innovations in sustainable construction material</u>**	f. Definitions and Principles g. Environmental Impact of Buildings h. Sustainable design priorities i. Cultural and Economic aspects j. Life Cycle Design Selected Examples of Sustainable Architecture – Vernacular, Historical and Contemporary **Unit II** **Sustainable Building Materials and Technology** Sustainable building materials and technologies are being introduced in the building industry every day. These are being codified and standardized. We are living in an era of catalogue architecture, this unit would therefore would lay more emphasis on traditional building systems, methodologies and on the use of alternate/ substitute and environment friendly materials, local and/ or low coast building materials which are cost effective, environment friendly and appropriate to the context of the site, climate and culture. ***Topics to be covered:*** **<u>1. Bamboo</u>** e. Traditional Methods f. Rope joints and split bamboo g. Bamboo as roofing, wall and floor material h. Insulation material and bamboo mats **<u>2.Wood</u>** e. Traditional methods and classification f. International and National Certifications g. Reconstructed timber iv. Plywood v. Block board vi. MDF, HDF etc. vii. Particle board viii. Veneers h. Types of joints and workshops **<u>3.Mud</u>** e. Traditional and vernacular methods in India f. Rammed earth const. g. Auroville construction h. Mud/ clay bricks **<u>4.Conventional Construction Material</u>** c. Brick d. Cement and concrete e. Steel and iron	

		6. Recycled Building Materials **Life cycle of construction material** **Unit III** **Ecology and Environmental Management** With global warming and environment protection major areas of concern across nations, environmental management course is a critical area of study for all Architects. This unit, thus covers the concepts and basic understanding of sustainable design and development with a special concern for ecosystem benefits and impacts at the site, local, regional, and global scales. **Unit IV** **Integrating the concepts of Climatology and Building design for sustainable building** A very important component of sustainability in buildings has to do with the fact that they have to respond to the climate in which they are sited. This unit aims to cover the various climates, mainly in India, and the implications of each for building design in these respective climates. It shall also cover concepts of human thermal comfort and its measurement. **Unit V** **Energy Efficient Building Design – Theory and Technologies** The unit will cover the understanding of design and construction techniques for reducing load, and passive/ hybrid design strategies to provide low energy heating and cooling in buildings while maximizing effective use of daylight.	**5.Contemporary innovations in sustainable construction material** **6.Recycled Building Materials** **Life cycle of construction material** **Unit III** **Ecology and Environmental Management** With global warming and environment protection major areas of concern across nations, environmental management course is a critical area of study for all Architects. This unit, thus covers the concepts and basic understanding of sustainable design and development with a special concern for ecosystem benefits and impacts at the site, local, regional, and global scales. **Unit IV** **Integrating the concepts of Climatology and Building design for sustainable building** A very important component of sustainability in buildings has to do with the fact that they have to respond to the climate in which they are sited. This unit aims to cover the various climates, mainly in India, and the implications of each for building design in these respective climates. It shall also cover concepts of human thermal comfort and its measurement. **Unit V** **Energy Efficient Building Design – Theory and Technologies** The unit will cover the understanding of design and construction techniques for reducing load, and passive/ hybrid design strategies to provide low energy heating and cooling in buildings while maximizing effective use of daylight.	
62	**6JAR9.3**	**6JAR9.3** **ELECTIVE–II** **LOW COST CONSTRUCTION AND TECHNIQUES** **Unit I** Introduction to Low Cost Building Design (Planning & Designing aspects) & Sustainability and components of buildings influencing the cost **Unit II** Evaluation of building forms based on	**6JAR9.3** **ELECTIVE–II** **LOW COST CONSTRUCTION AND TECHNIQUES** **Unit I** Introduction to Low Cost Building Design (Planning & Designing aspects) & Sustainability and components of buildings influencing the cost **Unit II** Evaluation of building forms based on	**No Change**

		functions, materials and construction techniques. **Unit III** Prefabrication, Modular Coordination, Fly ash, Rationalization, Cost and Usability **Unit IV** Low cost building materials, methods and techniques by CBRI, HUDCO, Development Alternatives, Laurie Baker, Anil Laul, Revati Kamathetc. **Unit V** Traditional Materials & Techniques Publications of COSTFORD	functions, materials and construction techniques. **Unit III** Prefabrication, Modular Coordination, Fly ash, Rationalization, Cost and Usability **Unit IV** Low cost building materials, methods and techniques by CBRI, HUDCO, Development Alternatives, Laurie Baker, Anil Laul, Revati Kamathetc. **Unit V** Traditional Materials & Techniques Publications of COSTFORD	
63	**6JAR9**	**6JAR9.4** **ELECTIVE–II - DESIGN FOR DISABLED** **Unit I** Introduction of the Subject and Defining Disability. A. In physical terms, the provision of a barrier-free environment can be undertaken in four complementary domains: • Inside buildings; • In the immediate vicinity of buildings; • On local roads and paths; • In open spaces and recreational areas. B. The target group is composed of five major categories: • Wheelchair users • People with limited walking abilities • The sightless • The partially sighted The hearing impaired **Unit II** Understanding the Basic Design Issues and Anthropometrics Related to Various Disabilities.	**6JAR9.4** **ELECTIVE–II - DESIGN FOR DISABLED** **Unit I** Introduction of the Subject and Defining Disability. A. In physical terms, the provision of a barrier-free environment can be undertaken in four complementary domains: • Inside buildings; • In the immediate vicinity of buildings; • On local roads and paths; • In open spaces and recreational areas. B. The target group is composed of five major categories: • Wheelchair users • People with limited walking abilities • The sightless • The partially sighted The hearing impaired **Unit II** Understanding the Basic Design Issues and Anthropometrics Related to Various Disabilities. **Unit III** **Design Considerations** **A. Architectural design considerations:**	**Content Add**

