AC 101  DESIGN STUDIO - I  
(L=0, S=07, W=0)  
CREDITS =  05

INTERNAL ASSESSMENT(T.W./PERIODIC REVIEW)  =  50  
CONTACT HRS/WK  =  07  
UNIVERSITY EXAMINATION (JURY) = 50

Focus : Anthropometrics and Shelter.

Contents: Anthropometrics : Human dimensions and proportions;
Basic Shelter : Understanding of shelter as a resultant of various forces: culture, climate, site & technology: exercises to provide exposure to various types of shelter. Analysis of various types.

Projects: Site visits to expose students to diversity of shelter & spaces. Exercises for analysis of various types/categories of space.
Single-function small space design, with emphasis on above copies / issues (A number of design exercises must be done, relating to human scale and spatial requirements for different activities and functions)

Skills: Sketching and model making for 3D visualization may be stressed. Single line orthographic drawings of designed spaces may be attempted for final project, using models to facilitate visualization.

REFERENCES:

SR.NO.  TITLE  AUTHOR
01.  Time Saver’s Standards  Edited by Joseph De Chicera
02.  Neufert’s Data  Ernst Neufert
03.  New Metric Handbook  Patricia Tutt

AC 102  TECHNICAL REPRESENTATION DRAWING-I  
(T.R.D. – I)  
(L=0,S=7,W=0)  
CREDITS = 05

INTERNAL ASSESSMENT/TERMWORK/EXERCISES = 50  
CONTACT HRS/WK = 07  
UNIVERSITY EXAMINATION (DRAWING TEST) = 50

Focus : To develop drawing skills as tools for visualisation and representation of design.

Contents : Familiarisation with drawing materials and equipment
- Object drawing, lettering
- Point and line, straight and curvilinear lines.
- Principles of plane geometry, scales.
- Orthographic projection of points, lines, planes and solids
- Solid geometry : sections of solids, simple and complex solids.
- Surface development of solids -paper models and drawings.
- Auxiliary projections as extension of orthographic projections. Applications to sections of solids to obtain true shapes of surfaces in section. Development of lateral surfaces in sections working with card and paper models to facilitate visualisation.
- Interpenetration of geometric solids and conditions of Intersections.

Method : A series of exercises to be completed in studio.

REFERENCES:

SR.NO.  TITLE  AUTHOR
01.  Engineering Drawing  N.D.Bhatt & V.M.Panchal
02.  Rendering with Pen & Ink  Robert Gill
03.  Visualization Techniques  Richard B.Leinbach
04.  Perspective for the architecture  Georg Schaarwachter
AC 103  BASIC DESIGN & WORKSHOP-I  (L=0, S=4, W=3)  CREDITS = 04

INTERNAL ASSESSMENT (TERM WORK / EXERCISES) = 50  CONTACT HRS / WK = 07
UNIVERSITY EXAMINATION (JURY) = 50

Focus : Fundamentals of visual perception.

Contents: Drawing and sketching exercises in various media. Analysis of visual impressions and representing in various media. Understanding of elements of visual perception - line, form, space, colour, texture, pattern etc. Relationship of forms and form space. Working with various materials relating visual and tactile qualities to the representative Drawings and sketches making basic geometrical forms and simple shapes in various materials and representing same in drawing from various perspectives, eye levels and viewing angles. (Materials like paper sheets, wood, plaster of paris, stone, plastics etc.).

Method : Skills to be developed through a series of studio exercises with model making in the workshop classes.

REFERENCES :
SR.NO. TITLE AUTHOR
01. Form, Space & Order Francis K.Ching
02. Free hand Drawing Self Taught Arthur Guptill
03. Pencil Sketching Thomas Waug

AC 104  BUILDING TECHNOLOGY - I  (L=0, S=6, W=0)  CREDITS = 04

INTERNAL ASSESSMENT (TERM WORK / EXERCISE) = 50  CONTACT HRS / WK = 06
UNIVERSITY EXAMINATION = 50

Focus : Understanding basic building elements, building materials, construction process

Contents: Introduction to various Building components - Structural & Non-Structural ; Bond – Types ; Masonry – Mud, Bricks, Stone ; Pointing Foundations – Types.

Method : Lectures on basic construction of building. Studio exercises, and case studies. Study of various components of existing building through sketches & models. Site visit.

REFERENCES :
SR.NO. TITLE AUTHOR
01. Construction of Building Vol.-I R.Berry
02. Building Construction Metric Vol.-II W.B.Mckay
03. Construction Technology Vol.-I Chudley

AC 105  STRUCTURES-I  :  (L=2, S=0, W=0)  CREDITS =02

INTERNAL ASSESSMENT (ASSIGNMENTS) = 50  CONTACT HRS / WK = 02
UNIVERSITY EXAMINATION = 50

Focus : Fundamentals of Structures.

REFERENCES:

<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>02.</td>
<td>Understanding Concept Of Structural Analysis &amp; Design</td>
<td>J.P.Parikh</td>
</tr>
<tr>
<td>04.</td>
<td>Engineering Mechanics</td>
<td>Hagerty &amp; Plass</td>
</tr>
<tr>
<td>05.</td>
<td>Fundamentals Of Structures</td>
<td>Salva Dorie</td>
</tr>
<tr>
<td>06.</td>
<td>IS 875 – 1987 Code Of Practice For Design Loads</td>
<td>BIS, New Delhi</td>
</tr>
</tbody>
</table>

AC 106  HISTORY OF ART & CULTURE  (L=2, S=0, W=0)  CREDITS =02

Focus : Study of Man and his culture to form derivation for design – physical manifestation in the contemporary world.

Contents : Study of ancient world through its history, art, religion, philosophy, etc. to earmark cultural landmarks responsible for shaping human surroundings. Study of medieval and modern times to understand the cultural development through the ages. Architecture and its relationship with other cultural realms, Architecture and society.

Method : Teaching may be lecture-based, with a number of assignments/exercise to encourage self-learning as individuals or in groups.

REFERENCES:

<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Ascent of Man</td>
<td>J.Bronowski</td>
</tr>
<tr>
<td>02.</td>
<td>History of world</td>
<td>Arnold Toynbee</td>
</tr>
<tr>
<td>03.</td>
<td>History of Civilisation</td>
<td>C.E.M. Joad</td>
</tr>
</tbody>
</table>

AC 107  BUILDING MATERIALS – I  (L=2, S=0, W=0)  CREDITS : 02

Focus : Introduction of basic building materials

Contents : Materials - Bricks, stone, Mud, Timber, lime, cement, stone, different types of timber their seasoning quality, etc. Their physical and behavioural properties, methods of application, criteria for selection of materials based on design.

Methods : Lectures on building materials & their use in building
- Visit to manufacturing site e.g. brick kiln, saw mills
- Exercises, assignments, drawings
- Case studies and documentation.

REFERENCES:

<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>02.</td>
<td>Building Construction Vol.-II</td>
<td>W.B.Mckay</td>
</tr>
<tr>
<td>03.</td>
<td>Civil Engineers Hand Book</td>
<td>P.N.Khanna</td>
</tr>
<tr>
<td>04.</td>
<td>Building Materials &amp; Components</td>
<td>C B R I, Roorkee</td>
</tr>
</tbody>
</table>
AC 200  RELATED STUDY PROGRAMME  CREDITS = 02

Focus:  To enhance observation and visual perception; develop free hand drawing skills using different techniques, tools and media.

Content:  Visit/s to site/s (preferably historical); sketching various natural and manmade objects and settings, visual representation through tools like pencils, chalk, charcoal, ink , oil paints, water colours, etc.

AC 201  DESIGN STUDIO II  (L=0, S=7, W=0)  CREDITS =05

INTERNAL ASSESSMENT (TERM WORK) =50  CONTACT HRS/WK =07
UNIVERSITY EXAMINATION (JURY) = 50

Focus:  Human Scale, Space/Form and the design process.

Contents:  Human Scale : Concept of Scale & Proportions.
Form : Elements of Form, various forms and their characteristics.
Space : Elements of space making (Enclosure, and, openings) and exploring the principles of combination.
Types of Spaces : Activity space, Circulation spaces, Waiting spaces Movement & Linkages : Kinds and spatial values.
Quality of Space : Effects of light, colour, material, texture ,views.

