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Item No. 4.78

UNIVERSITY OF MUMBAI

Syllabus for the Bachelor of Architecture

Programe : B.Arch.

Course : Bachelor of Architecture
(Semester I & II)

(As per Credit Based Semester and Grading System with effect from the academic year 2012–2013)

Introduction

1.Notes for the creation of a new syllabus in architecture (Bachelor of Architecture, University of Mumbai)

> *"It is time that (we) remembered that schools were set up to challenge the wisdom of the world and its corruption, rather than to reinforce it."*
> Daniel Liebeskind

Architectural Education in India has been weighed down by the traditions of Architectural Practice that labor under the twin hegemonies of design and technology. In the past architectural curricula have developed as reactions to historical change, to immediately preceding narratives. We must appreciate that architecture today is more and more being informed by disciplines out of/other than architecture.

There is a need for redefining the Student of Architecture today. A student of architecture is not only a learner, but also a producer of knowledge. The student's tools include a critical, evaluative, conceptual mind, the ability to interconnect concepts/ facts, to use theory and argument and seek a higher level of explanation in the process of learning and its application to design. The student's initial challenges shall be to differentiate between objective and accepted reality, to appreciate architecture as a cultural process, and to perceive change as a series of discontinuities, more than cause/effect transitions. Only then can the student become relevant in today's world, rather than mindlessly repeat the dogma of the past.

In the creation of a new syllabus for the Bachelor of Architecture Course, certain adjustments to older mindsets must be made:

1. Architecture has to be appreciated as a 2nd Order Discipline. It is a Meta discipline, a critical attitude, not merely an empirical discipline like engineering that needs/seeks/works with data.
2. Architecture deals with fundamental issues of users, cities and societies, and not only materials, processes and aesthetics. It questions the presupposed, and seeks new and contemporary meanings.

Before a new syllabus is made, the makers (teachers) must recognize their own possible insidiousness in the curriculum making process, and objectively go beyond their own accepted knowledge beliefs and realities. Real learning will not emerge merely out of the didactic (which itself emerges out of biases, prejudices and ad-hoc choices). Peter Eisenmann has said: *"The only way to advance in a discipline is to displace knowledge, and the only discourses that remain healthy are those that are displacing discourses. The ones that cling to their theory and their tradition and their rationality, die."*

The following objectives for a new syllabus for architectural education are proposed:

1. The new syllabus should prepare a student to understand and locate himself/herself in the real world.
2. The new syllabus should appreciate and reconcile itself to the imperfect times that we live in.
3. The new syllabus should reflect, through application, upon the technological state-of-the-art of the world today and its relevance.
4. The new syllabus should give a direction or hope for the future.

In order to fulfill these objectives, the following questions may be asked first:

1. What is a work of architecture?
2. How is architecture different from nature?
3. How useful are our tools (curriculum) for evaluating these two questions (meta-questioning)?

Since the latter half of 2011, the Ad-hoc Board of Studies in Architecture (University of Mumbai) has called together the principals and senior faculty of all the colleges of architecture under the university for a series of deliberations on the nature of the new syllabus. Right from the very outset there has been an agreement that the syllabus should reflect the following objectives:

- Architecture is ‘discipline’/ meta-discipline, not merely an empirical process
- Critical thinking/ criticality is important. The student must be given the tools to critically evaluate the world he/she lives in
- The student needs to be redefined as more than a leaner, but a producer of knowledge
- In the spreading world of information technology and easily available knowledge, the teacher needs to be redefined as more than a giver of information, but one who can show the student how design is a critical process
- The architecture syllabus needs be flexible. Individual colleges should be given the means to interpret and expand on the syllabus in their own way
- Diversity must be appreciated and encouraged. Learning can be simultaneous and non-linear
- A student needs to inculcate the ability to question, ability to redefine technology, ability to question the relevance of technology
- Being informed by disciplines out of/other than architecture, Non technology subjects, particularly those from the liberal arts and the humanities may come into foreground
- Emphasis should be on theory also, not only on practice (empiricism)
- Encourage research and give direction to research

In addition to these agreed objectives, the following external requirements are also acknowledged. The first is the adoption of the Credit system for evaluation and grading, that the University of Mumbai has adopted for all future syllabi. This entails converting the current Annual pattern Syllabus to a Semester Pattern. Secondly, acknowledging the requirements given by the Council of Architecture, New Delhi; the course shall now be divided into two distinct stages- a Basic Course and Advanced Course. The Council has also encouraged individual colleges to be given both time and credits to develop their additional syllabi components so that diversity in directions for architectural education and practice shall be encouraged. As such 25% of the timetable shall be dedicated to projects, electives or coursework offered by the colleges themselves based on their philosophy and institutional objectives.

2-0
Explanatory notes on New Aspects in the Syllabus

Sessional work

Sessional work in the B. Arch. Course can be defined as mandatory assignments carried out by students in the classroom or the studio during the course of the semester (session).

Sesssional work will be detailed out in the course content for each subject, which may include drawings, sketches, reports, presentations, models as per the requirements. In the case of theory intensive subjects, sessional work may be in the form of class tests, seminars, presentation of reports or documentation.

In the design studio or for the technical subjects, sessional work shall consist of supervised design development, the working out of technical details, reports and documentation. All these assignments are marked in process and upon completion may be assessed in the form of Crits or Juries. Sessional work in
all subjects shall be designed, carried out and assessed by the subjects in charge and collated as Internal Marks.

Allied Design Studio

The Architectural Design Studio is the central subject in the architecture course; other subjects supplement knowledge, skills and critical understanding of the design of architecture. The **Allied Design Studio** is also a studio where subjects allied to Architectural Design can be taught and sessional work carried out in the form of design projects. These subjects are closely associated with the core of design and architecture.

In the previous syllabus, these subjects included Basic Design, Interior Design, Landscape Design and Urban Design/ Urban Planning. In the new syllabus, these subjects shall form part of a representative list that may include other design based subjects such as Visual Studies, Graphic Design, Product Design, Furniture Design, the Design of Outdoor Spaces and Public Places, or Town Planning.

Each college may determine the teaching modules and sessional work for these subjects, as also their location in the first three years. Each subject shall have both a Lecture as well as a Studio component. Credits for the Allied Design Projects will be given to each student as per his/her attendance, participation and contribution towards the projects. These Credits will be given by the respective Project teachers/ coordinators for the term.

College Projects
College projects form part of the 25% class time that shall be planned by the colleges according to their philosophy and institutional objectives. College Projects may include mixed group participation of students from different years, or may be dedicated to any one class. The College Project time and credits may also be used to supplement additional coursework to advance knowledge in the core subjects in the syllabus.

Credits for these projects will be given to each student as per his/her attendance, participation and contribution towards the projects. These Credits will be given by the respective project coordinators for the term.

The following is a representative list of what may constitute college projects: Seminars, Tutorials/ additional classes for any course, Guest Lectures, putting up Exhibitions, Workshops, participating in Architectural Competitions or conducting Site Visits or Study Tours.

Electives
Electives form part of the 25% class time that shall be planned by the colleges according to their philosophy and institutional objectives. Electives may include mixed group participation of students from different years, or may be dedicated to any one class. Electives shall be offered by the college to each class to supplement additional coursework or to advance knowledge in architecture and allied fields.

Credits for electives will be given to each student as per his/her attendance, participation and satisfactory completion of assignments. These Credits for the Electives shall be given by the respective elective teacher for the term.

Representative Lists for possible electives in architecture and allied fields can be referred to from the Council of Architecture's Document on Minimum Standards of Architectural Education. Each college can, of course, determine electives based on the needs of the day, and the availability of resource persons.