		Unit III **Design Considerations** **A. Architectural design considerations:** • Ramp • Elevators • Lifts • Stairs • Railings and handrails • Entrances • Vestibules • Doors • Corridors • Rest rooms B. Urban Design Considerations: • Obstructions • Signage • Street Furniture • Pathways • Curb Ramps • Pedestrian Crossing Parking **Unit IV** **Accessibility Requirements of Selected Building Types.** • Residential buildings • Office Buildings • Commercial Buildings • Cafeterias and Restaurants • Educational Building • Libraries • Sports Building Public Transit Buildings **Unit V** Implementation Checklist for Designers and Inspectors to identify and Assess Physical Barriers in the Built-Up Environment, for both new and Existing Constructions.	• Ramp • Elevators • Lifts • Stairs • Railings and handrails • Entrances • Vestibules • Doors • Corridors • Rest rooms B. Urban Design Considerations: • Obstructions • Signage • Street Furniture • Pathways • Curb Ramps • Pedestrian Crossing Parking **Unit IV** **Accessibility Requirements of Selected Building Types.** • Residential buildings • Office Buildings • Commercial Buildings • Assembly halls • Cafeterias and Restaurants • Hotels • Hospitals and Health facilities • Educational Building • Libraries • Sports Building • Public Transit Buildings Industrial Buildings **Unit V** Implementation Checklist for Designers and Inspectors to identify and Assess Physical Barriers in the Built-Up Environment, for both new and Existing Constructions.	
64	**6JAR10**	**6JAR10** **COMPUTER APPLICATION IN ARCHITECTURE–IV** Making Drawing in Revit, Architectural Applications and Rendering, Digitizing Maps, Creative Explorations on Computers.	**6JAR10** **COMPUTER APPLICATION IN ARCHITECTURE–IV** Making Drawing in Revit, Architectural Applications and Rendering, Digitizing Maps, Creative Explorations on Computers.	**No Change**

65	6JAR11	**6JAR11** **EDUCATIONAL TOUR** Visit to places with historical buildings and contemporary buildings and studying the Architecture, use of space and experience of space. Documenting the building through sketches, photography and drawings.	**6JAR11** **EDUCATIONAL TOUR** Visit to places with historical buildings and contemporary buildings and studying the Architecture, use of space and experience of space. Documenting the building through sketches, photography and drawings.	**No Change**
66	7JAR1	**7JAR1** **CONTRACT DOCUMENTS & BYELAWS** Unit I Contracts: Nature of building contracts: Tenders - calling, scrutiny and recommendations, open and selective tender systems; two stage tender scrutiny process. Pre-tender qualifications and registrations of contract: obligations and responsibilities of clients, contractors and architects. Unit II Building Bye-Laws-I •Building bye-laws – their need and importance, advantages. •Study of building bye-laws - means of access, open spaces, parts of buildings (as per NBC). •Building bye-laws with respect to various plot sizes, building types and height restrictions, air funnel. •Lighting, sound and HVAC (as per NBC). •Fire fighting regulations •Parking regulations Unit III Building Bye-Laws-II •Building bye-laws for special zones viz., airport, hospitals, residential, commercial, Cinema theatres, SEZ etc. •Development control and aesthetic control bye-laws, sky plane, front and rear angles. •Other building standards including state and municipal byelaws Unit IV Development controls at settlements level. •Eminent domain, police powers, zoning controls, etc. •Sub-division regulations. •Land development standards and municipal byelaws in various states.	**7JAR1** **CONTRACT DOCUMENTS & BYELAWS** Unit I Contracts: Nature of building contracts: Tenders - calling, scrutiny and recommendations, open and selective tender systems; two stage tender scrutiny process. Pre-tender qualifications and registrations of contract: obligations and responsibilities of clients, contractors and architects. Unit II Building Bye-Laws-I •Building bye-laws – their need and importance, advantages. •Study of building bye-laws - means of access, open spaces, parts of buildings (as per NBC). •Building bye-laws with respect to various plot sizes, building types and height restrictions, air funnel. •Lighting, sound and HVAC (as per NBC). •Fire fighting regulations •Parking regulations Deposits, Labor Laws and Obligations: disputes and settlement of disputes. Unit III Building Bye-Laws-II •Building bye-laws for special zones viz., airport, hospitals, residential, commercial, Cinema theatres, SEZ etc. •Development control and aesthetic control bye-laws, sky plane, front and rear angles. •Other building standards including state and municipal byelaws Building by-laws: ground coverage, FSI calculations, building height regulations, building use regulation, NA – NOC, BU certificate. Buildings services approvals and completion certificate procedure. Unit IV Development controls at settlements level. •Eminent domain, police powers, zoning controls, etc. •Sub-division regulations. •Land development standards and municipal byelaws in various states.	**Content Add**

67	7JAR2	**7JAR2** **BUILDING SERVICES–III (Mechanical Services)** Unit I Basic principles of refrigeration, refrigeration cycle and system components. •Basic operation of refrigeration systems •Principle components of refrigeration systems •Thermodynamic principles of refrigeration cycle •Safety considerations Unit II Air cooling and air conditioning, planning and design considerations •Basic operation and functioning of air cooling and air conditioning systems •Principle components of air cooling and air conditioning systems •Safety considerations •The fundamental principles of Psychometrics and heat transfer. •Methods of Air conditioning, Fittings, fixtures, accessories and equipment used in various types of air-conditioning along with their construction details and basic load calculations. Unit III Psychometric chart and its use. •Understanding the concept of psychometrics. •Thermodynamic properties of moist air. •Understanding the concept of Psychometric Chart. •Use of the Psychometric Chart. Unit IV Lifts and movable walkways, escalators including study of their operation, function, layouts and design details. •Appliances, equipments and systems for fire safety of buildings, (particularly high rise) including study of their function, operation and construction details. Lifts, grouping of lifts, return time, design of lift banks for carrying capacity and travel time, installation requirements, escalators. •Lists and escalators, an overview •Typical parameters in design of elevator systems (lifts and escalators) in a building. •Location of elevators (lifts and escalators). •Lift technologies. Traction lifts a.Geared lifts b.Gearless lifts c.Machine room less lifts Hydraulic lifts	**7JAR2** **BUILDING SERVICES–III (Mechanical Services)** Unit I Basic principles of refrigeration, refrigeration cycle and system components. •Basic operation of refrigeration systems •Principle components of refrigeration systems •Thermodynamic principles of refrigeration cycle •Safety considerations Unit II Air cooling and air conditioning, planning and design considerations •Basic operation and functioning of air cooling and air conditioning systems •Principle components of air cooling and air conditioning systems •Safety considerations •The fundamental principles of Psychometrics and heat transfer. •Methods of Air conditioning, Fittings, fixtures, accessories and equipment used in various types of air-conditioning along with their construction details and basic load calculations. A.C. duct design and layout with constructional details. (Including calculations.) Planning and design considerations of air cooling and air conditioning systems Unit III Psychometric chart and its use. •Understanding the concept of psychometrics. •Thermodynamic properties of moist air. •Understanding the concept of Psychometric Chart. •Use of the Psychometric Chart. Unit IV Lifts and movable walkways, escalators including study of their operation, function, layouts and design details. •Appliances, equipments and systems for fire safety of buildings, (particularly high rise) including study of their function, operation and construction details. Lifts, grouping of lifts, return time, design of lift banks for carrying capacity and travel time, installation requirements, escalators. •Lists and escalators, an overview •Typical parameters in design of elevator systems (lifts and escalators) in a building. •Location of elevators (lifts and escalators). •Lift technologies. Traction lifts	**Content Add**