Design Process : Requirements/needs of project, site-analysis, activity and other areas and interrelationships, programming & ordering mechanisms, abstract concepts.

Projects:  Small projects of low complexity with focus on above aspects.

Skills:  Models ; application of skills learnt in TRD course such as sciography/ perspective, basic rendering techniques in architectural drawings.

REFERENCES:

SR.NO.  TITLE  AUTHOR
01.  Form, Space & Order  Francis D. K.Ching
02.  Scale in Architecture  Frank Orr
03.  Architecture as Space  Bruno Zevi

AC202  TECHNICAL REPRESENTATION DRAWING-II  (L=0, S=7, W=0)  CREDITS =05
(T.R.D. – II)

INTERNAL ASSESSMENT(EXERCISES) = 50  CONTACT HRS/WK =07
UNIVERSITY EXAMINATION (DRAWING TEST) = 50

Focus:  To develop skills for technical representation of architectural designs Projects.

Content:  Three dimensional representation of simple & complex forms and architectural objects isometric, axonometric and perspective (One-point,two-point, three- point) .
Three dimensional representation of interiors of spaces: Sectional perspectives, axonometric.
Sciography of simple & complex forms, shadows on horizontal, vertical, and inclined planes and on objects own surfaces.
Sciographic on orthographic, isometric, axonometric and perspective drawings. Basic representational techniques and rendering in various media.
Application of skills learnt, to drawings of studio projects.

Method:  A series of exercises to be completed in studio.

REFERENCES:

SR.NO.  TITLE  AUTHOR
01.  Sciography & Perspective  Malik
02.  Perspective for the Architects  Robert Gill
03.  Rendering with Pen & Ink  N.D.Bhatt
AC 203  BASIC DESIGN & WORKSHOP-II (L=0,S=4, W=3) CREDITS =04

INTERNAL ASSESSMENT(TERM WORK/EXERCISE) = 50  CONTACT HRS/WK = 07  UNIVERSITY EXAMINATION/JURY) = 50

Focus : Design principles - natural and manmade objects.

Contents: Observing and analysing design of natural objects and manmade objects including geometry pattern, texture, colour composition, solid-void relationships etc. Structure and Composition of shapes and forms. Effects of colour and texture in altering composition and perception of an object. Workshop on colour and composition.

Method : Series of exercises in studio and actual making of objects, and presentation drawings in workshop.

REFERENCES : 

<table>
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<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
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</thead>
<tbody>
<tr>
<td>01.</td>
<td>Form, Space &amp; Order</td>
<td>Francis K.Ching</td>
</tr>
<tr>
<td>02.</td>
<td>Free hand Drawing Self Taught</td>
<td>Arthur Guptill</td>
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<tr>
<td>03.</td>
<td>Pencil Sketching</td>
<td>Thomas Waug</td>
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</tbody>
</table>

AC 204  BUILDING TECHNOLOGY AND MATERIALS-II (L=0,S=7,W=0) CREDITS =04

INTERNAL ASSESSMENT(TERM WORK/EXERCISES) = 50  CONTACT HRS/WK = 07  UNIVERSITY EXAMINATION = 50

Focus : Advanced materials used in construction of Buildings.


Method : Lectures on materials and construction of building elements, conventional practices etc. Studio Exercises, and case studies for above. Site Visit to various factories, processing sites etc.

REFERENCES : 

<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Construction of Building – Vol.2</td>
<td>R.Barry</td>
</tr>
<tr>
<td>02.</td>
<td>Building Construction Metric Vol.1</td>
<td>W.B.Mckay</td>
</tr>
<tr>
<td>03.</td>
<td>Building Materials &amp; Components</td>
<td>CBRI, Roorkee</td>
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<tr>
<td>04.</td>
<td>Building Construction</td>
<td>C.B. Punmia</td>
</tr>
</tbody>
</table>

AC 205  STRUCTURES-II L=2,S=0,W=0) CREDITS = 02

INTERNAL ASSESSMENT(TERM WORK/QUIZ, TEST) = 50  CONTACT HRS/WK = 02  UNIVERSITY EXAMINATION = 50

Focus : Strength of Materials.

Contents : Architectural considerations in material selection for structural use. Concept of strength and elasticity of a material. Concept of stress-strain. Types of stress, its importance, elastic limit, yield point, permissible stress, ultimate stress and elongation

Composite sections. Conditions under which composite sections are preferred. Bending moment and shear force. Study of variation of bending moment and shear force on a beam; point of contraflexure; Types of supporting conditions Cantilever beam, simply supported beam & continuous beam, overhanging
## REFERENCES:

<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>03.</td>
<td>Mechanics of Materials</td>
<td>Beer &amp; Johnston</td>
</tr>
<tr>
<td>04.</td>
<td>Mechanics of Materials</td>
<td>E.Popov</td>
</tr>
<tr>
<td>05.</td>
<td>Experimental Mechanics of Solides</td>
<td>B.M.Rawal</td>
</tr>
<tr>
<td>06.</td>
<td>Understanding Concept of Structural Analysis Design</td>
<td>J.P.Parikh</td>
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</table>

### AC 206  CAD – I  
(L=0, S=0, W=3)  
CREDITS = 02

<table>
<thead>
<tr>
<th>INTERNAL ASSESSMENT</th>
<th>CONTACT HOURS</th>
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<td>50</td>
<td>03</td>
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</table>

**Objective:** To help students to understand the basic computer skills & application of computer in the field of architecture.

**Contents:** Fundamentals of computer & their main components in hardware, software, operating systems.
- File handling functions.
- CAD – introduction & application.
- Basic Techniques for preparing Architectural Drawings.

**Methods:** Use of computer hardware by giving preliminary exercise on plan, elevation, section, furniture layout units & fixtures.

### REFERENCES:

<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
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<tbody>
<tr>
<td>01.</td>
<td>Mastering AutoCAD 2000</td>
<td>George Omura</td>
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</table>

### AC 207  SURVEYING & LEVELLING  
(L=2, S=0, W=4)  
CREDITS = 02

<table>
<thead>
<tr>
<th>INTERNAL ASSESSMENT (TERMWORK/EXERCISE)</th>
<th>CONTACT HOURS</th>
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<td>50</td>
<td>06</td>
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</table>

**Focus:** Techniques for preparation of measured drawings and setting out buildings on site.

**Contents:** Understanding about various instruments used for surveying, chain survey, and compass survey.
- Preparing measured drawings of surveyed area and buildings.
- Levelling: Equipment used, principles and practice. Taking vertical and horizontal measurements on plain and contoured sites, calculation of areas, mapping contours and site profiles etc.
- Setting out of buildings on a site.

**Method:** Practical demonstration and documented site work is a must to familiarise students with use of all relevant instruments, in addition to lectures on the basic concepts and theory.

### REFERENCES:

<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Surveying &amp; Levelling Vol – I</td>
<td>T.P.Kanetkar &amp; Kulkarni</td>
</tr>
<tr>
<td>02.</td>
<td>Surveying &amp; Levelling Vol. – I</td>
<td>Punamia</td>
</tr>
</tbody>
</table>
SECOND YEAR – THIRD SEMESTER

AC 301 DESIGN STUDIO III (L=0,S=9,W=0) CREDITS =06

INTERNAL ASSESSMENT (PERIODIC REVIEWS) = 50 CONTACT HRS/WK =09
UNIVERSITY EXAMINATION (JURY) = 50

Focus : Material and Structure as determinants of Architectural Form.

Content : Materials – properties, character.
Basic structural system in various materials (timber, mud, brick, Fabric etc.) Structure as a form giver for various materials.

Projects : Project/s in different contexts to address variations in material Time Problems may be set as exercises based on other material. Design problem & use of at least two building material to make a structures.

Skills : Preparation of architectural design drawings and models.
Site Visits, case studies.

