B. Arch I SEM I COURSE AR 101 STUDIO I – Basic & Architectural Design

Tea (No. c	ching Sche of Contact h	eme nours)		Examination Scheme					
Theory	Tutorials	Studio	Theory	Exam	Practical		Total		
			Duration	Marks	End	Continuous Internal			
			- Hours		Semester	Evaluation			
					Exam				
-	-	08	-	-	400	400	800	800	08

Architectural Design SEM I

- **Emphasis:** Developing basic skill of expression that involves the ability to perceive, abstract and create the design of objects and spaces. Introduction to the principles and elements of 'Design'
- **Contents:** Principles of 2D and 3D composition, function specific design solutions, developing aesthetical and technical understanding of space making, Introduction of the form and function, order and variations, basic organizational principles, human scale, abstractions, sensory stimuli as components of architectural design
- **Projects:** Space making and place making, theme based compositions, volumetric studies, area studies, Literature Review

Basic Design SEM I

- **Emphasis:** Developing visual literacy and basic expressional skill that involves the ability to perceive, abstract and create as a process of the design of objects and spaces.
- **Contents:** Principles of 2D and 3D composition and introduction of basic terminologies related to it, Introduction to the Colour theories, Elements of Composition, Explorations of various materials and medias, developing visual literacy through the process oriented exercises and lateral thinking
- **Projects:** Compositions of positive and negative, 2D compositions based on geometrical forms and other objects. Design exercises for developing abstract reasoning, model making and volumetric compositions

- 1. Ching, Francis D. K. Form, Space and Order
- 2. Rasmussen, Stein Eiler Experiencing Architecture
- 3. Berger, John Ways of Seeing
- 4. Kamiya Takeo A Guide to the Architecture of the Indian Subcontinent
- 5. Corbusier, Le Towards New Architecture
- 6. Gill, Robert Rendering with pen and ink
- 7. --- Art in everyday life
- 8. Ruskin, Eugene Architecture: Scale and proportion
- 9. Gill, Robert Basic Rendering
- 10. Ching, Francis D. K. Graphics in Architecture
- 11. De Bono, Edward Lateral thinking

B. Arch I SEM I COURSE AR 102 Technical Representational Drawings I

Tea (No. c	ching Sche of Contact h	eme iours)			Examinatio	on Scheme		Grand Total	Credits
Theory	Tutorials	Studio	Theory	Exam	Practical		Total		
			Duration	Marks	End	Continuous Internal			
			- Hours		Semester	Evaluation			
					Exam				
-	-	5	-	-	250	250	500	500	5

Emphasis: Developing skills for representation of geometric forms and compositions as a tool of design

Contents:

- Familiarization with drawing materials and equipments,
- Lettering and architectural abbreviations, calligraphy,
- basic principal of geometry, orthographic projections of points, lines, planes and solids,
- Section of solids and development of surfaces of the solids,
- 3 D representations of solids like isometric and axonometric diagrams

- 1. Leaseua, Paul: Graphic Thinking for Architects and Designers
- 2. Ching, Francis D. K. Graphics in Architecture
- 3. Bhatt, N. D. Engineering Drawings

B.ARCH –I SEM-I COURSE- AR103 Building Material & Construction- I

Tea (No. c	ching Sche of Contact h	eme iours)			Examinatio	on Scheme		Grand Total	Credits
Theory	Tutorials	Studio	Theory Exam Practical Total						
			Duration	Marks	End	Continuous Internal			
			- Hours		Semester	Evaluation			
			Exam						
3	-	2	3 100 30 20 50				150	5	

Emphasis: Understanding of building materials & basic building components in construction. **Content:**

- Study of basic materials of construction such as sand cement lime aggregates, brick stone metal, glass etc. the structural & physical behavior with respect to its properties & application in building.
- Study of all the types of masonry in stone construction
- Study of brick masonry.
- Introduction to the various components of building like floors, roofs, openings, staircase etc.
- **Projects:** Study through practical site visits, presentations, case studies & workshop based on the application of theory to construction field.

- 1. Mackey W.L -Building Construction, Vol –I,II,III,
- 2. Arora S.P. & Bindra S.P. -Building Construction
- 3. Barry .R The Construction of Building
- 4. Cowan Henry J -Handbook of Architectural Technology
- 5. Allen Edward -Fundamentals of Building Construction

B.ARCH -I SEM-I COURSE- AR105 History of Culture I

Tea (No. c	ching Sche of Contact h	eme iours)			Examinatio	on Scheme		Grand Total	Credits
Theory	Tutorials	Studio	Theory	Exam		Practical	Total		
			Duration	Marks	End	Continuous Internal			
			- Hours		Semester	Evaluation			
			Exam						
3	-	-	2 50 30 20 50				100	3	

Emphasis: Elementary concept of society, culture and its articulation in Architecture & built form.