		•Lift components and types Unit V Fire extinguishing system, warning systems, fire resistant doors, planning of buildings for fire escapes, Solar water heating systems.	a.Geared lifts b.Gearless lifts c.Machine room less lifts Hydraulic lifts •Lift components and types Design considerations and installation methods of elevator systems (lifts and escalators). Unit V Fire extinguishing system, warning systems, fire resistant doors, planning of buildings for fire escapes, Solar water heating systems.	
68	**7JAR3**	**7JAR3** **BUILDING SCIENCE-II (Acoustics & Illumination)** Unit I Introduction about Sound and Noise: •Fundamental Properties and characteristics of sound. (Frequency, wavelength, velocity, pressure, pressure level, intensity, pitch, tone, loudness, timbre etc.) •Noise: Physiological and Psychological impact of noise on human beings. •Noise criteria for various spaces viz: Living areas, Educational areas, Offices, Shopping etc. •Measures to control noise nuisance (Air borne and Structure borne) in residential, educational, commercial, and Industrial areas along with calculations. A.Basic Terminology and definitions: •Physics of sound •Sound •Intensity & loudness •Characteristics of sound-frequency, amplitude, speed. •Reverberation time, absorption coefficient, echo, all the units related to sound •Effect of physical condition on sound-temperature, humidity, pressure Unit II Behavior of Sound: •Behavior of sound in open and enclosed spaces with reference to the form of enclosures, and various surface finishes. (Reflection, Absorption, Diffraction, Insulation, Transmission, Echo, Resonance, Reverberation etc.) •Acoustical materials along with their properties, behavior, selection criteria, use, and construction details. •Criteria for acoustic environment-type of Building, usage, Geometry shape, Surfaces, Sound absorption, Selection of acoustical materials & their application – for wall /	**7JAR3** **BUILDING SCIENCE-II (Acoustics & Illumination)** Unit I Introduction about Sound and Noise: •Fundamental Properties and characteristics of sound. (Frequency, wavelength, velocity, pressure, pressure level, intensity, pitch, tone, loudness, timbre etc.) •Noise: Physiological and Psychological impact of noise on human beings. •Noise criteria for various spaces viz: Living areas, Educational areas, Offices, Shopping etc. •Measures to control noise nuisance (Air borne and Structure borne) in residential, educational, commercial, and Industrial areas along with calculations. A.Basic Terminology and definitions: •Physics of sound •Sound •Intensity & loudness •Characteristics of sound-frequency, amplitude, speed. •Reverberation time, absorption coefficient, echo, all the units related to sound •Effect of physical condition on sound-temperature, humidity, pressure Unit II Behavior of Sound: •Behavior of sound in open and enclosed spaces with reference to the form of enclosures, and various surface finishes. (Reflection, Absorption, Diffraction, Insulation, Transmission, Echo, Resonance, Reverberation etc.) •Acoustical materials along with their properties, behavior, selection criteria, use, and construction details. •Criteria for acoustic environment-type of Building, usage, Geometry shape, Surfaces, Sound absorption, Selection of acoustical materials & their application – for wall /	**Content Add**

		partition, ceiling, floor Unit III Acoustical Design: •Reverberation time, Sabine's formula along with the limitations and prerequisites. •Acoustical design measures for live acoustical environment in enclosures used for various purposes viz. Classrooms, Lecture halls, Auditoriums, Seminar Halls, Conference rooms, Meeting rooms, Theatres, Music concert halls, Opera houses, Dance halls, Open air theatres, Movie Theatres, Meditation centers, Group prayer halls etc. •Noise-physiological and psychological effects, transmission loss, flanking of sound, structure borne sound and noise from different mechanical equipments. Unit IV Illumination: •Light and its propagation, reflection, radiation, transmission and absorption. •Definitions and units of flux, solid angles, luminous intensity, brightness etc. •Laws of illumination, types of illumination schemes – direct, semi direct, indirect and diffused lighting and their design considerations. •Principles of lighting including calculations for desired illumination on different working planes for various activities like reading, writing, drawing, domestic works, industrial jobs etc. •Designing of lighting for various types of buildings like residential, educational, offices etc. •Lighting for special purposes viz. Exhibitions, Theaters, Stadiums, Swimming pools, Cinemas, Assembly halls, Restaurants, Religious buildings etc along with study of Direct, Indirect, Flood, Concealed, Focus light etc. Unit V Illumination Method: •Standards of Illumination required for various activities. •Light flux method for calculation of number of lamps for illumination. •Types of Luminaries for interior and exterior lighting. Residential, commercial, industry, flood and street lighting. •Tests before commissioning of electrical services. •Introduction to sound reinforcing system-amplification and distribution. Introduction to illumination. Use of artificial lighting as	partition, ceiling, floor Noise control techniques and their applications. Predictions of acoustical conditions and approach to designing enclosure for predetermined acoustical responses, corrective of existing deficient enclosures. Unit III Acoustical Design: •Reverberation time, Sabine's formula along with the limitations and prerequisites. •Acoustical design measures for live acoustical environment in enclosures used for various purposes viz. Classrooms, Lecture halls, Auditoriums, Seminar Halls, Conference rooms, Meeting rooms, Theatres, Music concert halls, Opera houses, Dance halls, Open air theatres, Movie Theatres, Meditation centers, Group prayer halls etc. •Noise-physiological and psychological effects, transmission loss, flanking of sound, structure borne sound and noise from different mechanical equipments. Unit IV Illumination: •Light and its propagation, reflection, radiation, transmission and absorption. •Definitions and units of flux, solid angles, luminous intensity, brightness etc. •Laws of illumination, types of illumination schemes – direct, semi direct, indirect and diffused lighting and their design considerations. •Principles of lighting including calculations for desired illumination on different working planes for various activities like reading, writing, drawing, domestic works, industrial jobs etc. •Designing of lighting for various types of buildings like residential, educational, offices etc. •Lighting for special purposes viz. Exhibitions, Theaters, Stadiums, Swimming pools, Cinemas, Assembly halls, Restaurants, Religious buildings etc along with study of Direct, Indirect, Flood, Concealed, Focus light etc. • Lighting for special purposes viz. Exhibitions, Theaters, Stadiums, Swimming pools, Cinemas, Assembly halls, Restaurants, Religious buildings etc along with study of Direct, Indirect, Flood, Concealed, Focus light etc.	