Scheme of Teaching and Examinations
Bachelor of Architecture (B. Arch.) Semester I

	Semester I Exam conducted by individual colleges	Teaching Scheme		Credits		
Sub. No.	SUBJECTS	Lecture	Studio	Theory	Studio	Total
101	Architectural Design Studio		4		4	4
102	Allied Design Studio		4		4	4
103	Architectural Building Construction & Materials	2	3	2	3	5
104	Theory & Design of Structures	3		3		3
105	Humanities	3		3		3
106	Environmental Studies	2		2		2
107	Architectural Representation & Detailing		3 +3		6	6
120	College projects		6		6	6
121	Elective		3		3	3
	Total	10	26	10	26	36

	Semester I Exam Exam conducted by individual colleges	Examination Scheme			
Sub. No.	SUBJECTS	Theory (paper)	Internal	External viva	Total
101	Architectural Design Studio		150		150
102	Allied Design Studio		150		150
103	Architectural Building Construction	70	80		150
104	Theory & Design of Structures	50	50		100
105	Humanities	50	50		100
106	Environmental Studies		50		50
107	Architectural Representation & Detailing		100+50		150
120	College projects		100		100
121	Elective		50		50
	Total				1000

Notes: Each period shall be of 50 minutes duration and each semester shall consist of 90 days of teaching programme.

The colleges are required to arrange the time table per semester as per the teaching scheme prescribed.

Syllabus (Course Content) for First Year B. Arch. course
Semester I

101 Achitectural Design Studio 1

Credits-4

Teaching Hours
Lectures- --------
Studio- 72 periods of 50 minutes duration -60 hours

Sessional marks-
Internal- 150 External ----**-**

Understanding the human body in space

Activities and their relation ship with spaces

Scales and proportions

Developing a language vocabulary, visualization

Exposure to architecture,

Exposure to architects and their works

Buildings, practices, site visits, meeting architects

Sessional work based on the basis of above.

102 Allied Design Studio 1

Credits-4

Teaching Hours
Lectures
Studio- 72periods of 50 minutes duration - 60hours

Sessional marks-
Internal- 150 External ------

The course content will be developed by the individual colleges as per their choice of Allied Design scheme.
The schemes may include Visual Studies, Basic Design, Graphic Design, Product Design, Furniture Design, Design of Outdoor Spaces

Visual Field & Practices *(given as an example)*
Visual practices visual compositions using real world materials

Similarity & self-similarity understanding diversity

Natural & artificial forms/colors/textures; inherent/applied

103 Architectural Building Construction & Materials 1

Credits-5

Teaching Hours-
Lectures-36 periods of 50 minutes duration- 30 hours
Studio- 54 periods of 50 minutes duration- 45 hours

Scheme of examination
Theory one paper of three hours duration Max. marks- 70 Min marks for passing- 28

Sessional marks-
Internal- 80 marks External ----

Building Construction

Elements of buildings -Substructure/ Superstructure

Understanding role of building elements

Understanding construction built form & building practice

Paradigms: load bearing structures, frame structures

Study of Simple buildings from foundation to roof

Building construction drawing practices and conventions

Building details models

Building Materials

Contextual relevance- what are buildings made of

Natural and artificial materials- where they are used

Materials shall be studied by understanding their PROPERTIES viz. Density & Specific gravity, Strength, Thermal properties etc.

The study shall strongly emphasize the 'Selection Criteria' comprising various aspects viz. Technology, Aesthetic, Socio-Cultural, Socio-Economic, Ecology (green materials), etc.

104 Theory & Design of Structures 1

Credits- 3

Teaching Hours
Lectures- 54 periods of 50 minutes duration- 45 hours
Studio- --------
Scheme of examination
Theory -one paper of two hours duration Max. marks- 50 Min marks for passing- 20

Sessional marks-
Internal- 50 External ----

Introduction to the subject and theory of structure:

a. Aims, objectives and scope of study of theory of structure for architects.
b. Technical names and function of various structural components from foundation to roof.
c. Fundamentals and mechanics.

d. S.i. system and units.
e. Understanding structure why things don't fall down

Structural systems- ways to create inner space
Under standing loads of various types

understanding the forces and Moments –

Definition, cause, effect, units
Types of forces,
Conditions of equilibrium
Beam reactions

105 Humanities 1

Credits- 3
Teaching Hours
Lectures- 54 periods of 50 minutes duration – 45 hours
Studio- ------
Scheme of examination
Theory -one paper of two hours duration Max. marks- 50 Min marks for passing- 20
Sessional marks-
Internal- 50 External ----
World history systems of knowledge

History of culture understanding human cultural development, products and sociology

Chronology India and the world

106 Environmental Studies 1

Credits- 2

Teaching Hours-
Lectures**-** 36 periods of 50 minutes duration

Studio- ------
Sessional marks-
Internal- 50
External -----

OBJECTIVE
Understand the relationship between Natural environment and Built environment

Understanding Natural resources
Forest resources, Water resources, Mineral resources, Food resources, Energy resources, Land resources

CONCEPTS
Natural Environment, Ecology and ecosystems, Bio diversity and co existence

Relationship and co-existence of Built & Natural Environments

Building Types & Lifestyles in different geographic zones and climatic zones

107 Architectural Representation & Detailing 1

Credits-6

Teaching Hours

Lectures------

Studio- 108 periods of 50 minutes duration – 90 hours

Sessional marks-

Internal- 150 External ----

Graphics

Studio work culture pencils, instruments, table, etc.

Plane geometry & solid geometry orthography

Drawing a building understanding thicknesses and hollows; plans, sections, elevations

Freehand

Memory left brain creativity

Objects taking things apart/ reassembly

Workshop

Building skills studio work culture; instruments, tabletop; cutting, joining, shaping

Materials and media installations assembly

120 College Projects 1

Credits- 6

Teaching Hours-

108 periods of 50 minutes duration - 90hours

Sessional marks-

Internal- 150 External -------

(to be developed by individual colleges)

The following is a representative list of what may constitute college projects:

Seminars, Tutorials/ additional classes for any course, Guest Lectures, putting up Exhibitions, Workshops, participating in Architectural Competitions or conducting Site Visits or Study Tours.

121 Elective 1

Credits- 3

Teaching Hours

Studio- 54 periods of 50 minutes duration – 45 hours

Sessional marks-

Internal- 50 External ------

(to be developed by individual colleges)

Scheme of Teaching and Examinations
Bachelor of Architecture (B. Arch.) Semester II

	Semester II Exam conducted by individual colleges	Teaching Scheme		Credits		
Sub. No.	COURSES	Lecture	Studio	Theory	Studio	Total
201	Architectural Design		4		4	4
202	Allied Design Studio		4		4	4
203	Architectural Building Construction & Materials	2	3	2	3	5
204	Theory & Design of Structures	3		3		3
205	Humanities	3		3		3
206	Environmental Studies	2		2		2
207	Architectural Representation & Detailing		3 +3		6	6
220	College projects		6		6	6
221	Elective		3		3	3
	Total	10	26	10	26	36

	Semester II Exam Exam conducted by individual colleges	Examination Scheme			
Sub. No.	SUBJECTS	Theory (paper)	Sessional Work	External viva	Total
201	Architectural Design Studio		150		150
202	Allied Design Studio		150		150
203	Architectural Building Construction	70	80		150
204	Theory & Design of Structures	50	50		100
205	Humanities	50	50		100
206	Environmental Studies		50		50
207	Architectural Representation & Detailing		100+50		150
220	College projects		100		100
221	Elective		50		50
	Total				1000

Notes: Each period shall be of 50 minutes duration and each semester shall consist of 90 days of teaching programme.

The colleges are required to arrange the time table per semester as per the teaching scheme prescribed.

Syllabus (Course Content) for First Year B. Arch. course
Semester II

201 Architectural Design Studio 2

Credits-4

Teaching Hours
Lectures- --------
Studio- 72 periods of 50 minutes duration -60 hours
Sessional marks-
Internal- 150 External -----

Object & context

Architecture as environment

Architecture in context

Architectural insertions, Documentation, site visits, documentation through text, photography, drawings, computers

Design exercises – Designing of space for small groups and minor activities with reference to climate, site conditions, and user requirements.