Contents:

Society & its institutions, culture & cultural elements, traits, attributes, important theories of society & change, urbanization its impact on various cultural attributes & o built form.

- Prehistoric shelters evolutionary stages of man
- Indus valley civilization
- Egyptian & Mesopotamian civilization

- 1. Metta Spencer, Alex Inkeles- Foundations of modern society.
- 2. A.L. Basham-The Wonder that was India
- 3. Michal Coogan-Worlds Religion The illustrated guide
- 4. R.E.M.Wheelers-The Indus Valley Civilization
- 5. Encyclopidia of Vernacular Architecture, Vol I

B. Arch I SEM I COURSE AR106 Photography and Graphical Representational Skills

Tea (No. c	ching Sche of Contact h	eme iours)			Examinatio	on Scheme		Grand Total	Credits
Theory	Tutorials	Studio	Theory	Exam	Practical		Total		
			Duration	Marks	End	Continuous Internal			
			- Hours		Semester	Evaluation			
			Exam						
-	-	4	-		50	50	100	100	4

Emphasis: Use of different medias and techniques as tools to develop visual and perceptual skills

Contents:

- Observations and representation through drawings with different media as pencil, charcoal, paint brush, crayon, dry pastels etc.
- Object drawings and shading techniques.
- Drawings of simple geometric objects.

Observation and representation through camera

- Introduction to camera and various lenses and filters.
- Shutter speed, aperture, field of depth.
- Frames of reference, framing a composition.
- Various types of photography such as nature, architecture, portrait, landscape, urban landscape etc.
- Presentation and display of the photographs, printing and developing.

- 1. Thames & Houdson- Pen & Ink Rendering
- 2. Gill, Robert Basic Rendering
- 3. Ching, Francis D. K. Graphics in Architecture

B. Arch I SEM I COURSE C104 Structure-I

Tea (No. c	ching Sche of Contact h	eme iours)			Examinatio	on Scheme		Grand Total	Credits
Theory	Tutorials	Studio	Theory	Theory Exam Practical Total					
			Duration	Marks	End	Continuous Internal			
			- Hours		Semester	Evaluation			
			Exam						
2	-	3	3 100 30 20 50					150	5

Emphasis: Engineering Mechanics(Static)

Contents:

1. Introduction :

Introduction to fundamental principles of Engineering Mechanics, Newton's Laws of motion, law of parallelogram of forces, principles of forces, principles of transmissibility &concept of rigid body, particle.

2. Natural forms:

Understanding Nature a creative base for understanding structures, correlating natural & man-made structures.

3. Forces:

Types of forces, Static loading ,time dependent loading &impact loading ,causes & effect of various forces like dead load ,imposed load, wind load, earthquake load , Hydrostatic load, erection force etc on building. Forces acting through point, distributed forces on line, area& body.

4. Forces system:

Free body diagram, resolution of forces into components, types of force systems, concurrent ,coplanar nonconcurrent etc. forces in planes & space Calculation of resultant for various types force system, calculation of moments, couple equivalent force system.

5. Equilibrium:

Equilibrium conditions of equilibrium for force system, basic types of supports determinacy, Basic behavior of elements in load transformation. Bending torsion shear tension members compression members etc.

6. Beam:

Introduction as a flexural element, simply supported, overhanging & cantilever beams, determinacy ,calculation of reaction at supports for beam , application.

7. Truss:

Introduction, types of truss, analysis of Plane truss& space truss, application.

Graphical Methods:

Graphical methods for resolution of forces, Bow's notation, Force polygon for coplaner force system, Funicular polygon, Analysis of beam 7plane truss by graphical method.

8. Distributed forces:

Determination of Centroid , calculation of centre of gravity for line element, area element & volume ,calculation of Moment of inertia of area element ,parallel axis theorem.

Projects :

- 1. Tutorial based on course contents.
- 2. Practical in lab based on –understanding of forces, equilibrium, beam & truss.
- 3. Making models based on stability, forces in members & centre of gravity.
- 4. Creative exercise based on course content.

- 1. Bear & Johnston Vector mechanics for engineers- static
- 2. Desai & Mistry- Engineering mechanics, static & Dynamics
- 3. Junarkar & H,J. Shah- Applied Mechanics
- 4. Jeffery Cook Seeking structures from nature.