		an element in architectural scheme particularly exhibitions, theaters, offices and stores etc. lighting for road traffic, decorative and flood lighting.	• Over illumination controlling measures. Laws of illumination, Design for lighting, classification of lighting system, direct, diffused, indirect etc. Artificial light sources, types and their use limitations. Unit V Illumination Method: •Standards of Illumination required for various activities. •Light flux method for calculation of number of lamps for illumination. •Types of Luminaries for interior and exterior lighting. Residential, commercial, industry, flood and street lighting. •Tests before commissioning of electrical services. •Introduction to sound reinforcing system-amplification and distribution. Introduction to illumination. Use of artificial lighting as an element in architectural scheme particularly exhibitions, theaters, offices and stores etc. lighting for road traffic, decorative and flood lighting.	
69	**7JAR4**	**7JAR4** **ARCHITECTURAL STRUCTURE-VII** Unit I Pile and raft foundations Beams and columns and various types of supporting systems cantilever and propped cantilever, Continuous and fixed beams and their behavior under load. Unit II Definition of determinate and indeterminate structures, redundant frames static and kinematic indeterminacy of beam. Unit III Cylindrical, parabolic and flat arches, advantages and limitations. Unit IV Simple framed structures and trusses advantages and limitations. Unit V Conceptualizing and understanding of surface structures shells. Domes and folded plates. Slope deflection and Knai's methods for analysis of continuous beams and simple portal frames.	**7JAR4** **ARCHITECTURAL STRUCTURE-VII** Unit I Pile and raft foundations Beams and columns and various types of supporting systems cantilever and propped cantilever, Continuous and fixed beams and their behavior under load. Unit II Definition of determinate and indeterminate structures, redundant frames static and kinematic indeterminacy of beam. Unit III Cylindrical, parabolic and flat arches, advantages and limitations. Unit IV Simple framed structures and trusses advantages and limitations. Unit V Conceptualizing and understanding of surface structures shells. Domes and folded plates. Slope deflection and Knai's methods for analysis of continuous beams and simple portal frames. Pre-stressing – Methods and losses in pre-stressing, comparison of RCC and pre stressing. Pre stressing concrete beams.	**Content Add**
70	**7JAR5**	**7JAR5** **INTRODUCTION TO SETTLEMENT**	**7JAR5** **INTRODUCTION TO SETTLEMENT**	**Content Add**

		PLANNING Unit I Definition, planning as an architectural expression and form of developing a human settlement. A.Definition of settlement and its hierarchy (isolated dwellings, hamlet, village, towns, city, conurbation) under following parameters: •Area •Site •Population •Functions •Situation •Shape B.Settlement patterns •Linear •Dispersed •Nucleated •Planned C.Function of settlement •Residential •Administrative •Industrial •Commercial •Services •Tourism D.Ancient civilizations •Sumerian towns •Egyptian civilization •Greek civilization •Roman civilization •Medieval cities •Renaissance period •Indus Valley Civilization •Vedic / Vastu Civilization Unit II Theories of city planning, new towns and cities. To study the planning theories (concepts) and significantly relate them with the examples from past and present time city plans. •Garden city concept •Geddisain triad •Neighborhood concept •Radburn theory •City beautiful Unit III History of city planning. Concepts of urban space, survey, techniques, zoning and land use, neighborhood concepts, central business district, site planning, urban and rural housing, urban transportation. Unit IV	**PLANNING** Unit I Definition, planning as an architectural expression and form of developing a human settlement. A.Definition of settlement and its hierarchy (isolated dwellings, hamlet, village, towns, city, conurbation) under following parameters: •Area •Site •Population •Functions •Situation •Shape B.Settlement patterns •Linear •Dispersed •Nucleated •Planned C.Function of settlement •Residential •Administrative •Industrial •Commercial •Services •Tourism D.Ancient civilizations •Sumerian towns •Egyptian civilization •Greek civilization •Roman civilization •Medieval cities •Renaissance period •Indus Valley Civilization •Vedic / Vastu Civilization Unit II Theories of city planning, new towns and cities. To study the planning theories (concepts) and significantly relate them with the examples from past and present time city plans. •Garden city concept •Geddisain triad •Neighborhood concept •Radburn theory •City beautiful • Broad acre city • Satellite town • Ribbon development Ekistics Unit III History of city planning. Concepts of urban space, survey, techniques, zoning and land	