AC 302 CLIMATE & BUILDING (L=2,S=0,W=0) CREDITS =02

INTERNAL ASSESSMENT (TERM WORK) = 50 CONTACT HRS/WK= 02
UNIVERSITY EXAMINATION = 50

Focus : Built Environment & Climate

Contents: Climate – Constituent elements, Classification of tropical climatic zones.
Micro & Macro climate.
Thermal comfort & principles of Thermal Design.
Ventilation – Air movement & fenestration, solar orientation, Sun path pattern & shading devices.
Traditional House Form & Settlement pattern in various tropical climates.
Design Tools – Mahoney Tables, Sun Path diagrams, etc.
Day lighting – components, architectural methods of borrowing day light; control of glare.

Method : Exercises to enhance understanding of above concepts.
Application of concepts in design work.
Time problem to address design issues from climatology point of view.

REFERENCES :
SR.NO. TITLE AUTHOR
01. Manual Of Tropical Housing Otto.Koenigsberger
02. Design Primer for Hot Climate Allan Konya
03. Design with Climate Victor Olgyay
04. Man, Climate & Architecture B.Givoni
05. Climatic Building Design Donald Watson
06. Building in Hot Climates Building Research Establishment

AC 303 BASIC DESIGN & WORKSHOP-III (L=0,S=4,W=3) CREDITS=04

INTERNAL ASSESSMENT (TERM WORK /EXERCISE) = 50 CONTACT HRS/WK = 07
UNIVERSITY EXAMINATION = 50

Focus : Study of Colour on form, as used in manmade environment.

Contents: Analysis of design principles and composition used in a manmade environment using space abstractions in two and three dimensions.
Colour as a Form giver to spaces.
Colour : Theory and systems, role and effects of colour and texture in spaces.
Analysis of space using monochromatic or achromatic abstractions in Two Dimension.
Behaviour and effects of coloured compositions (enlargement, shrinkage of spaces, emphasis, warmth and coolness etc.). Rythmn, discord, Harmony, Golden Section.

Method : Model making in various materials as an aid to design, composition and analysis (use wood, mud, paper, acrylic, cork, etc.). Composition through paintings.
Studio exercises, observation, documentation and analysis. Model making and rendering for application of studio work in the workshop.
REFERENCES:

<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Architecture : Form, Space &amp; Order</td>
<td>Francis D. K. Ching</td>
</tr>
<tr>
<td>02.</td>
<td>Visual Studies</td>
<td>Frank M. Yung</td>
</tr>
<tr>
<td>03.</td>
<td>Art of Seeing</td>
<td>Paul Zelenski</td>
</tr>
</tbody>
</table>

AC 304 BUILDING TECHNOLOGY-III (L=0,S=6,W=0) CREDITS= 04

INTERNAL ASSESSMENT(TERM WORK/EXERCISE) = 50 CONTACT HRS/WK = 06
UNIVERSITY EXAMINATION = 50

Focus : Understanding basic Structural Systems, Structural Materials, Construction & erection process.

Contents : New Materials and their use in Building Construction. Building Elements made out of wood, steel, PVC, aluminium etc. various types of doors and windows, including treatment of sills, lintels etc. various types of fittings & Hardware.

Method : Exercises for making drawings of typical details.

REFERENCES:

<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Construction of Buildings – Volume II</td>
<td>R. Barry</td>
</tr>
<tr>
<td>02.</td>
<td>Construction of Buildings – Volume I</td>
<td>W.B. Mckay</td>
</tr>
</tbody>
</table>

AC 305 STRUCTURES – III (L=2,S=2,W=0) CREDITS = 03

INTERNAL ASSESSMENT(TERM WORK) = 50 CONTACT HRS/WK = 04
UNIVERSITY EXAMINATION = 50

Focus : Analysis of Structures


Methods: Study of deflection of beams, trusses and frames through models.

REFERENCES:

<table>
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<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
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<tbody>
<tr>
<td>02.</td>
<td>Strength of Materials</td>
<td>B.C. Punamia</td>
</tr>
<tr>
<td>03.</td>
<td>Strength of Materials</td>
<td>R.S. Khurmi</td>
</tr>
<tr>
<td>04.</td>
<td>Elementary Structural Analysis</td>
<td>Norris &amp; Wilbur</td>
</tr>
<tr>
<td>05.</td>
<td>Fundamentals of Structural Analysis &amp; Design</td>
<td>J.P. Parikh</td>
</tr>
</tbody>
</table>

AC 306 HISTORY OF ARCHITECTURE - I (L=3, S=0,W=0) CREDITS =03

INTERNAL ASSESSMENT(TERM WORK) = 50 CONTACT HRS/WK=03
UNIVERSITY EXAMINATION = 50

Focus : A mapping of architectural developments over the world from ancient times to 11th century A.D.
Contents: Architecture of ancient civilizations: Harappan, Mesopotamian, Egyptian, Central American, European (Greek & Roman), Chinese. Indian architecture from Harappan period, through Buddhist era to Gupta period. Developments across the subcontinent in the late Classical period. Development of Western civilization: Early Christian, Byzantine, Medieval, Gothic. Emphasis should be on presenting a chronological picture of architectural developments, with comparison to trends in Indian subcontinent and elsewhere.

Methods: Lectures, Case-Studies, analytical exercises on built form of various periods to understand the architectural images of various times and places.

REFERENCES:

<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Indian Architecture(Buddhist &amp; Hindu) – I</td>
<td>Percy Brown</td>
</tr>
<tr>
<td>02.</td>
<td>Indian Architecture (Islamic) – II</td>
<td>Percy Brown</td>
</tr>
<tr>
<td>03.</td>
<td>A History of Architecture</td>
<td>Sir Bannister Fletcher</td>
</tr>
<tr>
<td>04.</td>
<td>Encyclopaedia of Architecture</td>
<td>Joseph Gwilt</td>
</tr>
</tbody>
</table>

AC 307 CAD – II (L=0,S=0,W=4) CREDITS =02

INTERNAL ASSESSMENT (TERM WORK) = 50 CONTACT HRS/WK=04
UNIVERSITY EXAMINATION = 50

Focus: To develop skills for computer application for making drawings.

Contents: Using Softwares for making architectural presentation drawings.

Methods: Demonstration, Exercises.

REFERENCES:

<table>
<thead>
<tr>
<th>SR.NO.</th>
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<th>AUTHOR</th>
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<tbody>
<tr>
<td>01.</td>
<td>Mastering AutoCAD 2000</td>
<td>George Omura</td>
</tr>
<tr>
<td>02.</td>
<td>AutoCAD 2000</td>
<td>George Omura</td>
</tr>
<tr>
<td>03.</td>
<td>AutoCAD 2000 (instant reference)</td>
<td>George Omura/Robert Callori</td>
</tr>
</tbody>
</table>

SECOND YEAR - FOURTH SEMESTER

AC 401 ARCHITECTURAL DESIGN STUDIO IV (L=0,S=9,W=0) CREDITS =06

INTERNAL ASSESSMENT (PERIODIC REVIEWS) = 50 CONTACT HRS/WK=09
UNIVERSITY EXAMINATION (JURY) = 50

Focus: Analysis of context as a determinant of Architectural character.
Study of built form with special reference to climate, material, social & cultural context, physical environment

Project: Housing studies of existing settlements. Complete architectural design of project/s of different nature at level of residence & small institution/ work place in the context of a traditional settlement. Dwelling cluster design project (15-20 units to form a small community). Work done in the Related Study Program or the measured drawing of traditional settlement may be used as the context. Interior design may be included as part of programme.

Issues: Cluster & community - street pattern
Traditional design and construction principles
Issues of modernity and tradition

Skills: Documentation & analysis of existing / traditional settlement
Full range of architectural graphic techniques and model making in various media must be applied.
## REFERENCES :

<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Design Strategies in Architecture</td>
<td>Edited by Geoffrey Baker</td>
</tr>
<tr>
<td>02.</td>
<td>Responsive Environment</td>
<td>Cutler &amp; Cutler</td>
</tr>
<tr>
<td>03.</td>
<td>A Pattern Language</td>
<td>Christopher Alexander</td>
</tr>
<tr>
<td>04.</td>
<td>Scale in Architecture</td>
<td>Frank Orr</td>
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### AC 402 BASIC DESIGN & WORKSHOP-IV

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<tr>
<th>CREDITS</th>
<th>CONTACT HRS/WK</th>
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<td>07</td>
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</table>

**Focus:** Exercises on abstract concepts and ideas in design.

**Contents:**
- The design process and role of abstract concepts and ideas as an ordering mechanism to express ideas.
- Symbolism and communication, identity, character and imageability
- Exploring environmental qualities like light and colour, texture & scale and its usages in expressing design concepts.