202 Allied Design Studio 2

Credits-3

Teaching Hours
Lectures
Studio- 72periods of 50 minutes duration - 60hours

Sessional marks-
Internal- 150 marks External ------

The course content will be developed by the individual colleges as per their choice of Allied Design scheme.
The schemes may include Visual Studies, Basic Design, Graphic Design, Product Design, Furniture Design, Design of Outdoor Spaces

Visual Field & Practices *(given as an example)*
Aesthetics as a product of context/ media
Mixing media/ hybridity
Visual culture icon, index, symbol
Installations exercises

203 Architectural Building Construction & Materials 2

Credits- 5

Teaching Hours-
Lectures-36 periods of 50 minutes duration- 30 hours
Studio- 54 periods of 50 minutes duration- 45 hours

Scheme of examination
Theory one paper of three hours duration Max. marks- 70 Min marks for passing- 28

Sessional marks-
Internal- 80 marks
External ----

Building Construction
walling systems ,external envelopes, internal partitions in various materials, cavity walls

openings/fenestrations

structural considerations; structural spans; lintel, beam, arch

fenestrations: opaque, translucent, transparent

Building Materials
Material Syntax

synchronic and paradigmatic choices

Understanding Specifications & Quantities
The outcome of this course is the ability to SPECIFY building materials as per the demands of Design Program.

204 Theory & Design of structures 2

Credits- 3

Teaching Hours
Lectures- 54 periods of 50 minutes duration- 45 hours
Studio- --------
Scheme of examination
Theory -one paper of two hours duration Max. marks- 50 Min marks for passing- 20

Sessional marks-
Internal- 50 External ----

Understanding various concepts about structures as tall, long, thin, wide etc.

Understanding Articulation of structural systems from foundation to roof

Understanding the following:
1) Properties of section
2) Stress and strain:
3) Shear force and bending moment
4) Theory of simple Bending

205 Humanities 2

Credits- 3

Teaching Hours
Lectures- 54 periods of 50 minutes duration – 45 hours
Studio- ------
Scheme of examination
Theory -one paper of two hours duration Max. marks- 50 Min marks for passing- 20

Sessional marks-
Internal- 50 External ----

History of art culture & aesthetics

Society, Context, Aesthetics, Architecture

Prehistory, Paleolithic and Neolithic Cultures,

River Valley Civilizations

Classical Greece and Rome

Vedic Culture, Kingship in India, Hellenistic influences

Buddhism and Jainism

206 Environmental Studies 2

Credits- 2
Teaching Hours
Lectures- 36 periods of 50 minutes duration – 30 hours
Studio- -----
Sessional marks-
Internal- 50 marks External ---

OBJECTIVE
Study the effect of architectural development on natural resources

Effects of architectural development on natural resources

Concepts of sustainable development
Renewable resources
Water cycle and its management
Conservation and generation of energy

207 Architectural Representation & Detailing 2

Credits- 6

Teaching Hours
Lectures------
Studio- 108 periods of 50 minutes duration – 90 hours
Sessional marks-
Internal- 150 External ----

Graphics
Views isometric, axonometric

Perspective & sciography exercises (may be done on sketch

Freehand

Landscape outdoor sketching

Anatomy

Workshop

Visual practices exercises

Architectural design exercises- making models

Theory of structures and construction – making of models

220 College Projects 2

Credits- 6

Teaching Hours-
108 periods of 50 minutes duration - 90hours

Sessional marks-
Internal- 150
External -------

(to be developed by individual colleges)

The following is a representative list of what may constitute college projects

Seminars, Tutorials/ additional classes for any course, Guest Lectures, putting up Exhibitions, Workshops, participating in Architectural Competitions or conducting Site Visits or Study Tours.

221 Elective 2

Credits- 3

Teaching Hours
Lectures
Studio- 54 periods of 50 minutes duration -45 hours

Sessional marks-
Internal- 50 External -----

(to be developed by individual colleges)

DETAILS OF SCHEME OF EXAMINATION SEMESTER I
TO BE CONDUCTED BY COLLEGES.

BACHELOR OF ARCHITECTURE SEMESTER I DETAILS OF SCHEME OF EXAMINATION										
	Semester I EXAMINATION Exam conducted by individual colleges	THEORY				SESSIONAL MARKS				
						Internal		External		
SR NO	COURSES	No of papers	duration	Max. marks	Min. Marks for passing	Max. marks	Min. Marks for passing	Max Marks	Min. Marks For passing	Max. marks for the course
101	Architectural Design 1	---	----	---	---	150	75	---	----	150
102	Allied Design 1	----	---	---	---	150	75	---	----	150
103	Architectural Building Construction 1	1	3HOURS	70	28	80	40	---	---	150
104	Theory & Design of Structures 1	1	2HOURS	50	20	50	25	---	---	100
105	Humanities 1	1	2HOURS	50	20	50	25	---	---	100
106	Environmental Studies 1	---	---	---	---	50	25	---	---	50
107	Architectural Representation & Detailing 1	---	---	---	---	100+50	75	---	---	150
120	College projects 1	---	---	---	---	100	50	---	---	100
121	Elective 1	---	---	---	---	50	25	---	---	50
	Total marks for the examination									**1000**

Notes:
Theory, internal sessional work, and external viva are considered as separate heads of passing

Total marks for the examination = 1000

Minimum marks for passing the examination= 50

DETAILS OF SCHEME OF EXAMINATION SEMESTER II
TO BE CONDUCTED BY COLLEGES.

BACHELOR OF ARCHITECTURE SEMESTER II DETAILS OF SCHEME OF EXAMINATION										
	Semester II EXAMINATION Exam conducted by individual colleges	THEORY				SESSIONAL MARKS				
						Internal		External		
SR NO	COURSES	No of papers	duration	Max. marks	Min. Marks for passing	Max. marks	Min. Marks for passing	Max Marks	Min. Marks For passing	Max. marks for the course
201	Architectural Design Studio 2	---	----	---	---	150	75	---	----	150
202	Allied Design studio 2					150	75	---	----	150
203	Architectural Building Construction 2	1	3HOURS	70	28	80	40	---	---	150
204	Theory & Design of Structures 2	1	2HOURS	50	20	50	25	---	---	100
205	Humanities 2	1	2HOURS	50	20	50	25	---	---	100
206	Environmental Studies 1	---	---	---	---	50	25	---	---	50
207	Architectural Representation & Detailing 2	---	---	---	---	100+50	75	---	---	150
220	College projects 2	---	---	---	---	100	50	---	---	100
221	Elective 2	---	---	---	---	50	25	---	---	50
	Total marks for the examination									**1000**

Notes:

Theory, internal sessional work, and external viva are considered as separate heads of passing

Total marks for the examination = 1000

Minimum marks for passing the examination= 50

SYLLABUS

DEGREE OF BACHELOR OF ARCHITECTURE

UNIVERSITY OF MUMBAI

SECOND YEAR ARCHITECTURE

2.1 ARCHITECTURAL DESIGN - II

Teaching Hours

Lecture	**:**	**-----**
Studio	**:**	**256 periods of 45 mins. each. (192 Hours)**

Sessional Marks

Internal	**:**	**150**
External	**:**	**150**

Examination Scheme

Duration	**:**	**-----**
Marks Max.	**:**	**-----**
Marks Min.	**:**	**-----**

STAGE 1

Design problem shall be urban in nature and sufficient scope for the following shall be mode :

Data collection

Climatic conditions

User requirements

Design problem shall consider the above and planning shall be for large group of people and for various activities such as nursery / primary school, Club house, Health units etc.

Design problem shall also consider methods of construction, materials, building services, theory of structures studied during 1st and 2nd years.

STAGE II

Design problem shall be limited to ground and first floors and load bearing construction as studied, with theory of structures. In the previous terms and shall consider :

Basic data collection and utilisation

Climatic conditions

Space conservation

Transportation

Design problem shall be related to multiple activities such as block of flats, school, 2/3 star hotel, restaurant. Recreation centre, etc.

(In this term students shall be introduced to concrete technology which shall be further elaborated upon in 1st and 2nd terms of 3rd year).