B. Arch I SEM II COURSE AR 201 STUDIO II – Basic & Architectural Design

Tea (No. c	ching Sche of Contact h	eme iours)			Examinatio	on Scheme		Grand Total	Credits
Theory	Tutorials	Studio	Theory	Exam	Practical		Total		
			Duration	Marks	End	Continuous Internal			
			- Hours		Semester	Evaluation			
					Exam				
-	-	9	-	-	400	500	900	900	9

Architectural Design SEM II

- **Emphasis:** Introduction to the fundamentals of architectural design like form, space, scale and proportions, functions and anthropometrics, structure and materials, sensory qualities
- **Contents:** Anthropometric studies, human physiology and ergonomics, understanding of interrelationships of functions, Design parameters like spatial order, basic modulation, space-structure-form correlation, principles of abstractions, spatial scales, ordering mechanism, evolution of form
- **Projects:** Detailed Study of Anthropometrics, Small scale design projects, Design of small structures and spaces with specific functions, theme based compositions, volumetric studies, area studies, Literature Review

Basic Design SEM II

- **Emphasis:** Introduction to the principles design like function and form, scale and proportions, colour and texture, materials and surfaces
- **Contents:** Application of colour theories and cycles, Study of various textures and colours with its inherent expressions and effects, Study of natural forms like leaf, shell, tomoto etc., Application of various materials like Clay, Paper Mache, Timber, Steel etc, Application of various graphic techniques and development of abstract reasoning
- **Projects:** Theme based compositions, volumetric studies, Literature Review

Drawing & Painting

Emphasis: Developing visual and perceptual skills with the help of different medias and techniques

Contents:

- Observations and representation through drawings with different media as pencil, charcoal, paint brush, crayon, dry pastels etc.
- Object drawings and shading techniques
- Drawings of simple geometric objects, complex geometries, objects in nature
- Abstraction of perceived images
- Rendering techniques and use of colours
- Human figure studies in line drawings, shade and sculptural mass

- 1. Ching, Francis D. K. Form, Space and Order
- 2. Rasmussen, Stein Eiler Experiencing Architecture
- 3. Berger, John Ways of Seeing
- 4. Kamiya Takeo A Guide to the Architecture of the Indian Subcontinent
- 5. Corbusier, Le Towards New Architecture
- 6. Scriver, Peter and Bhatt, Vikram After the Masters
- 7. Gill, Robert Rendering with pen and ink
- 8. Ruskin, Eugene Architecture: Scale and proportion
- 9. Gill, Robert Basic Rendering
- 10. Ching, Francis D. K. Graphics in Architecture
- 11. De Bono, Edward Lateral thinking
- 12. Thames & Houdson- Pen & Ink Rendering

B. Arch I SEM II COURSE AR 202 Technical Representational Drawings II

Tea (No. c	ching Sche of Contact h	eme iours)			Examinatio	on Scheme		Grand Total	Credits
Theory	Tutorials	Studio	Theory	Exam	Practical		Total		
			Duration	Marks	End	Continuous Internal			
			- Hours		Semester	Evaluation			
					Exam				
-	-	5	-	-	250	250	500	500	5

Emphasis: Developing the skills for visualization & representation of geometric forms and compositions as a tool of design

Contents:

- Auxiliary projections, perspectives one point and two points
- Rendering techniques
- Development of lateral surfaces in sections
- Interpenetration of geometric solids and conditions of intersections
- Sciography methods to represent shadow and depth of an object in 2D and 3D projections with introduction to sun movements

- 1. Leaseua, Paul: Graphic Thinking for Architects and Designers
- 2. Ching, Francis D. K. Graphics in Architecture
- 3. Bhatt, N. D. Engineering Drawing

B.ARCH -I SEM-II COURSE- AR203 Building Material & Construction- II

Tea (No. c	ching Sche of Contact h	eme iours)			Examinatio	on Scheme		Grand Total	Credits
Theory	Tutorials	Studio	Theory Exam Practical Total						
			Duration	Marks	End	Continuous Internal			
			- Hours		Semester	Evaluation			
			Exam						
3	-	2	3 100 30 20 50				150	5	

Emphasis: Study of building systems & various building components.

Content:

- Understanding the concept of load bearing & framed structures & composite structures
- Study of building components such as foundations, walls, floors, openings etc .in Load bearing & framed structures.
- Forming of opening in various materials for the building types such as lintels arches etc.
- Types of shallow foundations.
- Study the various RCC construction equipment.
- Study of joinery in timber & metal.
- **Projects:** Study through practical site visits, presentations, case studies & workshop based on the application of theory to construction field.