**Method:**
- To explore and analyse above aspects for selected architectural projects.
- To abstract design work to help expression of personal concepts or ideas.

## REFERENCES :

<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Visual Studies</td>
<td>Frank M.Yung</td>
</tr>
<tr>
<td>02.</td>
<td>Architecture : Form Space &amp; Order</td>
<td>Francis D.K.Ching</td>
</tr>
<tr>
<td>03.</td>
<td>Art of Seeing</td>
<td>Paul Zelenski</td>
</tr>
</tbody>
</table>

### AC 403 BUILDING TECHNOLOGY - IV

<table>
<thead>
<tr>
<th>CREDITS</th>
<th>CONTACT HRS/WK</th>
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<tr>
<td>04</td>
<td>06</td>
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</table>

**Focus:** Understanding of various building components, their place and composition within the systems, possibilities of different material use.

**Contents:**
- Building Components :
  - Floor and Floorings
  - Staircase, Stairs, Steps, Ramps.
  - Steel windows
  - Wooden roof construction details
  - Retaining walls, basement
  - Compound wall/Gates

**Methods:**
- Market survey & Resource file to be maintained.
- Conventional practices, documentation.
- Case studies & Studio exercise

## REFERENCES :

<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Construction of Buildings – Volume – II</td>
<td>R. Barry</td>
</tr>
<tr>
<td>02.</td>
<td>Construction of Buildings – Volume – I</td>
<td>W.B.Mckay</td>
</tr>
<tr>
<td>03.</td>
<td>Construction Technology – Volume – I &amp; II</td>
<td>Chaudhry</td>
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### AC 404 STRUCTURES-IV

<table>
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<th>CREDITS</th>
<th>CONTACT HRS/WK</th>
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<td>03</td>
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</table>

**Focus:**

**Contents:**
- Building Components :
  - Floor and Floorings
  - Staircase, Stairs, Steps, Ramps.
  - Steel windows
  - Wooden roof construction details
  - Retaining walls, basement
  - Compound wall/Gates

**Methods:**
- Market survey & Resource file to be maintained.
- Conventional practices, documentation.
- Case studies & Studio exercise

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<table>
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</tr>
<tr>
<td>03.</td>
<td>Construction Technology – Volume – I &amp; II</td>
<td>Chaudhry</td>
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</table>
Focus: Design of Concrete Structure.


Methods: Preparation of structural drawing along with schedules

REFERENCES:

<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
</tr>
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<tbody>
<tr>
<td>01.</td>
<td>Design Of R.C.C. Structures</td>
<td>H.J. Shah</td>
</tr>
<tr>
<td>02.</td>
<td>Design Of R.C.C. Structures</td>
<td>Ramamruthan</td>
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<tr>
<td>03.</td>
<td>Plain &amp; Reinforce Concrete</td>
<td>Jain &amp; Jaykrishna</td>
</tr>
<tr>
<td>05.</td>
<td>Limit State Method Of R.C.C. Design</td>
<td>Ramchandra</td>
</tr>
<tr>
<td>06.</td>
<td>IS Code – 456 -2000, Code Of Practice For Plain &amp; Reinforce Concrete</td>
<td>BIS, New Delhi</td>
</tr>
<tr>
<td>07.</td>
<td>IS Code - 875 – 1987 , Code Of Practice For Design Loads.</td>
<td>BIS, New Delhi</td>
</tr>
<tr>
<td>08.</td>
<td>S.P. – 16 Design Aids to IS 456</td>
<td>BIS, New Delhi</td>
</tr>
</tbody>
</table>

AC 405 HISTORY OF ARCHITECTURE-II (L=3,S=0,W=0) CREDITS =03

INTERNAL ASSESSMENT(TERMWORK) = 50 CONTACT HRS/WK = 03
UNIVERSITY EXAMINATION = 50

Focus: To familiarise students with architectural developments since about 11th century AD to 19th Century A.D.

Content: Indian Architecture after the introduction of Islamic influences, various regional styles during Islamic period. Colonial architecture in India- Imported styles and trends. Developments in Europe after the Medieval period- The Renaissance, Baroque etc.

Method: Lectures, Case-Studies, analytical exercises on built form to understand the architectural images of various times and places.

REFERENCES:

<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>History of Modern Art : Painting, Sculpture, Architecture</td>
<td>H.H. Arnason</td>
</tr>
<tr>
<td>02.</td>
<td>Indian Architecture (Islamic)</td>
<td>Percy Brown</td>
</tr>
<tr>
<td>03.</td>
<td>A History of Architecture</td>
<td>Sir Bannister Fletcher</td>
</tr>
<tr>
<td>04.</td>
<td>Encyclopedia of Architecture</td>
<td>Joseph Gwilt</td>
</tr>
</tbody>
</table>

AC 406 INTRODUCTION TO BEHAVIOURAL SCIENCE (L=2,S=0,W=0) CREDITS= 02

INTERNAL ASSESSMENT (TERMWORK) = 50 CONTACT HRS/WK =02
UNIVERSITY EXAMINATION = 50

(A) SOCIOLOGY - SECTION – I

Focus: Developing an awareness of how social dimensions play an important role in shaping Built Environment.
Contents:
Essential elements of society – Bio – Socio – Cultural societies.
Characteristics of Human Society.
Social Norms, their origin & classification
Status & role, ascribed & achieved statuses, social esteem
Primary groups, and secondary groups.
Family & its problems
Characteristics of Urban Social life.
Process of Urbanization in India, Urbanization & Industrialization.
Social issues of Urban life.

REFERENCES:

SR.NO. TITLE AUTHOR
01. An Introduction to Sociology. Vidya Bhushan / Dr.Sachdeva

(B) PSYCHOLOGY - SECTION – II

Focus: To develop an awareness towards the Psychological responses created due to particular type of built environment.

Contents: Psychology - definition and scope.
Environmental Psychology, it objectives.
Types of environment; Built environment - factors contributing to its efficiency (colour, ambient aspects, size and shape) personal variables effecting environmental psychology, furnishings.
Personal space, Defensible space and Territoriality.
Housing - Single family and multi-family dwelling; behaviour in public housing areas.
Institutional buildings - hospitals, mental institutions, penal institution Offices- behaviour in workplaces, landscaped offices vs traditional office.
Environment as a source of a threat and Role of an Architect.

REFERENCES:

SR.NO. TITLE AUTHOR
01. Environmental Psychology Norman Heimstra
02. Designing for Human Behaviour Jon Lang
03. Creating an Architectural Theory Jon Lang
04. Environmental Interaction David Canter & Peter Stringer

AC 407 BUILDING SERVICES – I (L=2,S=2,W=0) CREDITS= 02

INTERNAL ASSESSMENT.(TERM WORK) =50 CONTACT HRS/WK=04
UNIVERSITY EXAMINATION = 50

Focus: Building Services - Water Supply and Waste Disposal.

Contents: Water Supply - Sources, demand & elements of the system, layout and design of system, connections with municipal supply, rain water harvesting systems.
Lay out for water supply, drainage & rain water system for a unit (Bungalow, Tenement or Flat) including calculations for storage units e.g. underground and terrace tanks.
Waste disposal - Sullage and sewage. Various systems of waste removal and disposal. Fitting of various elements of the system, layout design
Septic Tank –Necessity, Constructional and operational features
Storm water disposal systems - combined and independent systems.