SYLLABUS

DEGREE OF BACHELOR OF ARCHITECTURE

UNIVERSITY OF MUMBAI

SECOND YEAR ARCHITECTURE

2.2 THEORY AND DESIGN OF STRUCTURES - II

Teaching Hours

Lecture	**:**	**128 periods of 45 mins. each (96 Hours)**
Studio	**:**	**-----**

Sessional Marks

Internal	**:**	**50**
External	**:**	**---**

Examination Scheme

Duration	**:**	**3 Hrs.**
Marks Max.	**:**	**100**
Marks Min.	**:**	**50**

OBJECTIVES :

- Understanding of basic theories and principles of structural analysis.
- Understanding of properties of materials relevant to structural analysis.
- Understanding of behaviour of structural elements under various conditions.

1. BEHAVIOUR OF STRUCTURAL ELEMENTS :

- Understanding and identifications of location of forces, bending moment and bending stress in fixed beams, over hanging beams, continuous beams, portal frames etc.
- Deflection in simply supported beams and cantilevers with distributed and point loads.
- Columns and struts-short and long columns, slenderness ratio etc.
- Combined bending and direct stresses , axial and eccentric loads effect of eccentricity, e. g. masonry wall , chimney.
- Fixed beams simple support and fixed support, advantages and disadvantages. Determination of positive and negative bending moments in fixed beams. (confine the loading to point and UDL covering full span only).
- Continuous beams – negative and positive bending moments in continuous beams covering two or more spans of uniform section and simple loading by moment distribution method. Symmetrical Portal frames.
- Strain Energy.

2. FOUNDATION DESIGN - SOIL ASPECTS :

- Importance of the subject.
- Types of soils and their properties.
- Methods of compaction and consolidation.
- Void ratio, porosity, bulk density, moisture content, degree of saturation, liquid limit, plastic limit. Etc.
- Test for assessing load bearing capacity of soil.
- Soil properties and characteristics relevant to the design of foundations.
- Criteria for selection of foundation type for different soil conditions.
- Effect of water level , settlement of soil.
- Failure of foundation systems.
- Improvement of soil properties.
- Design procedure for simple load bearing foundations.

SESSIONAL WORK :

- Testing of various materials such as brick cement, sand etc. in the workshop.
- Seminars on soils, foundations and frame structures and documentation of the same.
- Plates on soil aspects.

SYLLABUS

DEGREE OF BACHELOR OF ARCHITECTURE

UNIVERSITY OF MUMBAI

SECOND YEAR ARCHITECTURE

2.3 ARCHITECTURAL BUILDING CONSTRUCTION - II

Teaching Hours

Lecture	**:**	**64 periods of 45 mins. each (48 Hours)**
Studio	**:**	**128 periods of 45 mins. each**

Sessional Marks

Internal	**:**	**100**
External	**:**	**-----**

Examination Scheme

Duration	**:**	**3 Hrs. (To be combined with building**
Marks Max.	**:**	**70 materials or 30 marks. Hence**
Marks Min.	**:**	**50 minimum mark combined at 50.)**

Timbers Doors and Windows - Fully panelled single and double shutter doors of various types and sizes, fully glazed window and ventilators details of joints thereof. Fixed glass and timber louvered windows.

Steel Windows – Steel casement windows, with fixtures and fitting and methods of fixing.

Timber Floors – Single, double and framed floors with joints between joist with wall plate, joist with beam and sub beam with main beam, strutting of joists, use of templates, for support.

Staircases – Trade and riser and relation between them, single, double (Dog legged and open well) and Tripe Flight stairways in stone and timber, balusters and handrail in stone, Timber and steel, details of joints.

Sessional Work based upon above topics.

Timber Trusses – King post and queen post trusses with details of joints, alternative arrangements for tile and sheet roof covering, detail of eaves projection with soft boarding, alternative detail of gutter at eaves, sprocket joint.

Light Partitions – timber, Asbestos sheet and soft board and glazed partitions, W. I. And R. C. C. grilled enclosures.

False Ceiling – False ceiling of asbestos sheets, soft boards, acoustic boards, plaster of paris etc. on timber and steel or aluminum frame work, details of lighting and air conditioning grid panels, concealed lighting.

Hollow Walls – Cavity walls in brick and hollow concrete blocks.

Sessional Work based upon above topics.

SYLLABUS

DEGREE OF BACHELOR OF ARCHITECTURE

UNIVERSITY OF MUMBAI

SECOND YEAR ARCHITECTURE

2.4 BUILDING MATERIAL - II

Teaching Hours

Lecture	**:**	**32 periods of 45 mins. each**
Studio	**:**	**-----**

Sessional Marks

Internal	**:**	**50**
External	**:**	**-----**

Examination Scheme

Duration	**:**	**-----**
Marks Max.	**:**	**-----**
Marks Min.	**:**	**-----**

Paints and Varnishes – Composition, manufacture and properties and uses of ordinary paints. Varnishes and wood preservatives, method of distempering wall surfaces, and painting of timber and iron work.

Roofing Sheets and Tiles – Corrugated galvanised iron sheets and asbestos cement sheets with accessories shingles etc. and method of their fixing. Clay manglore, Allahabad and country type tiles, their properties and method of fixing.

Timber board –Plywoods – Block Boards - Particles Boards – Hard Boards - Veneers.

Eco Friendly Boards – Eco Boards, Soft Boards, Nuwood, and Laminates.

Natural Floor Finishes – Shahabad, Kotah different types of Marble, Granite etc.

Artificial Floors Finishes – Ceramic tiles, Mosaic tiles, Cement tiles, Pavior Cement Block etc.

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DEGREE OF BACHELOR OF ARCHITECTURE

UNIVERSITY OF MUMBAI

SECOND YEAR ARCHITECTURE

2.5 HISTORY OF ARCHITECTURE - I

Teaching Hours

Lecture	**:**	**96 periods of 45 mins. each (72 Hours)**
Studio	**:**	**-----**

Sessional Marks

Internal	**:**	**50**
External	**:**	**-----**

Examination Scheme

Duration	**:**	**3 Hours**
Marks Max.	**:**	**100**
Marks Min.	**:**	**50**

STAGE I

Development of various styles with reference to the influencing factors such as Geographical, Geological, climatic, religious social and political conditions.

1. Prehistoric Architecture
2. Egyptian Architecture
3. West Asiatic Architecture
4. Classical Greek Architecture
5. Classical Roman Architecture
6. Early Christian and Byzantine Architecture
7. Romanesque Architecture
8. Gothic Architecture

Sessional work of 25 marks shall be assessed by the Jury of internal examiners – one example from each of the above topic shall be selected and the candidates shall submit informative notes with neat sketches.

STAGE II

Development of the style under the influencing factors and forces with regard to –

- Renaissance Architecture in Italy, France and England.
- Study of modern (Contemporary) Architecture.
- Greek Revival.
- Gothic Revival.
- Industrial revolution and its influence on social, economic conditions and architecture of that period.
- Scientific and technological progress, invention of new materials.
- Characteristics of modern Architecture and its necessity in changed pattern of life. Invention of Reinforced cement concrete, and its revolutionary effect on construction.

- New construction methods and structural systems such as geodesic dome, space frame, prefabrication, etc.

Sessional work of 25 marks shall be assessed by Internal Examination in Jury which include:

1. Detail study of any one example from renaissance Architecture in Italy, France, England with informative notes.
2. Biography of any four Architects who have contributed in development of Architecture. The students shall submit informative notes about their life, Philosophy and work with example.

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2.6 BUILDING SERVICES - II

Teaching Hours

Lecture	**:**	**64 periods of 45 mins. each (48 Hours)**
Studio	**:**	**64 periods of 45 mins. each (48 Hours)**

Sessional Marks

Internal	**:**	**100**
External	**:**	**-----**

Examination Scheme

Duration	**:**	**3 Hours**
Marks Max.	**:**	**100**
Marks Min.	**:**	**50**

OBJECTIVES :

- Studying services for complex buildings and neighbourhood.
- Applying in Architectural design and preparing layout and details.