		Urban renewal and redevelopment: Understanding the term urban renewal and Sustainable development. Study of various urban renewal programmes of JNNURM. Unit V Present day planning in India: Understanding the concept and formulation of a master plan document and its significance in the overall balanced development of a city/ smart city etc.	use, neighborhood concepts, central business district, site planning, urban and rural housing, urban transportation. Unit IV Urban renewal and redevelopment: Understanding the term urban renewal and Sustainable development. Study of various urban renewal programmes of JNNURM. Unit V Present day planning in India: Understanding the concept and formulation of a master plan document and its significance in the overall balanced development of a city/ smart city etc.	
71	**7JAR6**	**7JAR6** **ARCHITECTURAL DESIGN-V & FIELD TRIP** Understanding building in urban context To understand the issue of building and context, building bylaws, urban design. The design of building will look into aspects of commercial feasibility and building program; Architectural dimension with issues of services.	**7JAR6** **ARCHITECTURAL DESIGN-V & FIELD TRIP** Understanding building in urban context To understand the issue of building and context, building bylaws, urban design. The design of building will look into aspects of commercial feasibility and building program; Architectural dimension with issues of services.	**No Change**
72	**7JAR7**	**7JAR7** **ADVANCED BUILDING CONSTRUCTION** Unit I Advanced Foundations–Pile and raft foundations. Unit II Advanced methods of multistory building construction- Lift slab construction, slip form construction etc. Unit III Space frames. Unit IV Geodesic domes- principles and construction. Unit V Disaster resistant construction system.	**7JAR7** **ADVANCED BUILDING CONSTRUCTION** Unit I Advanced Foundations–Pile and raft foundations. Unit II Advanced methods of multistory building construction- Lift slab construction, slip form construction etc. Unit III Space frames. Unconventional buildings like TV towers etc. Unit IV Geodesic domes- principles and construction. Unit V Disaster resistant construction system.	**Content Add**
73	**7JAR8**	**7JAR8** **INTRODUCTION TO SETTLEMENT PLANNING (STUDIO)** To study design of settlements. Designing a settlement layout showing notion of urban space, neighborhood, typology, unit type, land use, zoning, transportation, density, etc.	**7JAR8** **INTRODUCTION TO SETTLEMENT PLANNING (STUDIO)** To study design of settlements. Designing a settlement layout showing notion of urban space, neighborhood, typology, unit type, land use, zoning, transportation, density, etc.	**No Change**
74	**7JAR9**	**7JAR9**	**7JAR9**	**No Change**

		DISSERTATION Research Study Each student is required to conduct a non design study on topic selected by the student and approved by the department. The study shall be conducted under the guidance of teacher or external expert in the department this dissertation should lead to a design problem to be taken up as a Thesis Topic.	**DISSERTATION** Research Study Each student is required to conduct a non design study on topic selected by the student and approved by the department. The study shall be conducted under the guidance of teacher or external expert in the department this dissertation should lead to a design problem to be taken up as a Thesis Topic.	
75	**7JAR10.1**	**7JAR10.1** **ELECTIVE - ALTERNATE ENERGY SYSTEM IN ARCHITECTURE** Unit I Introduction; Present Scenario in India, Hydel Energy, Solar Energy, Wind Energy, Sustainable Architecture: Introduction Present Scenario Relevance in Indian Context Tidal Energy / Biogas, Geothermal Energy, Unit II Green Building Concepts / Role of IGBC Unit III Active & Passive Means of Cooling Unit IV Sources of Energy: a)Renewable b)Non-Renewable Unit V Energy Audit Energy Consumption	**7JAR10.1** **ELECTIVE - ALTERNATE ENERGY SYSTEM IN ARCHITECTURE** Unit I Introduction; Present Scenario in India, Hydel Energy, Solar Energy, Wind Energy, Sustainable Architecture: Introduction Present Scenario Relevance in Indian Context Tidal Energy / Biogas, Geothermal Energy, Unit II Green Building Concepts / Role of IGBC Unit III Active & Passive Means of Cooling Unit IV Sources of Energy: a)Renewable b)Non-Renewable Unit V Energy Audit Energy Consumption	**No Change**
76	**7JAR10.2**	**7JAR10.2** **ELECTIVE- VERNACULAR ARCHITECTURE** Unit I	**7JAR10.2** **ELECTIVE- VERNACULAR ARCHITECTURE** Unit I	**Content Add**

		Introduction to Vernacular Architecture Approaches and concepts to the study of Vernacular architecture – Introduction to Kutcha architecture and Pucca architecture Introduction to Vernacular architecture it's nature, purpose and scope. Study of examples of Vernacular architecture in history of architecture (inside Indian subcontinent) to understand evolution of building forms based on functions, building materials and construction techniques, art & crafts, the local conditions, traditions, climate &geography, religion & culture in the period when they were built Unit II Dravidian South Planning aspects, materials of construction, Constructional details & Settlement Planning of : Kerala – Nair houses (Tarawads), Kerala Muslim houses(Mappilah houses), Temples, Palaces and theaters – Thattchushastra. TamilNadu – Toda Huts, Chettinad Houses (Chettiars) & Palaces Unit III Western Region Planning aspects , Materials used, Constructional details, Climatic factors influencing the planning of Jat houses for farming caste, Bhungas(Circular Huts) and Havelis(Pukka houses) of Rajasthan Pol houses of Ahmedabad - Primitive forms, Symbolism, Colour, Folk art etc in the architecture of the deserts of Kutch & Gujarat state. Vernacular architecture of Goa. Unit IV Thern and Eastern India Kashmir – Typical Kutcha houses, mosque, Dhoongas(Boathouses), Ladakhi houses, bridges Himachal Pradesh – Kinnaur houses Uttar Pradesh – Domestic housing of Uttar Pradesh Unit V Case study/ies of works of architects in contemporary Indian architecture; whose works are influenced by the Vernacular Architecture of the region	Introduction to Vernacular Architecture Approaches and concepts to the study of Vernacular architecture – Introduction to Kutcha architecture and Pucca architecture Introduction to Vernacular architecture it's nature, purpose and scope. Study of examples of Vernacular architecture in history of architecture (inside Indian subcontinent) to understand evolution of building forms based on functions, building materials and construction techniques, art & crafts, the local conditions, traditions, climate &geography, religion & culture in the period when they were built Unit II Dravidian South Planning aspects, materials of construction, Constructional details & Settlement Planning of : Kerala – Nair houses (Tarawads), Kerala Muslim houses(Mappilah houses), Temples, Palaces and theaters – Thattchushastra. TamilNadu – Toda Huts, Chettinad Houses (Chettiars) & Palaces • Karnataka – Gutthu houses (land owning community), Kodava ancestral home (Aynmane) Andhra Pradesh –Kaccha buildings Religious practices, beliefs, culture & climatic factors influencing the planning of the above. Unit III Western Region Planning aspects , Materials used, Constructional details, Climatic factors influencing the planning of Jat houses for farming caste, Bhungas(Circular Huts) and Havelis(Pukka houses) of Rajasthan Pol houses of Ahmedabad - Primitive forms, Symbolism, Colour, Folk art etc in the architecture of the deserts of Kutch & Gujarat state. Vernacular architecture of Goa. Unit IV Thern and Eastern India Kashmir – Typical Kutcha houses, mosque, Dhoongas(Boathouses), Ladakhi houses, bridges Himachal Pradesh – Kinnaur houses Uttar Pradesh – Domestic housing of Uttar Pradesh Bengal – Bangla (Rural house form), Aat Chala houses – change from Bangla to Bungalow, Kutcha & Pucca architecture of Bengal. Nagaland – Naga houses & Naga village, Khasi houses Factors influencing the	