- 1. Mackey W.L -Building Construction, Vol –I,II,III,
- 2. Arora S.P. & Bindra S.P. -Building Construction
- 3. Barry .R The Construction of Building
- 4. Cowan Henry J -Handbook of Architectural Technology
- 5. Allen Edward -Fundamentals of Building Construction

B. Arch I SEM I COURSE C204 Structure-II

Tea (No. c	ching Sche of Contact h	eme iours)			Examinatio	on Scheme		Grand Total	Credits
Theory	Tutorials	Studio	Theory	Theory Exam Practical Total					
			Duration	Marks	End	Continuous Internal			
			- Hours		Semester	Evaluation			
				Exam					
2	-	3	3 100 30 20 50				150	5	

Emphasis: Strength of Material **Contents:**

1. Simple stress & strain:

Introduction behavior of material under loading, stress 7 strain due to axial force, Hook's law working stress, Ultimate stress, factor of safety, permissible stress, lateral strain, Poission's ratio, volumetric strain, Young's modulus, Modulus of rigidity & their interrelation ship, stress due to temperature..

2. Principle Stress & strain:

Biaxial stresses, complimentary shear, calculation of Principle stresses & strain, principle planes. Analytical & graphical method of finding Principle stresses, strains & principal planes.

3. Shear Force & bending Moment diagram for Determinate beams:

Introduction to shear, bending, calculation of Shear force & bending moment for beams subjected to various types of load combination i.e. point load, distributed load with various types of support conditions like simply supported, overhanging, cantilever etc. Relationship between bending moment & shear force diagram, determination of point of contra flexure, Application of Shear force & bending moment diagram.

4. Shear force & Bending moment diagram for Indeterminate Beams:

Calculation of shear force & bending moment for Fixed 7 Continuous beams using theorem of three moments. Shear force & bending moment diagrams, interpretation of diagram & its application.

5. Shear force & Bending moment diagram for Determinate Beams & Indeterminate plane frames & arches:

Calculation of Shear force & bending moment for statically determinate & indeterminate plane frames subjected to gravity & lateral load.

6. Torsion:

Introduction to torsion, basic behavior

Projects :

- 1. Tutorial based on course contents.
- 2. Practical in lab based on -Testing of materials under various action like compression, tension etc.

- 1. Junarkar & H,J. Shah- Applied Mechanics
- 2. Popov P E. Mechanics of structutres, Vol I & II
- 3. Bansal.K R A text book of Strength of material
- 4. Khurmi R.S. Strength of Material
- 5. S.Ramamrutham- Strength of Material

B.ARCH -ISEM-II COURSE- AR205 History of Culture II

Tea (No. c	ching Sche of Contact h	eme iours)			Examinatio	on Scheme		Grand Total	Credits
Theory	Tutorials	Studio	Theory	Exam	Practical		Total		
			Duration	Marks	End	Continuous Internal			
			- Hours		Semester	Evaluation			
					Exam				
3	-	-	2	50	30	20	50	100	3

Emphasis: Study of society; its historical, socio-institutional developments; settlements, public & private spaces; symbols & meaning in built form & spatial structures.

Content:

A. World history:

- Minonian/ Mycenacan civilizations
- Rise & decline of Greek city
- Early Rome Roman Empire & its decline
- Chinese Civilization
- Civilizations of South America
- **B.** Indian History
- Vedic period / Aryanization in India
- Mauryan Period
- C. Religion & its articulation in architecture & scared built forms with special emphasis on Bhagvatism /Shaivism & Hindu Cosmogony

- 1. Doughlas Goodwine A brief history of Ancient World
- 2. Ancient Egypt; Time- Life books Series
- 3. Romilla thapar, Percival Spear-A History of India; Vol-1&2
- 4. Cambridge History & Culture of the Indian People; Vol-1&2
- 5. R.C. Mujumdar- Ancient India

B. Arch I SEM II COURSE AR 206 Environment & Ecology

Tea (No. c	ching Sche of Contact h	eme iours)			Examinatio	on Scheme		Grand Total	Credits
Theory	Tutorials	Studio	Theory Exam Practical Total						
			Duration	Marks	End	Continuous Internal			
			- Hours		Semester	Evaluation			
			Exam						
3	-	-	2 50 30 20 50				50	100	3

Emphasis: Understanding of ecology & the relationship of built & natural environment

Contents:

- Concept of ecology & ecosystem.
- Study of biological cycles.
- Resources & its conservation.
- Study of various climatic zones & issues of ecological balance.
- Study of various climatic forces.
- Urbanization & its impact on natural environment such as forestry, agriculture, water bodies, landforms etc.
- Pollution & its types.
- Introduction to the concept of sustainable habitats.

- 1. Donum E.P. –Fundamental of Ecology
- 2. Forest Stearus & Tom Montang- The Urban Ecosystem; A Holistic approach.
- 3. Kormandy. E.J.- Concept of Ecology
- 4. World Resources- WHO