SECTION – I

WATER SUPPLY, DRAINAGE AND SANITATIONS :

- Sources of water supply and method of supply.
- Catchment areas, reservoirs, and their location.
- Water purification systems, control systems, supply for a neighborhood and town.
- Water supply for multi storeyed buildings and industrial projects.
- Site planning from drainage point of view.
- Storm water drains, details of construction, water entrances, gullies, open drains, gradients, ventilation of drains, rainfall maintenance.
- Sewage and sewage treatment, plans, buy products, gas plants.
- Connection of house sewers to municipal sewers, ventilation of sewers.
- Sewage disposal scheme for small projects and towns.
- Garbage disposal, incinerator, dry disposal.
- Garbage disposal in multi –storeyed buildings, dry and wet treatment.
- Treatment of industrial refuse.
- Refuse and pollution problems.

SECTION – II

ELECTRICITY :

- Day lighting, and Day light factor.
- Distribution of electric power for large projects.
- Transformers, sub-stations, LT rooms.
- By laws pertaining to installations and load of electric supply.

SESSIONAL :

- Preparing water supply, drainage and sanitation design layout and details for a residence and apartment block.
- Preparing electricity layout and details for a residence and apartment block.
- Conducting market study and collecting informative brochures and specifications on various products available.

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2.7 CLIMATOLOGY - I

Teaching Hours

Lecture	**:**	**32 periods of 45 mins. each (24 Hours)**
Studio	**:**	**-----**

Sessional Marks

Internal	**:**	**50**
External	**:**	**-----**

Examination Scheme

Duration	**:**	**-----**
Marks Max.	**:**	**-----**
Marks Min.	**:**	**-----**

Effect of climate on man, shelter and environment.

Human comfort conditions – Comfort chart, Comfort Zone, Effective temperature.

Macroclimate and Micro climate.

Effect of landscape Elements on Climate and Architecture.

Impact of climate and building on Ecological balance – introduction.

Solar radiation and Architecture.

Air flow patterns inside buildings and in building layouts.

Effect of Humidity on buildings.

Thermal effect on building materials.

Regional approach in the application of the principals of climate control in the Design of Buildings.

Sessional work based upon above topics.

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SECOND YEAR ARCHITECTURE

2.8 SURVEYING AND LEVELLING - I

Teaching Hours

Lecture	**:**	**32 periods of 45 mins. each (24 Hours)**
Studio	**:**	**64 periods of 45 mins. each (48 Hours)**

Sessional Marks

Internal	**:**	**100**
External	**:**	**-----**

Examination Scheme

Duration	**:**	**-----**
Marks Max.	**:**	**-----**
Marks Min.	**:**	**-----**

Introduction - Aim, objects, and importance of subject, scope of subject for Architects.

Brief history of land surveys executed by Government Departments, with particular reference to surveys of Mumbai City, Index Map and N. S. sheets, information and working of land Records office.

Reading of survey Maps, understanding of features and undulations of Ground.

Reconnaissance.

Chain Survey and Triangulation.

Study of instruments used for chain survey viz : (1) Chains, (2) Ranging Rods, (3)Tapes, (4) Optional square, (5) Octagonal Cross Staff, (6) Cylindrical cross Staff.

Chain Line ranging, measurements of offsets , Overcoming obstacles.

Recording of chain survey, scales used in Plotting.

Calculation of area by method of triangles, by Simpson Rule, using graph paper and by planimeter, Hectare and Acre.

Traverse Survey.

Instruments used viz Prismatic compass and Theodolite and temporary adjustment.

Recording measurements of a Prismatic Compass survey, Magnet Meridian, back Fore and reduced bearing, local attraction and its correction.

Plotting of Traverse survey, Elimination of closing error.

Various uses of Theodolite, Finding out heights or distances of inaccessible structures, lining out of large factory type buildings and roads, advantages of prismatic compass.

Sessional work based upon above topics.

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SECOND YEAR ARCHITECTURE

2.9 INTERIOR DESIGN - I

Teaching Hours

Lecture : -----
Studio : 96 periods of 45 mins. each (72 Hours)

Sessional Marks

Internal : 100
External : -----

Examination Scheme

Duration : -----
Marks Max. : -----
Marks Min. : -----

Interiors in Residence :

(a) Space organization in interiors.
(b) Surface treatments in interiors, e.g. on walls, floors, ceilings etc.
(c) Different types of materials that are available and their uses in interiors.
(d) Constructional details of various furniture units.
(e) Application of colour, texture, pattern and their psychological effects in interior.
(f) Introduction to history of furniture & importance of styles related to furniture design.

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SECOND YEAR ARCHITECTURE

2.10 HUMANITIES - II

Teaching Hours

Lecture	**:**	**64 periods of 45 mins. each (48 Hours)**
Studio	**:**	**-----**

Sessional Marks

Internal	**:**	**50**
External	**:**	**-----**

Examination Scheme

Duration	**:**	**-----**
Marks Max.	**:**	**-----**
Marks Min.	**:**	**-----**

- Rise of Christianity
- Medieval Europe
- Rise of Islam
- Renaissance, Reformation and geographical discoveries.
- South Indian Empires- Pallavas, Cholas and Pandyas
- Medieval societies of India.
- Mughal art and Architecture
- Baroque and Rococco periods in Europe
- Impacts of French and industrial Revolutions
- Emergence of Modern Art and Architecture
- Features of Developing Countries.
- Rural life in India with special reference to problems regarding rural, land, labour and rural work / employment schemes.
- Changes in rural life style in contemporary India.

Sessional work based upon above topics.

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SECOND YEAR ARCHITECTURE

2.11 GRAPHICS - II

Teaching Hours

Lecture	**:**	**96 periods of 45 mins. each (72 Hours)**
Studio	**:**	**-----**

Sessional Marks

Internal	**:**	**50**
External	**:**	**-----**

Examination Scheme

Duration	**:**	**-----**
Marks Max.	**:**	**-----**
Marks Min.	**:**	**-----**

1) Perspective by measuring point method.
2) Perspective of interiors.
3) Shades and Shadows in perspective.
4) Rendering techniques in different mediums.
5) 3 – point perspective of high rise structures.

Sessional work : The student shall submit perspectives of two interior design projects and two perspectives of exteriors of the buildings showing surrounding human figures, vehicles, etc. rendered in water colour.

This sessional work carries 50 marks and shall be assessed by the internal & External Examiner at the end of the academic year.

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2.12 COMPUTERS - I

Teaching Hours

Lecture	**:**	**-----**
Studio	**:**	**64 periods of 45 mins. each (48 Hours)**

Sessional Marks

Internal	**:**	**50**
External	**:**	**-----**

Examination Scheme

Duration	**:**	**-----**
Marks Max.	**:**	**-----**
Marks Min.	**:**	**-----**

An Architects office is a complex organization. It has to deal with many other functions besides just doing Architectural drawings as such a complete management outlook of the Architects office necessary. Computers have demonstrated that by their effective use the efficiency of a cross section of the work force can be improved.

Although CAD is an integral part of the Architects operative. It still remains only as a part, CAD is also highly technical and thus tends to be a bit difficult to grasp, Exposing young aspirant is thus than in to two phases.

The first phase deals with computer fundamentals which are necessary to be efficient with the computer. It deals with basic word processing and spread sheet function with emphasis on application like generation of letters, preparation of report etc.

The course then goes on to teach graphic application other than CAD for fast and attractive presentation of themes and ideas. After this phase the student should be ready with the fundamental understanding of the computers to be expose to the extensively technical subject of the CAD.

It is expected that the student before going to the second stage would have gone through fundamentals of the Architectural course.. They are now ready to embarge on a more detailed study on the intricacies of architectural. They are expected to apply their basic knowledge and convert same in to a creative output. At this stage visualization of their design is much easier and would help them to identify various error that may have possibly crept in. Specialized CAD package have the facility to allow 3 D Design as well as simulation. It is proposed to teach this packages as it will allowed the students to not only appreciate and grasp them better but also test some of the design concept on this software.

Sessional work shall consist of presenting a design programme / projects done under graphics II on CAD.