			planning aspects, materials of construction & constructional details of the above. Unit V Case study/ies of works of architects in contemporary Indian architecture; whose works are influenced by the Vernacular Architecture of the region	
77	**8JAR1**	**8JAR1** PRACTICAL TRAINING To expose student to Architectural practice and construction and execution. Student shall work for a period of 280 days in an office of Architect approved by the department. She/He shall be submitting monthly work report, critical appraisal of built projects. Field documentation of architectural details and site supervision of built projects.	**8JAR1** PRACTICAL TRAINING To expose student to Architectural practice and construction and execution. Student shall work for a period of 280 days in an office of Architect approved by the department. She/He shall be submitting monthly work report, critical appraisal of built projects. Field documentation of architectural details and site supervision of built projects.	**No Change**
78	**9JAR1**	**9JAR1** PRACTICAL TRAINING To expose student to Architectural practice and construction and execution. Student shall work for a period of 280 days in an office of Architect approved by the department. She/He shall be submitting monthly work report, critical appraisal of built projects. Field documentation of architectural details and site supervision of built projects.	**9JAR1** PRACTICAL TRAINING To expose student to Architectural practice and construction and execution. Student shall work for a period of 280 days in an office of Architect approved by the department. She/He shall be submitting monthly work report, critical appraisal of built projects. Field documentation of architectural details and site supervision of built projects.	**No Change**
79	**10JAR 1**	**10JAR1** **PROFESSIONAL PRACTICE & MANAGEMENT** **Unit I** The architect and his office, relationship with clients, consultants, contractors. Legal responsibilities of architects, code of professional practice, fees, architectural competitions and architects registration act 1972. • Code of professional conduct. • Condition of engagement and scale of professional fees. • Copyright Act as applicable to architectural work. • Architectural competitions. • Concept of Contract. • Duties and liabilities of architects, duties and liabilities of contractors. • Articles of agreement, execution of works and payments.	**10JAR1** **PROFESSIONAL PRACTICE & MANAGEMENT** **Unit I** The architect and his office, relationship with clients, consultants, contractors. Legal responsibilities of architects, code of professional practice, fees, architectural competitions and architects registration act 1972. • Code of professional conduct. • Condition of engagement and scale of professional fees. • Copyright Act as applicable to architectural work. • Architectural competitions. • Concept of Contract. • Duties and liabilities of architects, duties and liabilities of contractors. • Articles of agreement, execution of works and payments.	**No Change**

		Laws pertaining to property matters like Right of easements, passage, ancient light etc. **Unit II** Tender and tendering procedures, principle of contact and agreements. Control of constructional operations. **Unit III** Arbitration and its proceedings and awards. Introduction to principles of business management project programming and monitoring. **Unit IV** PERT and CPM network and their analysis Human relation and personnel management. **Unit V** Brief Idea about accounting and book keeping, business correspondence, information storage and retrieval systems.	Laws pertaining to property matters like Right of easements, passage, ancient light etc. **Unit II** Tender and tendering procedures, principle of contact and agreements. Control of constructional operations. **Unit III** Arbitration and its proceedings and awards. Introduction to principles of business management project programming and monitoring. **Unit IV** PERT and CPM network and their analysis Human relation and personnel management. **Unit V** Brief Idea about accounting and book keeping, business correspondence, information storage and retrieval systems.	
80	**10JAR 2**	**10JAR2** **HOUSING** Unit I Housing system – housing need and options available, National Housing policy, Housing Agencies and their contribution to housing development. Housing finance. Social factors influencing design, affordability, economic factors and housing concepts/ technologies. Unit II Housing scenario: •Housing scenario in Indian context, Housing shortage in urban and rural areas. •Slum up-gradation, Slums and squatters, Informal housing. •Affordable housing, Core housing, Community housing, Industrial housing. •Site and Services, •Housing Surveys and •Neighborhood Analysis. Unit III Different type of housing and housing standards, methodology of formulation standards, relevance of standard in housing development, services, efficiency and user satisfaction. Unit IV Housing design process – different stages in project development – layout design including utilities and common facilities, design as a result of bye-laws. Unit V	**10JAR2** **HOUSING** Unit I Housing system – housing need and options available, National Housing policy, Housing Agencies and their contribution to housing development. Housing finance. Social factors influencing design, affordability, economic factors and housing concepts/ technologies. Unit II Housing scenario: •Housing scenario in Indian context, Housing shortage in urban and rural areas. •Slum up-gradation, Slums and squatters, Informal housing. •Affordable housing, Core housing, Community housing, Industrial housing. Low-rise high density, High-rise low density, High-rise high density housing •Site and Services, •Housing Surveys and •Neighborhood Analysis. Unit III Different type of housing and housing standards, methodology of formulation standards, relevance of standard in housing development, services, efficiency and user satisfaction. Unit IV Housing design process – different stages in	**Content Add**