Method: Basic information to be given in lectures and application shown in case studies. A market survey for materials & rates may be carried out in order to include new products in market.
Preparation of drawings for water supply, drainage & rainwater collection & disposal system for a unit showing details of bathrooms, toilets kitchen, terrace and their connection to the house drainage system.
REFERENCES :

<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
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<tbody>
<tr>
<td>01.</td>
<td>Water Supply &amp; Sanitary Engineering</td>
<td>G.S.Birdie</td>
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<tr>
<td>02.</td>
<td>Public Health Engineering</td>
<td>Rangwala</td>
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<tr>
<td>03.</td>
<td>Building Services</td>
<td>F.Halls</td>
</tr>
</tbody>
</table>

THIRD YEAR – FIFTH SEMESTER

AC 501 DESIGN STUDIO - V  (L=0,S=12,W=0)  CREDITS =08

INTERNAL ASSESSMENT (PERIODIC REVIEW) = 50  UNIVERSITY EXAMINATION (JURY) = 50  CONTACT HRS/WK =12

Focus : Understanding character of Institution.
Design of Institutional Complex

Content : Organization and disposition of spaces.
Relationship of different functional, service and movement areas.
Diversity of user groups, circulation routes.
User group needs and client requirements.
Influence of culture, climate & technology.
Site planning/layout/zoning/ circulation..
Landscaping.
Idea of an Institutional image/character
Ordering theme / idea / concept.

Projects : Design of an Institution of medium level complexity with a mix of functions.
Analytical case studies of Institutions in different cultures and time periods may be done as group work.
Design to be prepared keeping Working Drawings exercise in view

Note : The NASA project to be handled at this level may be programmed as Design Studio Project.

REFERENCES :

<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
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<tbody>
<tr>
<td>01.</td>
<td>Space Time &amp; Architecture</td>
<td>S.Giedion</td>
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<tr>
<td>02.</td>
<td>Analysis of Form</td>
<td>Le Corbusier - Geoffrey Baker</td>
</tr>
</tbody>
</table>

AC 502 BUILDING TECHNOLOGY - V  L=0,S=6,W=0  CREDITS =04

INTERNAL ASSESSMENT (TERM WORK /EXERCISE) = 50  UNIVERSITY EXAMINATION = 50  CONTACT HRS/WK = 06

Focus : Understanding the behaviour of two different materials i.e. concrete and steel their various possibilities, Building elements and components, different processes and products.

Contents : Materials -Steel and Concrete - R.C.C. Elements  - P.C.C. Elements  - Precast Elements
Building Const. and precognitions/safety measures
Different type of slabs and vaults.
Damp proofing
Water proofing
Thermal Insulations
RCC column foundation - Retaining walls, Raft, Pile foundation, cantilever, & combined footing
Protection of Structures
Constructional/Expansion joints
Anti termite treatments
Different preservative measures and procedures
Method: Case studies & documentation of building elements & compound within the architectural context. Analysis of elements three models. Studio Exercise.

REFERENCES:

<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
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<tbody>
<tr>
<td>01.</td>
<td>Building Construction</td>
<td>Moorthy</td>
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<tr>
<td>02.</td>
<td>Building Construction</td>
<td>Ramanathan</td>
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<tr>
<td>03.</td>
<td>Building Construction</td>
<td>B.C. Punamia</td>
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</table>

AC 503 STRUCTURES-V $\text{(L=2, S=2, W=0)}$ CREDITIS =02

INTERNAL ASSESSMENT (TERM WORK) = 50  CONTACT HRS/WK = 04
UNIVERSITY EXAMINATION = 50

Focus: Design of Steel Structures

Contents:
- Introduction to structural steel, Rolled steel sections.
- Design of Tension members, compression member & flexural member.
- Types of connections – Rivetted, welded and bolted. Methods of riveting, welding and bolting.
- Design of Rivetted and welded connections. Design of Tension members, compression member & flexural member.
- Concept of built up beams and columns – recommended uses.
- Concept of lacings, battening & importance of bracings.
- Design of truss members, gusset plate.
- Introduction to footings for steel columns.
- Conceptual study of general connections – Beam to beam connections – Beam to column connections – column to column connections – column to foundation connection.

REFERENCES:

<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
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</thead>
<tbody>
<tr>
<td>01.</td>
<td>Design Of Steel Structures</td>
<td>Arya &amp; Ajmani</td>
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<tr>
<td>02.</td>
<td>Design Of Steel Structures</td>
<td>A.K.Jain</td>
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<tr>
<td>03.</td>
<td>Design Of Steel Structures</td>
<td>Duggal</td>
</tr>
<tr>
<td>04.</td>
<td>Design Of Steel Structures</td>
<td>Bresler, Lin &amp; Scaly</td>
</tr>
<tr>
<td>05.</td>
<td>IS Code 800– 1984 – Code Of Practice For Structural Steel Design</td>
<td>BIS, New Delhi</td>
</tr>
<tr>
<td>06.</td>
<td>IS Handbook – 1, Structural Sections &amp; Properties</td>
<td>BIS, New Delhi</td>
</tr>
</tbody>
</table>

AC 504 HISTORY OF ARCHITECTURE - III $(L=2, S=0, W=2)$ CREDITS =03

INTERNAL ASSESSMENT (TERM WORK) = 50  CONTACT HRS/WK = 04
UNIVERSITY EXAMINATION = 50

Focus: To encourage analytical study of architectural history from the information base provided in earlier semesters.

Content:
- Contemporary developments in architecture in India and world over.
- Analysing the roots of the modern movement. Issues of Contextuality, Relevance, identity & meaning of architecture in contemporary cultures.
- Beginning of Modernism – Europe and America; modern movement and the international style modern masters ; Post modernism & contemporary development.

Method: The course should be dealt with as a Seminar Course with individual or group seminar presentations on various issues. Guided self-study in an analytical mode should be emphasized.

REFERENCES:

<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
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</thead>
<tbody>
<tr>
<td>01.</td>
<td>History of Architecture</td>
<td>Spiro Kostof</td>
</tr>
<tr>
<td>02.</td>
<td>Architecture and its interpretation</td>
<td>Juan Bonta</td>
</tr>
<tr>
<td>03.</td>
<td>History of Modern Arts : Painting, Sculpture, Architecture</td>
<td>H.H.Arnason</td>
</tr>
</tbody>
</table>
Focus: Understanding economic process in society and the economics of building housing etc. Problem of economics, Market economy, Wants vs Means

Contents: Basic concepts of the economics, demand and supply economic cycle, different types of economics, traditional and modern approaches. Production process, need-demand and supply, economics of scale, Forecasting demand. Economics of building industry, Housing markets, Land Markets, concept of affordability, invisible law theory, price control.

Method: Assignments, Article presentation

REFERENCES:

<table>
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<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Building Economics</td>
<td>Rosale T. Ruegg</td>
</tr>
</tbody>
</table>
AC 506  QUANTITY AND SPECIFICATIONS  (L=2,S=2,W=0)  CREDITS =03

INTERNAL ASSESSMENT(TERMWORK) = 50  CONTACT HRS/WK=04
UNIVERSITY EXAMINATION = 50

Focus : Understanding Quantity Surveying & Estimate preparation.

Rate Analysis: Meaning, Importance, Purpose and use, factors affecting rate analysis.
Rate analysis of major items of building work. Factors affecting, cost of work task work general information regarding S.O.R.
Estimates : Method of computing quantities, mode of measurement of all items of work, units of measurement IS 1200.
Estimates of different items of work:-
* Compound wall.
* Small residential building 1 room with verandah.
* Small residential building with 2 room kitchen with Bath W.C.
* Two storied residential building.
* R.C.C. work column, flooring, Beam - T Beam. Slab - One way/Two way.
  Slab including centering, shuttering & reinforcement.
* Steel truss.
  Material requirement for above items including Brick work – R.C.C. - Wooden items - doors, windows, Glass.
Term Work : Over and above the mentioned items, Estimate of Septic Tank, Soak Pit, Sanitary item – Plumbing, Electrification. Rate analysis of all major item to be prepared.

REFERENCES :

<table>
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<tr>
<th>SR.NO.</th>
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<tbody>
<tr>
<td>01.</td>
<td>Estimation &amp; Valuation</td>
<td>B.N.Dutta</td>
</tr>
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<td>02.</td>
<td>Estimation &amp; Valuation</td>
<td>Rangwala</td>
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<tr>
<td>03.</td>
<td>Estimation &amp; Valuation</td>
<td>Chakravarti</td>
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<tr>
<td>04.</td>
<td>Quantity Surveying</td>
<td>Rangwala</td>
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</tbody>
</table>

AC 507  ELECTIVE-I  L=0,S=0,W=3)  CREDITS=02

Focus : To help students exploring their aptitudes and in developing skills in any related field like painting, sculpture, sketching ceramic work, photography etc.