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THIRD YEAR ARCHITECTURE

3.1 ARCHITECTURAL DESIGN - III

Teaching Hours

Lecture	**:**	**-----**
Studio	**:**	**256 periods of 45 mins. each. (192 Hours)**

Sessional Marks

Internal	**:**	**200**
External	**:**	**400**

Examination Scheme

Duration	**:**	**-----**
Marks Max.	**:**	**-----**
Marks Min.	**:**	**-----**

STAGE I

Scope of design considering :

Method of construction, materials, building services and theory of structures studies during Semester 1st and 2nd year.
Data collection and analysis.
Climatic conditions.
Socio-economic conditions.
Basic need of the present living in rural areas.

Design problem considering the above dealing with small rural development schemes.

STAGE II

Scope of design considering :

Method of construction, materials, building services and theory of structures studies during Semester 1st and 2nd year.
Data collection and analysis.
Site conditions, climatic conditions.
Socio-economic conditions.
Users requirements.
Communication.
Transportation.

Design problem considering the above dealing with planning for masses for multiple activities such as Departmental Stores, markets, drama, theatres, cinemas, etc.

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THIRD YEAR ARCHITECTURE

3.2 THEORY AND DESIGN OF STRUCTURES II

Teaching Hours

Lecture	**:**	**128 periods of 45 mins. each. (96 Hours)**
Studio	**:**	**-----**

Sessional Marks

Internal	**:**	**50**
External	**:**	**-----**

Examination Scheme

Duration	**:**	**3 Hours**
Marks Max.	**:**	**100**
Marks Min.	**:**	**50**

OBJECTIVES :

- Understanding concrete structures
- Understanding steel structures
- Understanding structural drawings
- Understanding structural planning

1. R. C. C. STRUCTURES :

- Concrete technology : Types of cements, fine and coarse aggregates, water cement ratio, form work centering, mild and tor steel reinforcement bending and fixing, placing of concrete and methods of compacting of concrete, expansions and construction joints in concrete, durability of concrete with respect to honeycomb free, cold joint, role of admixtures in concrete.
  (Visit to construction sites to study concrete technology)
- Introduction to pre-cast concrete.
- R. C. C. Theory : Limit State Method
- R. C. C. Footing, Column beam and slab design, R. C. C. Staircase
- Application of thumb rules for beams, columns, Slabs for fixing sectional properties
- Use of code of special practice for R. C. C. members (Indian Standards)
- Design and Detailing of a simple G + 1 structure.

2. STEEL STRUCTURES :

- Understanding types of joints in steel structures, riveted, welded and bolted joints.
- Types of steel sections and their properties
- Criteria for selection of steel sections for design.
- Design and Detailing of a factory shed in steel structure.
- Visit to steel structure fabrication site.

SESSIONAL WORK :

- Preparing structural drawings of a simple RCC and steel structure as mentioned above.
- Visits to construction sites to study RCC structures and steel fabrication work and preparing report.

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THIRD YEAR ARCHITECTURE

3.3 ARCHITECTURAL BUILDING CONSTRUCTION - III

Teaching Hours

Lecture	**:**	**64 periods of 45 mins. each. (48 Hours)**
Studio	**:**	**128 periods of 45 mins. each. (96 Hours)**

Sessional Marks

Internal	**:**	**100**
External	**:**	**100**

Examination Scheme

Duration	**:**	**3 Hours**
Marks Max.	**:**	**100**
Marks Min.	**:**	**50**

Advanced Doors and Windows – Heavy panelled and moulded doors in timber, fully glazed sliding folding doors and windows and bay windows, rolling shutters.

Curtain Walls – Curtain walls in glass, aluminum, precast concrete units etc. for buildings like laboratories, offices, cinemas etc.

R. C. C. Construction - Frame construction, advantages over load bearing construction, study of column grid, detailing of R. C. C. work with reinforcement for slabs, beams, columns, footing, staircases (ordinary and spiral).

Sessional Work based upon above topics.

Decorative Wall Finishing and Treatment – Stone facing of various types (stone, marble, granite slab etc.) for walls, decorative patterns in brick, stone for wall treatment, wall lining in soft board timber etc. for offices.

Structural Steel Construction – Detailing of structural steel with connections for beams, stanchions, grillage footings, stairways, plate girders, trusses of various types including those for North Light Factories, verendeel girders, castelleted beams.

Patent Glazing - Patent glazing for skylights, lanterns, north light trusses etc.

Floor and Roof Finishes - Timber Boarded and parquette Floors for gymnasia and dance halls, Tarfelt water proofing for roofing.

Sessional Work based upon above topics.

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THIRD YEAR ARCHITECTURE

3.4 HISTORY OF ARCHITECTURE - II

Teaching Hours

Lecture	**:**	**96 periods of 45 mins. each. (72 Hours)**
Studio	**:**	**------**

Sessional Marks

Internal	**:**	**50**
External	**:**	**------**

Examination Scheme

Duration	**:**	**3 Hours**
Marks Max.	**:**	**100**
Marks Min.	**:**	**50**

STAGE I

Study of Indian Architecture, its gradual growth from Indus Valley civilization under various influence and as foreign invasions , geographic, political religious, climatic conditions, etc with regard to –

1. Indus Valley Civilization
2. Vedic or Early Aryan Architecture in India.
3. Buddhist Architecture.
4. Indo-Aryan (hindu) Architecture.
5. Chalukyan Architecture in Central and South central part in India.
6. Dravidian Architecture.
7. Jain Architecture.
8. Domestic Architecture in India in historic time.

Sessional work of 25 marks shall be assessed by the Jury of External examiners one example from each of the above topics shall be selected and the candidate shall submit informative notes with neat sketches.

STAGE II

1. Rise of Islam

2. Islamic Invasions, political and social conditions in the country

3. Study of the Islamic Architecture, regions and stylewise under local influence with regard to –

- Kutub or slave dynasty and imperial style or Pathan style at Delhi.
- Jaunpur Style.
- Malwa or Mandu style.
- Different styles at Deccan – a) Gulbarga, b) Bidar, c) Golkonda, d)Bijapur.
- Mughal Architecture.
- Gujrat Architecture.
- British Colonial Architecture.

Sessional work of 25 marks shall be assessed by the Jury External examiners one example from each of the above topics shall be selected and the candidates shall sub informative notes with neat sketches.

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THIRD YEAR ARCHITECTURE

3.5 BUILDING SERVICES - 1

Teaching Hours

Lecture	**:**	**64 periods of 45 mins. each (48Hours)**
Studio	**:**	**64 periods of 45 mins. each (48Hours)**

Sessional Marks

Internal	**:**	**100**
External	**:**	**-----**

Examination Scheme

Duration	**:**	**3 Hours**
Marks Max.	**:**	**100**
Marks Min.	**:**	**50**

OBJECTIVES :

- Introduction to fundamentals of all types of services required in a building.
- Learning about various equipment and fittings available in the market.
- Preparing basic design layout of various services and typical details.

WATER SUPPLY, DRAINAGE AND SANITATION :

- Pipes and fittings, materials, size and classification.
- Different types of taps, toilet and kitchen fittings.
- Connection of lines to fittings.
- Under ground, overhead and internal storage tanks and supply lines.
- Pumping mechanisms.
- Design layout of water supply for a residence and apartment block, and calculation of supply requirements based on standards.
- Introduction to sanitation and its importance.
- Planning and layout of sanitary fittings in residences.
- Drainage system for residences.
- Waste water drainage-traps of various types details and use.
- Rain water disposal and roof drain.
- Sewers details of construction , inspection chambers, trap chambers.
- Septic tanks.

ELECTRICAL SERVICES :

- General distribution of electric power in towns and cities.
- Electrical wiring system – different materials employed and methods of wiring.
- Different electrical gadgets and fittings.
- Switch board, distribution board, mains, fuse, meter, circuit breaker etc.
- Single phase and Three phase distribution and circuits.
- Basic electrical layout for a residence.
- Earthing for electricity appliances.
- Electrical installations for services such as air-conditioning systems, lifts, escalators, pumps etc.
- Artificial lighting , design principles, illumination levels.
- Types of lamps and fittings used.
- Application of lighting system for shops, showrooms, offices, lecture halls, class rooms, stage, auditoriums etc.