		Housing Policies •Framing housing policy for a proposed scheme with consideration to nature of development. •National and State Housing policies. •Systems approach to housing. •Environmental consideration, housing for disaster prone areas. Housing finance: •Role of financial institutions •Co-operative housing schemes •Government measures for slum up-gradation and rehabilitation.	project development – layout design including utilities and common facilities, design as a result of bye-laws. Unit V Housing Policies •Framing housing policy for a proposed scheme with consideration to nature of development. •National and State Housing policies. •Systems approach to housing. •Environmental consideration, housing for disaster prone areas. Housing finance: •Role of financial institutions •Co-operative housing schemes • Gramin Bank Model •Government measures for slum up-gradation and rehabilitation.	
81	**10JAR 3.1**	**10JAR3.1** **ELECTIVE - URBAN CONSERVATION** Unit I Introduction to Conservation •Definitions: Conservation, Heritage and types of heritage, Degrees/ philosophies of conservation (preservation, restoration, rehabilitation, replication, relocation, adaptive reuse, maintenance), urban redevelopment, urban renewal, etc. •Ethics and principles of building conservation •Process/ procedures of building conservation Unit II Approaches to Conservation •Occidental and Oriental Approach •Development of Heritage Conservation in India •Approach towards formulation of an Indian Charter Unit III Concepts of Historic Zones •Introduction: definitions, characteristics and significances of historic zones •Challenges to revitalization of historic zones •Needs of Urban regeneration Unit IV World Heritage Sites •What are World Heritage Sites (WHS)? •World Heritage Mission and Structure •International initiatives for Heritage Conservation Unit V	**10JAR3.1** **ELECTIVE - URBAN CONSERVATION** Unit I Introduction to Conservation •Definitions: Conservation, Heritage and types of heritage, Degrees/ philosophies of conservation (preservation, restoration, rehabilitation, replication, relocation, adaptive reuse, maintenance), urban redevelopment, urban renewal, etc. •Ethics and principles of building conservation •Process/ procedures of building conservation Unit II Approaches to Conservation •Occidental and Oriental Approach •Development of Heritage Conservation in India •Approach towards formulation of an Indian Charter Unit III Concepts of Historic Zones •Introduction: definitions, characteristics and significances of historic zones •Challenges to revitalization of historic zones •Needs of Urban regeneration • Involvement and roles of stakeholders (community, development authorities, municipal corporations, local/ community leaders, etc.) Approach to regeneration of historic zones Unit IV World Heritage Sites •What are World Heritage Sites (WHS)? •World Heritage Mission and Structure • Concepts of assessment	**Content Add**

		Charters •Introduction to charters: definition, philosophies and need •Charters: SPAB Manifesto, Athens Charter, Venice Charter, European charter for Architectural heritage, Florence Charter, Washington Charter, Nara Document on Authenticity, Burra Charter, International Cultural Tourism Charter, INTACH Charter, ICOMOS Declaration on Heritage and Metropolis in Asia and the Pacific Legislation and Framework for Conservation in India Introduction to Heritage Tourism in India	•International initiatives for Heritage Conservation Unit V Charters •Introduction to charters: definition, philosophies and need •Charters: SPAB Manifesto, Athens Charter, Venice Charter, European charter for Architectural heritage, Florence Charter, Washington Charter, Nara Document on Authenticity, Burra Charter, International Cultural Tourism Charter, INTACH Charter, ICOMOS Declaration on Heritage and Metropolis in Asia and the Pacific Legislation and Framework for Conservation in India Introduction to Heritage Tourism in India	
82	**10JAR 3.2**	**10JAR3.2** **ELECTIVE - URBAN DESIGN** Unit I Introduction to the role and scope of Urban Design: •Introduction: Relationship with architecture and Town Planning. •Determinants and factors of urban forms such as landform, climate, symbolism, activity patterns, socio-cultural factors, materials, techniques and other contextual factors. Case examples from various periods in history and different parts of the world. •Understanding of differentiation of Architecture, Urban design & planning. •Meaning, scope and purpose of Urban design. Unit II Vocabulary of Urban Design •Principles of Urban design and Making a Visual survey •Urban Pattern •Grain •Fabric •Texture •Density Unit III Urban Spaces A. Streetscape Elements •Continuous Streetscape; •Connected Sidewalks; •Prominent Gateways; •Focus Areas; •Key Building Frontages; •Key Corner Sites; •Key Vistas;	**10JAR3.2** **ELECTIVE - URBAN DESIGN** Unit I Introduction to the role and scope of Urban Design: •Introduction: Relationship with architecture and Town Planning. •Determinants and factors of urban forms such as landform, climate, symbolism, activity patterns, socio-cultural factors, materials, techniques and other contextual factors. Case examples from various periods in history and different parts of the world. •Understanding of differentiation of Architecture, Urban design & planning. •Meaning, scope and purpose of Urban design. • Understanding the Heritage of Urban Design and roots of our Modern Concepts. Study of built fabric and its relationship with land form and nature Unit II Vocabulary of Urban Design •Principles of Urban design and Making a Visual survey •Urban Pattern •Grain •Fabric •Texture •Density Unit III Urban Spaces A. Streetscape Elements •Continuous Streetscape; •Connected Sidewalks;	**Content Add**

		•Public Art; •Off-Street Parking; and, •Attractive Signage. B. Open Space Elements •Potential squares; •Landscaped buffers. C. Connections •Pedestrian Routes (including crosswalks and mid-block connectors); •Shared Facilities; and, •Public Transit. D. Green Technologies •Pervious Pavement; •Rain Gardens and Passive Irrigation; •Building Materials; and, •Green Roof and High-albedo/Light-coloured roofing materials. E. Image of a city (Concepts of image ability, elements of the city image) •Nodes •Landmarks •Edges •Districts •Path •Local points •Their characteristics, •Role and inter relationship visual survey Unit IV Introduction to analytical techniques in urban design. •Survey techniques in urban design. •Urban design regulations and controls. A. Scale in urban design •Scale and human vision •Scale and circulation •Scale in Neighboring Building and Spaces •Scale and Neighborhood size •Scale and Parameters •Scale: Time, Convenience, Age and Habit B. Urban Space C. Urban Mass D. Urban Activity and Circulation •The open space technique •The transportation system technique •The capital network technique •The plug-in technique •The individual building Urban Aesthetics •Beauty in cities •Relationship between site and city •Designing parts of the city. Unit V Comprehensive role of urban design in planning process •Urban design on a national and regional scale	•Prominent Gateways; •Focus Areas; •Key Building Frontages; •Key Corner Sites; •Key Vistas; •Public Art; •Off-Street Parking; and, •Attractive Signage. B. Open Space Elements •Potential squares; •Landscaped buffers. C. Connections •Pedestrian Routes (including crosswalks and mid-block connectors); •Shared Facilities; and, •Public Transit. D. Green Technologies •Pervious Pavement; •Rain Gardens and Passive Irrigation; •Building Materials; and, •Green Roof and High-albedo/Light-coloured roofing materials. E. Image of a city (Concepts of image ability, elements of the city image) •Nodes •Landmarks •Edges •Districts •Path •Local points •Their characteristics, •Role and inter relationship visual survey Unit IV Introduction to analytical techniques in urban design. •Survey techniques in urban design. •Urban design regulations and controls. A. Scale in urban design •Scale and human vision •Scale and circulation •Scale in Neighboring Building and Spaces •Scale and Neighborhood size •Scale and Parameters •Scale: Time, Convenience, Age and Habit B. Urban Space C. Urban Mass D. Urban Activity and Circulation •The open space technique •The transportation system technique •The capital network technique •The plug-in technique •The individual building Urban Aesthetics •Beauty in cities •Relationship between site and city •Designing parts of the city.	