Contents A number of subjects shall be offered depending on faculty availability.
Students may register for any one of the offered courses for the semester.
Courses that may be offered from time to time :
E 5091 - Painting
E 5092 - Photography
E 5093 - Ceramic
E 5094 - Creative writing.
E 5095 – Appreciation of Art through Literature

Method : Portfolio and Project Submission.
THIRD YEAR - SIXTH SEMESTER

AC 601  DESIGN STUDIO VI (WORKING DRAWING)  (L=0,S=15,W=0)  CREDITS =10

| INTERNAL ASSESSMENT (PERIODIC REVIEWS) | 50 |
| UNIVERSITY EXAMINATION (JURY) | 50 |

Focus : Architectural Detailing And Execution Drawings.

Content : Execution drawing systems and methods.
Trade literature, detailing methods, architectural working drawing.
Choice of materials, fixtures, fittings, availability and constructional feasibility.
Integration of building systems and services.
Detailed drawings to include all components of building like doors, windows, lifts, staircases elevators etc.

Project : Construction drawings of previous semester design project (part or full) including specifications & estimations. Additional design project (small) may be taken alongside for development to complete architectural detailing.
Full set of working drawings for the project

Skills : Construction drawings & models.
Specification writing, Computation of qualities & costing.

AC 602  LANDSCAPE DESIGN  (L=0,S=4,W=0)  CREDITS =02

| INTERNAL ASSESSMENT (TERM WORK) | 50 |
| UNIVERSITY EXAMINATION | 50 |

Focus : Principles of Landscape design, its techniques and application.
Understanding Ecology, Ecosystem, environmental conservation

Content : Ecology, Environment, Components, Ecosystem at various levels, conservation of natural resources, rainwater harvesting
Elements of Landscape : Landforms, plant materials, water, rocks, lighting etc.
Types of Soils, plant materials (trees, shrubs, ground covers, creepers, flowering and non-flowering rocks and stones, water bodies. Surfacing Materials, landforms, manmade elements.
Historical and contemporary attitudes to landscape in Indian and other context.
Principles of landscape design : surfacing, enclosure vistas, visual corridor, composition of plant and other material, etc.
Preparing Landscape design presentation drawing (using symbols etc.)

Method : Studio Exercise, Site Visit, Seminar, Presentation etc.
Design assignment may be done as part of Studio project.

REFERENCES :

<table>
<thead>
<tr>
<th>SR.NO.</th>
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<th>AUTHOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Introduction to Landscape Architecture</td>
<td>Michael Laurie</td>
</tr>
<tr>
<td>02.</td>
<td>Landscape Graphics</td>
<td>Van Nostrand Publication</td>
</tr>
<tr>
<td>03.</td>
<td>Plan Graphics</td>
<td>Van Nostrand Publication</td>
</tr>
<tr>
<td>04.</td>
<td>Tropical Garden Plants</td>
<td>Bose &amp; Chaudhary.</td>
</tr>
</tbody>
</table>
AC 603 BUILDING TECHNOLOGY - VI (L=0,S=6,W=0) CREDITS =04

Focus: Understanding construction process of Interior Construction and material use.

Contents: Interior Construction
Partitions / Paneling
False Ceilings
Elevators, Escalators
Cabinets and Furniture.
Kitchen platform
Internal/External finishes
Glazing

Method: Case Studies, Site Visits, Trade Literature Collection
Studio exercises.

REFERENCES:
<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Graphic guide to Interior Design</td>
<td>Van Nostrand Publication</td>
</tr>
<tr>
<td>02.</td>
<td>Construction for Interior Designers</td>
<td>Ronald Ashcroft</td>
</tr>
<tr>
<td>03.</td>
<td>Building construction Illustrated</td>
<td>Francis D.K. Ching</td>
</tr>
</tbody>
</table>

AC 604 STRUCTURES-VI (L=2, S=2, W=0) CREDITS =02

Focus: Masonry & Retaining Structures

Contents: Conditions under which masonry structures are recommended, design criteria for masonry
structures.
Concept of Timber structures. Introduction to relevant IS codes.
Study & need of composite structures, shear connectors.
Retaining structures: Stability considerations, types of retaining walls, design considerations and
recommendation using approximate methods (thumb-rules).
Type of overhead water tanks (RCC and Steel). Design factors influencing shape of water tanks.
Types of foundations, importance of soil & other factors while recommending type of foundation.

Methods: Preparation of structural drawings & models for studio work.

REFERENCES:
<table>
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<tr>
<th>SR.NO.</th>
<th>TITLE</th>
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<tbody>
<tr>
<td>01.</td>
<td>Building Construction</td>
<td>Rangwala</td>
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<td>02.</td>
<td>Building Construction</td>
<td>S.P.Bindra</td>
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<td>03.</td>
<td>Limit State Method Of R.C.C. Design</td>
<td>Ramchandra</td>
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<td>Ramchandra</td>
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<tr>
<td>05.</td>
<td>Design Of R.C.C. Structures</td>
<td>K.L.Rao</td>
</tr>
<tr>
<td>06.</td>
<td>Design Of R.C.C. Structures –II</td>
<td>H.J.Shah</td>
</tr>
<tr>
<td>07.</td>
<td>National Building Code</td>
<td>BIS, New Delhi</td>
</tr>
</tbody>
</table>

AC 605 HISTORY OF TOWN PLANNING (L=2, S=0, W=0) CREDITS =02

Focus: To acquaint the students with the development in the field of Town Planning/Urban Design / Settlement design.

Examples of various historical experiments across the world.
Developments in India from early times to the present day.
Vedic Planning concept, Islamic planning, western planning.
Role of Sir Patrick Geddess & others in planning processes
Contemporary practices.
Role of Urban laws in city making. Development plan & its procedure.

Method: The course is mainly intended to be lecture based, with case studies and illustrations.

REFERENCES:
<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Urban &amp; Regional Planning, Principles, Practicing &amp; Theory</td>
<td>Dr.H.D.Kopardiakar &amp;G.R.Diwan</td>
</tr>
</tbody>
</table>

18
Focus: To help students develop and enhance skills acquired in previous electives or to explore another art/craft.

Contents: The elective courses offered in previous semester may be offered as advance studies. Students may be allowed to either continue with earlier chosen elective to enhance or to choose an alternate elective and develop new skills. Possible courses to be offered depending on faculty availability.

E 6071 - Advanced Painting
E 6072 - Advanced Photography
E 6073 - Advanced Ceramics
E 6074 - Advanced Creative Writing

Focus: Building Electrical Services, Communication Systems and Air conditioning.

Content: Electrical Services - Power Connection, A.C. & D.C., conduits, distribution board and fuses, Wiring System (concealed & open) fixtures, design of layout and symbols for representation. Communication systems (telephone, fax, EPABX etc.) and their layouts and connections. Air conditioning and mechanical ventilation, Importance of Airconditioning, Types of A/C., components of an A.C. system, ducting, layout and design drawings. ARSCUE treatment

Method: The basic information may be given as lectures, wire diagram, assignments to illustrate application.

REFERENCES:

<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>02.</td>
<td>Building Technology &amp; Valuations</td>
<td>Tata Mc Graw Publication</td>
</tr>
<tr>
<td>03.</td>
<td>Operation &amp; Maintainence of Electrical Equipment</td>
<td>B.V.S.Rao</td>
</tr>
</tbody>
</table>

Focus: Mechanical Circulation, automated system, artificial water bodies.

Contents: Lifts : General design, Classification & Installations of Lifts. NBC norms & guidelines, capsule lift Escalators Elevators Moving pumps and walks. Automated systems : Alarm systems, automatic lighting and A.C. systems, door closing / opening etc. Man-Made water bodies : Swimming pools, garden pools, fountains

Method: Mainly lecture based, illustrations & case studies. Layout, installation in studio project is discussed.
## REFERENCES:

<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Mechanical &amp; Electrical Equipment for Building</td>
<td>William J. McGuiness &amp; others</td>
</tr>
<tr>
<td>02.</td>
<td>National Building Code</td>
<td>BIS, New Delhi</td>
</tr>
<tr>
<td>03.</td>
<td>Time Saver Standards for Architecture type</td>
<td></td>
</tr>
</tbody>
</table>
FOURTH YEAR – SEVENTH SEMESTER

AC701 OFFICE TRAINING CREDITS =24

Focus: To make students aware of and to inculcate a sense of appreciation in all the operations that take place- right from the preliminary sketch design to the completion of the project.