SESSIONAL WORK :

- Application of above studies in preparing design layout and details, in the design done in current term.

NOTE : Question Papers to be set in two sections.
Section I and Section II.

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3.6 QUANTITY SURVEYING - 1

Teaching Hours

Lecture	**:**	**64 periods of 45 mins. each (48Hours)**
Studio	**:**	**------**

Sessional Marks

Internal	**:**	**100**
External	**:**	**-----**

Examination Scheme

Duration	**:**	**------**
Marks Max.	**:**	**------**
Marks Min.	**:**	**------**

Quantity Surveying and Estimating

Introduction :- Definition, Aim and object, Scope and importance of subject.

Types of Estimates - Approximate and detailed.

Methods of Approximate Estimating - Built up or Carpet Area Method, Cubic Contents, Method and Numbers System, Current rates in Mumbai for Approximate Estimating.

Detailed Estimate on item rate basis - Quantities and Abstract of Estimate, Bill of Quantities of a Tender, Contingencies.

Rates for Civil Work items – as per Municipal or P. W. D. Schedule Rates and Current market rates in Mumbai, Units for rates.

Taking of Quantities for Civil Work of Load Bearing Wall structure and preparation of Abstract.

Taking of Quantities of Civil Works of R. C. C. Frame Building, and preparation of Abstract.

Sessional work based upon above topics.

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3.7 SPECIFICATIONS - I

Teaching Hours

Lecture	**:**	**64 periods of 45 mins. each (48Hours)**
Studio	**:**	**-----**

Sessional Marks

Internal	**:**	**100**
External	**:**	**-----**

Examination Scheme

Duration	**:**	**3 Hours**
Marks Max.	**:**	**100**
Marks Min.	**:**	**50**

INTRODUCTION TO SPECIFICATION

Importance of specification in the building activities

Method of drafting specification with importance to the correct order and sequence. avoid duplication and ambiguity, specification by negation and affirmation.

Use of Indian standard specification and PWD handbook, for reference only specifications affecting cost.

SPECIFICATION FORMING PART OF BUILDING CONTRACT :

Method of specification writing :
a. Tradewise practice
b. Item of completed works

Establishment for project and their insistence for compliance with specification with reference to contract document.

Specification for handing over the site.

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.

SPECIFICATION FOR A STRUCTURE FROM EXCAVATION UP TO FINISHING IN SUPERSTRUCTURE.

Excavation, filling, timbering, dewatering, trenches, etc.

Specification for basic building material required such as bricks, stones, lime, cement, sand etc. including quality, storage, transportation, handling as per Indian Standard Specification as guidelines for minimum standards of specification.

Specification for concrete works including mixing, transportation, placing and curing of concrete, structure, scaffolding required for R. C. C. works.

Masonry in brick and stone both load bearing and paneled walls and ashlar and khandki. General rendering and plaster work and steel.

Painting on old and new surfaces in masonry, wood work and steel.

Flooring cast and situ including I. P. S., flooring in natural stones such as kota, marble etc. manufacturing for floor finish such as agglomerated marble / granite / tiles / ceramic tiles etc.

MATERIAL SPECIFICATION
TIMBER AND ITS PRODUCTS

Selection of materials with their trade names, manufacturer's specifications of allied products such as block board, plywood, soft board etc.

METAL :

Study of limitations of metal such as aluminum, steel etc.

Identifying a section by their weight, gauge etc.

WATER PROFFING :

In toilets, on terraces, in water tanks.

SPECIFICATION FOR MATERIALS USED IN ROOFING AND ROOF COVERING :

A. C. sheet, G. I. sheet with method of fixing and finishing at gutter, valleys

Note : Recommended study of all the above with reference to trade names, manufacturer's specifications and Indian Standard Specifications.

APPLICATION OF ALL ABOVE KNOWLEDGE IN DRAFTING SPECIFICATION FOR SUCH WORK AS

Load bearing structure

R. C. C. frame structure

Steel frame structure

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3.8 WORKING DRAWING - 1

Teaching Hours

Lecture	**:**	**-----**
Studio	**:**	**128 periods of 45 mins. each (96 Hours)**

Sessional Marks

Internal	**:**	**100**
External	**:**	**100**

Examination Scheme

Duration	**:**	**-----**
Marks Max.	**:**	**-----**
Marks Min.	**:**	**-----**

STAGE I

Working Drawing of Load Bearing Wall Structure for Design Problem done during 2nd year, indicating to appropriate scale :

(1) Foundation Plan
(2) Working Floor Plan
(3) Necessary Section.

STAGE II

Working Drawing of Design Problem done during 2nd year, indicating to appropriate scale :

(1) Working Elevations

(2) Working Details.

SESSIONAL WORK

To be started after Part –A is completed in theory classes.

- Related to Architectural Design (other than industrial)
- Landscape design of a neighbourhood open space (area of 2000 to 3000 sq. metres)

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3.9 HUMANITIES - III

Teaching Hours

Lecture	**:**	**64 periods of 45 mins. each (48 Hours)**
Studio	**:**	**-----**

Sessional Marks

Internal	**:**	**50**
External	**:**	**-----**

Examination Scheme

Duration	**:**	**-----**
Marks Max.	**:**	**-----**
Marks Min.	**:**	**-----**

- Urbanization at global level and in India.
- Pace of urbanization.
- Problem arising out of rapid urbanization in developing and developed countries
- Major trends urbanization takes in India.
- Genesis of Urbanization.
- Urban population growth due to natural increase of migration in to urban areas, Nature of problems of urban migration.
- Contemporary problems faced by Mumbai –
  Work patterns organized v/s unorganized labour in Mumbai.
  Public Health problems in Mumbai.
  Public Transport Problems in Mumbai
  Public Housing Problems in Mumbai.

- Introduction to the Economics of the building Industry including Study of Factors of land, Labour capital, Changing Technologies and Management in the production of Architecture.

SESSIONAL WORK BASED UPON ABOVE TOPICS.

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3.10 LANDSCAPE - 1

Teaching Hours

Lecture	**:**	**64 periods of 45 mins. each (48 Hours)**
Studio	**:**	**96 periods of 45 mins. each (72 Hours)**

Sessional Marks

Internal	**:**	**100**
External	**:**	**-----**

Examination Scheme

Duration	**:**	**3 Hrs.**
Marks Max.	**:**	**100**
Marks Min.	**:**	**50**

PART – A

- Introduction to landscape Architecture
- Designing and execution of proposal :
  a) Analysis of site
  b) Identification of functional requirements
  c) Site development by exploiting mutual forms
  d) Hard Surface – materials
  e) Elements in Landscape design – lawn
     Hedges and Shrubs
     Trees Annuals & Seasonals
     Rockeries

  f) field identification of minimum 20 common Indian trees and 25 common Indian shrubs

PART – B

- History of landscape Architecture
  a) Moghul
  b) Renaissance
  c) 18th century – Brownian
  d) 19th century – Botanical gardens
  e) Japanese landscape

- 20th century urban landscape
  a) Roof gardens
  b) Atriums
  c) Road side plantation, avenues

d) Indoor landscape (general)

- Children's Play Area
  a) dwelling level
  b) Neighbourhood level

- Concept and use of national Parks

SESSIONAL WORK

To be started after PART 'A' is completed in theory classes.

- Related to Architectural design (other than industrial)
- Landscape design of a neighborhood open space (area of 2000 to 3000 sq. metres)

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SYLLABUS

DEGREE OF BACHELOR OF ARCHITECTURE

UNIVERSITY OF MUMBAI

FOURTH YEAR ARCHITECTURE

4.1 ARCHITECTURAL DESIGNING - IV

Teaching Hours

Lecture	**:**	**-----**
Studio	**:**	**256 periods of 45 mins. Each. (192 Hours)**

Sessional Marks

Internal	**:**	**300**
External	**:**	**600**

Examination Scheme

Duration	**:**	**-----**
Marks Max.	**:**	**-----**
Marks Min.	**:**	**-----**

4.1 ARCHITECTURAL DESIGN : (STAGE – 1)

Design Problem Shall Consider :

Methods of Construction, Theory of Structures, Materials, Building Services Studied up to 3rd year.