		•Urban design at the metropolitan scale •Urban design at the scale of a city	Unit V Comprehensive role of urban design in planning process •Urban design on a national and regional scale •Urban design at the metropolitan scale •Urban design at the scale of a city	
83	**10JAR 4.1**	**10JAR4.1** **ELECTIVE - DISASTER RESISTANT STRUCTURES** Unit I Introduction: •Types of disaster, meanings and related definitions. •Principles of Disaster Management, Hazards, Risks and Vulnerabilities. •Assessment of Disaster Vulnerability of a location and vulnerable groups. •Causes and effects of natural hazards. •Disaster profile of India. Building safety form natural hazards, introduction, earthquake, five safety in buildings, cyclone effects, high winds, storm surge, cyclone safety aspects in buildings, floods, landslides, disaster resistant structures Unit II Elementary seismology, causes of earthquake, seismic waves, magnitude, intensity, seismological instruments, earthquake zones Unit III Earthquake resistant structures, engineered and non-engineered buildings, architectural aspects – forms and shape, construction techniques for disaster resistant structures, innovative new materials. Unit IV Structural detailing, IS code provisions for the buildings IS:1893 and IS:4326, effect on tall buildings and IS:13828 Seismic designs and detailing of RC and steel building: IS:13920, IS:456, IS:800 and national building code, general provisions; seismic design principles Unit V Seismic vulnerability evaluation of existing buildings, study of cracks, repair and rehabilitation of buildings. Seismic strengthening, retrofitting, pase isolators, jacketing, masonry and concrete structures, few case studies of buildings after disaster and restoration, load bearing and R.C. fraened building.	**10JAR4.1** **ELECTIVE - DISASTER RESISTANT STRUCTURES** Unit I Introduction: •Types of disaster, meanings and related definitions. •Principles of Disaster Management, Hazards, Risks and Vulnerabilities. •Assessment of Disaster Vulnerability of a location and vulnerable groups. •Causes and effects of natural hazards. •Disaster profile of India. Building safety form natural hazards, introduction, earthquake, five safety in buildings, cyclone effects, high winds, storm surge, cyclone safety aspects in buildings, floods, landslides, disaster resistant structures Unit II Elementary seismology, causes of earthquake, seismic waves, magnitude, intensity, seismological instruments, earthquake zones Unit III Earthquake resistant structures, engineered and non-engineered buildings, architectural aspects – forms and shape, construction techniques for disaster resistant structures, innovative new materials. Unit IV Structural detailing, IS code provisions for the buildings IS:1893 and IS:4326, effect on tall buildings and IS:13828 Seismic designs and detailing of RC and steel building: IS:13920, IS:456, IS:800 and national building code, general provisions; seismic design principles Unit V Seismic vulnerability evaluation of existing buildings, study of cracks, repair and rehabilitation of buildings. Seismic strengthening, retrofitting, pase isolators, jacketing, masonry and concrete structures, few case studies of buildings after disaster and restoration, load bearing and R.C. fraened building.	**No Change**
84	**10JAR**	**10JAR4.2**	**10JAR4.2**	**No Change**

	4.2	**ELECTIVE - ARCHITECTURAL DEVELOPMENT AND LEGISLATION.** Unit I Introduction to land economics; land speculation and pricing of land; real estate. Unit II Architects role, responsibilities and liabilities during and after Project Completion Unit III Introduction to Architectural development controls and regulations •Need and purpose •Type of developmental controls and regulations •Regulations Controls: brief on Zoning regulations (land use, height, density zoning etc) •Architectural Controls (building byelaws, environmental Controls, heritage, eco-sensitive, fennel area norms etc); •Government policies and various schemes Unit IV Agreement and its content; arbitration; Unit V Project Handling: Process and procedure from the inception of the project to its approval (authority) to execution on site.	**ELECTIVE - ARCHITECTURAL DEVELOPMENT AND LEGISLATION.** Unit I Introduction to land economics; land speculation and pricing of land; real estate. Unit II Architects role, responsibilities and liabilities during and after Project Completion Unit III Introduction to Architectural development controls and regulations •Need and purpose •Type of developmental controls and regulations •Regulations Controls: brief on Zoning regulations (land use, height, density zoning etc) •Architectural Controls (building byelaws, environmental Controls, heritage, eco-sensitive, fennel area norms etc); •Government policies and various schemes Unit IV Agreement and its content; arbitration; Unit V Project Handling: Process and procedure from the inception of the project to its approval (authority) to execution on site.	
85	**10JAR5**	**10JAR5** **ADVANCED STUDY OF THESIS TOPIC** To study in detail subject area of the thesis topic The student will undertake study guided by thesis guide in subject area of the topic selected for the thesis project.	**10JAR5** **ADVANCED STUDY OF THESIS TOPIC** To study in detail subject area of the thesis topic The student will undertake study guided by thesis guide in subject area of the topic selected for the thesis project.	**No Change**
86	**10JAR6**	**10JAR6** **THESIS PROJECT** Individual design project approved by department. Large scale project having complexity of urban and architectural resolutions. Culmination of all the skills acquired of architecture. Individual understanding of architectural theory, philosophy and architectural style, Student shall engage in study, documentation, analysis and design process of the project. The theoretical part to be put together in the form of a report and the design solution to be presented in hard/soft copy with a model.	**10JAR6** **THESIS PROJECT** Individual design project approved by department. Large scale project having complexity of urban and architectural resolutions. Culmination of all the skills acquired of architecture. Individual understanding of architectural theory, philosophy and architectural style, Student shall engage in study, documentation, analysis and design process of the project. The theoretical part to be put together in the form of a report and the design solution to be presented in hard/soft copy with a model.	**No Change**