Contents: The students must complete a minimum of sixteen weeks of training in a registered architectural practice firm. They are required to participate in each activity of the organization for a minimum period of one week. Maintaining a weekly report file and recording their activities during training period in detail (refer Guidelines for Office Training given). The student is also expected to do case study of one project that he is associated with, during his training period. This study should include a complete documentation and analysis of the architectural / structural and constructional aspects of the project. Details which are deemed confidential by the firm should not be included in the study report, which must be submitted along with the Weekly Report File.

A student is expected to work on preparation of Municipal drawings, basic knowledge about documentation, tender work, marking of layout on site, sanitary fittings, office administration etc.

Method: A student shall work in well established private architect’s office, or government, semi – government office related to architectural work.
FOURTH YEAR - SEMESTER – VIII

AC 801 DESIGN STUDIO VIII (L=0,S=15,W=0) CREDITS=10

INTERNAL ASSESSMENT(T. WORK/PERIODIC REVIEW) = 50 CONTACT HRS/WK =15
UNIVERSITY EXAMINATION (JURY) = 50

Focus : Housing Design

Contents: Study of a Housing designs & Urban neighbourhoods to understand the nature and character of user group, historical development and future growth trends, socio-economic and environmental characteristics, issues of density, land use, ground coverage.
Analysis of land use, ground coverage, density, building line, housing typology, transport and circulation systems, form & character of built-environment and open spaces.
Relationship between socio-economic & cultural aspects and physical fabric of the settlement.
Influence of climate and geo-physical attributes of the location.

Projects : Housing design for a rapidly urbanizing settlement in the vicinity or a sector of a large urban area.

Skills : Analysis of multiple aspects of emergent design pattern of settlement, synthesis of diverse requirements.
Resolution of diverse demands/requirements. Application of social, environmental, economic and political issues in the shaping of settlements.

AC 802 DESIGN SEMINAR (L=0,S=0,W=4) CREDITS= 02

INTERNAL ASS.(TERM WORK /ASSIGNMENT) = 100 CONTACT HRS/WK=04

Focus : Theory, techniques and issues in design of residential areas.

Contents: Definition and scope of Housing, residential areas as a part of urban areas. Structure and elements of Residential Areas - Built-form, Open spaces and Circulation, Infrastructure & Amenities
Hierarchy of linkages, Concepts of density - gross density, net residential density, areas per person.
Building Typologies and forms, relationship of built form density, F.S.I etc.
Theories & approaches to residential area, design issues in Housing.

Method : Basic information to be in form of lectures with case studies and illustrations.
Students are to examine views related to housing design through assignments concluding with a seminar presentation.

REFERENCES :

SR. NO. TITLE AUTHOR
1. House Form and Culture Amos Rapoport
2. Urbanization Primer Horatio Caminos
3. Residential Open Spaces Vastu-Shilp Foundation
4. Urban Pattern Gallion
5. The New Landscape Charles Correa

AC 803 ACOUSTICS (L=2,S=0,W=1) CREDITS= 02

INTERNAL ASSESSMENT(ASSIGNMENTS,QUIZ) = 50 CONTACT HRS/WK=03
UNIVERSITY EXAMINATION = 50

Focus : Understanding sound control as an important element in creating comfortable functional spaces.

Reverberation, Reverberation time for speech and music and its calculation.
Acoustical requirement of various building type.
Understanding Auditorium design – defects, ways of overcoming these defects.
Noise Control : Means and measures for control, noise insulation, noise control requirements, constructional details and performance.
Environmental Noise Control

Method : Mainly lecture based. Case Studies and project work on auditorium design.

REFERENCES :

SR.NO. TITLE AUTHOR

SMAID

Chatur Vidy Bindal Institution
Shantaben Manubhai Patel School of Studies & Research in Architecture and Interior Design

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<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Environmental Acoustics &amp; Arch. Design</td>
<td>Leshi L. Dodle</td>
</tr>
<tr>
<td>02.</td>
<td>Architectural Acoustics</td>
<td>David Egan</td>
</tr>
<tr>
<td>03.</td>
<td>Design for Good Acoustics</td>
<td>J.E. Moore</td>
</tr>
</tbody>
</table>
INTERNAL ASSESSMENT (TERM WORK) = 50
UNIVERSITY EXAMINATION = 50

CONTACT HRS/WK = 03

A. CONSTRUCTION TECHNOLOGY - SECTION – I

Focus : Understanding construction of complicated buildings and structures.


B. PROJECT MANAGEMENT - SECTION – II

Focus : Techniques for planning and implementation of construction projects.

Contents: Nature of construction projects, need for proper planning and Management Processes and Equipment used, Techniques for scheduling : bar charts, Network diagram, project Evaluation and Review Techniques, Critical path Method, Practical implementation and application of PERT and CPM to typical construction projects, Maintenance of records, bills and method of making payments.

Method: Lecture based with series of exercises on various management techniques.

REFERENCES:

<table>
<thead>
<tr>
<th>SR. NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Total Project Management</td>
<td>P.K. Joy</td>
</tr>
<tr>
<td>2</td>
<td>Project Management, TPM, PERT &amp; Precedency Programming</td>
<td>J.J. Moder</td>
</tr>
<tr>
<td>3</td>
<td>PERT &amp; CPM-Principles and Application</td>
<td>L.F. Srinath</td>
</tr>
<tr>
<td>4</td>
<td>Management Guide to PERT &amp; CPM</td>
<td>Weist &amp; Len</td>
</tr>
</tbody>
</table>

AC 805 ADVANCED STRUCTURE - VII (L=1,S=2,W=0) CREDITS =02

INTERNAL ASSESSMENT (T.WORK/ASSIGNMENTS,QUIZ) = 50
UNIVERSITY EXAMINATION = 50

CONTACT HRS/WK = 03

Focus : Introduction to Advanced Structures.

Contents : Development of structural forms of different structural elements. Economics of Material Selection, Concept of structural failure and safety of structures, Introduction to large span girders in RCC and Steel, Study of RCC box girders, plate girders, castellated sections, Introduction to cable structures, space frames. Difference between 2D frames and 3D frames, Structural conditions in favour of adoption of space frame, Introduction to shell structures, types of shells, folded plate, its formation and design concept, Pre stressed concrete structure – conditions for adopting of pre stressed concrete beams and girders, Pre stressed steel structures – its application in strengthening old steel members, Types of Soils and bunkers, understanding structural behaviour of various members and reinforcement arrangement, Earthquake Forces- various seismic zones, concept of earthquake resistant structures and relevant IS code.

REFERENCES:

<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Theory of Plates &amp; Shells</td>
<td>Timoshenko</td>
</tr>
<tr>
<td>02.</td>
<td>Pre Stressed Metal Structures</td>
<td>E.Belenva</td>
</tr>
</tbody>
</table>
**AC 806 ELECTIVE - III**

(\(L=0,S=0,W=3\))

**CREDITS = 02**

INTERNAL ASS./TERM WORK = 100  
CONTACT HRS/WK=03

**Focus:**
To offer students an opportunity to explore any aspect or issues of mainstream architecture which are not explored in depth in earlier years.

**Contents:**
Elective courses at this stage should focus on enhancing knowledge and critical examination of the area rather than on developing skills. The courses offered in the semester would depend on faculty availability. Subjects offered as electives in this semester can also be continued in next semester to allow time for sustained work in the chosen area.

Possible courses that may be offered at this stage:
- E 8071 – Interior Design
- E 8072 - Sustainable design (Introduction)
- E 8073 - Alternative construction methods.
- E 8074 - Advanced landscape Design
- E 8075 - Design Theory and Criticism.

**Method:**
Project and portfolio submission

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**AC 807 INFRA STRUCTURE SERVICES**

(\(L=1,S=2,W=0\))

**CREDITS = 03**

INTERNAL ASSESSMENT(ASSIGNMENTS,QUIZ) = 50  
CONTACT HRS/WK=03

UNIVERSITY EXAMINATION = 50

**Focus:**
Settlement Infrastructure Services

**Contents:**
- Water Supply for large scale settlement; including Rainwater harvesting.
- Supply systems, layout, intake units, storage.
- Water purification & disinfection with spatial requirement for the same.
- Waste & Waste water handling.
- Types of wastes: storm water, garbage, sullage, sewage, Industrial wastes.
- Different types of drains and sewer, sewer appurtenances.
- Handling by septic tank and alternative methods.
- Sewage treatment works, treatment units and their spatial requirements.
- Sewage disposal by different method.
- Roads - types, alignment, width and carriage width of roads, shoulders, curves, super-elevation, curbs etc. (Geometric Design).
- Parking spaces, rules & general requirements.
- Fire fighting-requrement for fire fighting, fire hydrants, their location & specifications.
- Lighting - arrangement of street lighting, density, spacing height etc., Location of transformer substation & their spatial requirements.
- Telecommunication- various modes of telecommunication, relevance with planning, and precautions to be taken while planning including spatial requirements.

**REFERENCES:**

<table>
<thead>
<tr>
<th>SR.NO.</th>
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</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Water Supply &amp; Sanitary Engineering</td>
<td>G.S.Birdie</td>
</tr>
<tr>
<td>02.</td>
<td>Public Health Engineering</td>
<td>Rangwala</td>
</tr>
<tr>
<td>03.</td>
<td>Building Services</td>
<td>F.Halls</td>
</tr>
<tr>
<td>04.</td>
<td>Road &amp; Transportation Engineering</td>
<td>S.K.Khanna</td>
</tr>
</tbody>
</table>
AC 901 DESIGN STUDIO - IX (L=0, S=21, W=0) CREDITS =15

INTERNAL ASSESSMENT (PERIODIC REVIEWS) =50  UNIVERSITY EXAMINATION ( JURY) =50

CONTACT HRS/WK =21

Focus : To evaluate the ability of students to deal with and resolve complex issues into a valid expression of architectural character and contextuality. Focus is on the architecture for the collective design of Settlement level Institution/Housing/Amenity.

Contents : Architecture for the Public Domain is emphasized through detailed analysis & study of a town/ or parts.
Design resolution for a project in the urban fabric selected within a given town, with the intention of developing individual designs for diverse projects within on overall conceptual development for the settlement.
A comprehensive resolution of all aspects of the project- detailed design, control mechanisms, structure and materials, landscaping etc. must be stressed.

Note : Number of likely projects of diverse nature may be offered for choice by students. Emphasis should be on an in depth study of all issues related to the project and an individual resolution.

Project : Projects could be of the following nature:
Urban infill, Slum Up-gradation, Conservation and Revitalization of core areas, new development etc.

AC 902 DESIGN SEMINAR (L=0, S=0, W=4) CREDITS = 02

INTERNAL ASSESSMENT (T. WORK /PERIODIC REVIEW) = 100  CONTACT HRS/WK=04

Focus : Theory, techniques and issues in design of residential areas.

Contents : Brief history of Urban design, its scope and examples. Basic concepts, principles and techniques.
Theories and approaches of eminent designers and theoreticians with illustrative cases.
Structure and elements of urban areas, nature and development.
Contemporary approaches to urban design.
Issues and aspects of urban design.

Method : The course is expected to provide the inputs required for the Design Studio through lectures and discussion, also encourage enquiry and investigation into existing literature by the student to elaborate on contemporary issues and cases is the form of a term paper which can be presented in a class seminar

REFERENCES :

<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Concepts of Urban Design</td>
<td>David Gosling</td>
</tr>
<tr>
<td>2.</td>
<td>Design of Cities</td>
<td>Edmond Bacon</td>
</tr>
<tr>
<td>3.</td>
<td>Image of the City</td>
<td>Kevin Lynch</td>
</tr>
<tr>
<td>4.</td>
<td>Introduction to Urban Design</td>
<td>Paul Sprieregen</td>
</tr>
<tr>
<td>5.</td>
<td>Concise Townscape</td>
<td>Gordon Cullen</td>
</tr>
<tr>
<td>6.</td>
<td>Urban Design as Public Policy</td>
<td>Jonathan Barnett</td>
</tr>
<tr>
<td>7.</td>
<td>Finding Lost Space</td>
<td>Roger Trancik</td>
</tr>
<tr>
<td>8.</td>
<td>Urban Space</td>
<td>Rob Krier</td>
</tr>
<tr>
<td>9.</td>
<td>The Urban Design Process</td>
<td>Hamid Shirvani</td>
</tr>
<tr>
<td>10.</td>
<td>Cities of Tomorrow</td>
<td>Le Corbusier</td>
</tr>
</tbody>
</table>
Focus: Understanding the methodological approach to carry out a research based programme in order to design an architectural project involving a set of complex issues.

Contents: Nature and function of research, scientific research, meaning of research in the field of architectural design. Pure and applied research. Stages of research and design; design and research methodology. Techniques of data collection. Forms of research reporting, structure of a report. Writing skills, presentation aids. Use of primary and secondary references, bibliography, notations, cross reference etc. Nature of an undergraduate thesis, its structure and other requirements.

Method: The course must be conducted as a mix of lectures/discussions with a number of assignments and exercises to impart the skills necessary for carrying out the dissertation. Preparation of a viable proposal for the next semester's dissertation work is expected by the end of the semester.

REFERENCES:

<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Architectural Research</td>
<td>James C. Snuder</td>
</tr>
<tr>
<td>02.</td>
<td>Scientist must write</td>
<td>Robert Barrass</td>
</tr>
<tr>
<td>03.</td>
<td>Research Methodology</td>
<td>N.R. Kothari</td>
</tr>
</tbody>
</table>

Focus: Creating an awareness of the role & responsibilities of an architect.


REFERENCES:

<table>
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<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Professional Practice</td>
<td>Roshan Namavati</td>
</tr>
<tr>
<td>02.</td>
<td>Code of Professional Conduct</td>
<td>IIA Publication</td>
</tr>
</tbody>
</table>
AC 905  CONSERVATION  

| Focus: | Conservation of historical monuments, buildings and sites. |
| Methods: | Case studies, illustrations, assignments & presentation. |

REFERENCES:

<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Manual for Conservation</td>
<td>Bernard Feilden</td>
</tr>
<tr>
<td>02.</td>
<td>Conservation of Historic Building</td>
<td>Bernard Fielden</td>
</tr>
</tbody>
</table>

AC 906  BUILDING REGULATIONS

| Focus: | Regulations for development control and quality as a means of ensuring minimum standards of building performance and environmental quality. |
| Content: | Need and rationale for development and building control, prevailing legislation (various Acts) under which Rules and Regulations have been worked out, National Building Code. Definitions and explanation of various terms like Act, Rules, Regulation, Development Plan, Planning Authority, Local Authority, Built-up Area, Building Unit, FSI / FAR, Plot coverage, Margins, setbacks, Development permissions, occupancy certificate etc. General development requirements and regulations in Gamtal and Revenue Survey areas, for Industrial Areas, Low cost Housing and other special structures. Procedure for securing Development permission and documents required. |
| Method: | Mainly lecture-based with illustrations. |

REFERENCES:

<table>
<thead>
<tr>
<th>SR. NO.</th>
<th>TITLE</th>
<th>AUTHOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Urban &amp; Regional Planning</td>
<td>H.D.Kopardekar</td>
</tr>
<tr>
<td>2.</td>
<td>Building Rules for Metropolitan Calcutta</td>
<td>D.N.Banerjee</td>
</tr>
<tr>
<td>3.</td>
<td>Gujarat Town Planning and Urban Development Act 1976</td>
<td>Govt. of Gujarat Publication</td>
</tr>
</tbody>
</table>
Focus : Inquiry by Design / Research

Contents : The Thesis is intended to evaluate the student's capacity and maturity in the field of Architecture.
Study in the chosen field to be carried out in two stages:

A) Data collection & analysis
   - An in depth investigation into the aspects of the chosen area.
   - Analysis of data, inferences to establish underlying principles.
   - Reviews of existing practices / theory in view of current contexts.

B) Design / Research
   - Prepare detailed programme
   - Design or Research on basis of studies carried out in Part A.