Data Collection, Analysis And Utilisation

Site Conditions and Analysis

Climatic Conditions

User Requirements

COMMINUCATION

Transportation & Traffic Pattern

Landscape

Socio – Economic – Problems

Design problem shall consider the above and planning shall deal with the masses in relation to conservation of spaces, transportation and multiple activities such as regional bus terminal, domestic air- port, 3 star hotel, multi-storeyed office building, etc.

From this year and hence fourth students will be expected to enlarge the design brief in incorporating through research of ancillary requirement s related to various functions forming part of the design problem. And the areas of various functions shall be based on data collected by the students themselves. This independent research, analysis and data collection for the design problem will form the basis to prepared them to deal with the Dissertation topic to be done in 2nd Term.

STAGE II

Design problem shall be for group of building or complex for masses for multiple activities on one site such as community centre, Educational complex. Etc. Student shall now, in planning concentrate on image building concepts.

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SYLLABUS

DEGREE OF BACHELOR OF ARCHITECTURE

UNIVERSITY OF MUMBAI

FOURTH YEAR ARCHITECTURE

4.2 THEORY AND DESIGN OF STRUCTURES - IV

Teaching Hours

Lecture	**:**	**128 periods of 45 mins. Each (96 Hours)**
Studio	**:**	**------**

Sessional Marks

Internal	**:**	**50**
External	**:**	**-----**

Examination Scheme

Duration	**:**	**3 Hours**
Marks Max.	**:**	**100**
Marks Min.	**:**	**50**

4.2 THEORY AND DESIGN OF STRUCTURES – FOURTH YEAR

OBJECTIVES :

- Understanding complex structural systems.
- Understanding failure of structures.
- Understanding tall structures.
- Understanding computer simulation.

1. COMPLEX STRUCTURAL SYSTEMS :

- Basic principals of analysis and design , theoritical concepts and specifications for structural system like arches, folded plates, cable structures , pre – stressed concrete structure, air inflated structures, structures, circular and rectangular water tanks. Retaining walls, diaphgram and basement walls etc.
- Theory of design of raft and pile foundations, flat slabs, combined and eccentric footings.
- Selection criteria for above type of structures.

2. FAILURE OF STRUCTURES :

- Types of failure in various structures.
- Causes of failure.
- Evaluation of damage.
- Non- destructive testing techniques.
- Techniques to prevent collapse / failure of structures.
- Repaired and rehabilitation of structures.

3. TALL BUILDINGS :

- Theory and principals for structural design of tall buildings.
- Study of structural systems of different existing buildings.
- Aseismic structural configurations.
- Introduction to advanced intelligent structures.
- Matrix stiffness method and finite element method.

SESSIONAL WORK :

- Structural detailing of raft slab, combined footing.
- Computer simulation of structural modelling / analysis / design.
- Understanding the basic working of few software packages with respect to type of input of output data.
- Interpretation of output information.
- Practice with a few software packages.
- Design a G + 1 structure on computer.

SYLLABUS

DEGREE OF BACHELOR OF ARCHITECTURE

UNIVERSITY OF MUMBAI

FOURTH YEAR ARCHITECTURE

4.3 ARCHITECTURAL BUILDING CONSTRUCTION – IV

Teaching Hours

Lecture	**:**	**64 periods of 45 mins. Each (48 Hours)**
Studio	**:**	**128 periods of 45 mins. Each (96 Hours)**

Sessional Marks

Internal	**:**	**100**
External	**:**	**100**

Examination Scheme

Duration	**:**	**3 Hours**
Marks Max.	**:**	**100**
Marks Min.	**:**	**50**

Advanced Foundations – Combined and Eccentric footing, raft foundations, pile foundations, details of pile and pile cap shit pilling and diaphragm wall in timber, R. C. C. and Steel, buoyant foundations, basement and methods of water proofing.

Advanced floors – Flat slab diagonal and rectangular ribbed floor hollow floors (Capstone), reinforced brick floors.

Canopies and Balconies – Canopies for office buildings in R. C. C., steel, glass and cinema balconies in R. C. C. and steel with false ceiling and concealed lighting.

Furniture Design :- Counters of various types for enquiry, bar and bank, cooking ranges, room divider furniture, built in ward robe, speakers rostrum etc.

Sound Proof Construction :- Sound proof partitions and doors for recording studios, Cinemas, broadcasting studios etc.

Sesional Work based upon above topics.

SYLLABUS

DEGREE OF BACHELOR OF ARCHITECTURE

UNIVERSITY OF MUMBAI

FOURTH YEAR ARCHITECTURE

4.4 TOWN & URBAN PLANNING – I

Teaching Hours

Lecture	**:**	**64 periods of 45 mins. Each (48 Hours)**
Studio	**:**	**128 periods of 45 mins. Each (96 Hours)**

Sessional Marks

Internal	**:**	**100**
External	**:**	**-----**

Examination Scheme

Duration	**:**	**3 Hours**
Marks Max.	**:**	**100**
Marks Min.	**:**	**50**

PLANNING – I

Course Objectives :

1. To introduced the subject of urban, rural and regional planning to students of architecture.
2. To enable the students to relate the architectural projects in context of planning in rural, urban and regional context.
3. To create awareness on the need for planning for development and conservation.
4. To develop basic skills in planning surveys, analysis, generating alternative planning strategies and evaluation of options and preparation of plans.
5. To give the students opportunities to address the issues in planing through project work.

Course Contents (Theory)

1. Social and Economic basis for planning

   Understanding the social, cultural and economic basis for planning. The evolution of society from tribal, rural and urban to present time. Relationship between social structure and spatial structure. The need for social , economical, physical, technical and environmental as part of a comprehensive planning system.

2. History of Human Settlements

   The relationship between the nature of society and planning of human settlements. Indus valley civilization, ancient Indian planning, medieval planning in India, introduction to planning in other civilizations such as Egyptian, China, Mesopotamia, Greek and Roman.

3. Planning Theory

The evolution of planning theory incorporating the aim and the objects of planning. Understanding planning as a social, economic, political, technical and environmental process of shaping of living environment . Development plan, structure plans, scope and objectives, planning as an integrated systematic activity related to different sectors of economy. Understanding planning as a multi-level comprehensive process of development through local, urban, rural, regional and national planning.

4. Planning Techniques.

The students shall be introduced to planning practice in India. Methods of identifying urban and regional problems setting of goals objectives and priorities. Performance standards, spatial standards of utilities. Introduction to surveying and analytical techniques including household survey, local area surveys, land - use surveys, landscape survey, transportation surveys and service survey. Analysis of housing stock, areas needing priority attention and target group. The students shall be required to undertake survey and analysis of a giving rural / urban setting which shall be carried out as a project. The area to be analysed shall be about 10 –25 ha.

5. The evolution of modern planning concepts. Industrial revolution and urban growth. Migration and urban population explosion. The human, social and environmental problems and issues in Indian context. The need for modern planning.

Early begins of modern movement in town planning. Garden cities, radiant city and linear city concepts. The contribution by Sir Ebenezer Howard, Le Corbusier, Tony Garnier etc.

Development of new towns and cities. Study of new towns in India such as Chandigrah, Bhubaneshwar, Gandhinagar and Navi Mumbai.

Sessional work based upon above topics.

PROJECT / STUDIO WORK

The students shall be assigned a planning project to be done in a group of 3-5 students. Covering an area of about 10- 15 ha in a residential / commercial / industrial / recreation / mixed user zone in an urban context incorporating different housing typologies for various income and social groups. The presentation shall include land use plan, transportation plan, landscape plan, services plan, social facilities plan, details of housing types and a project report and model.

Evaluation process

The students shall be required to submit their portfolio containing the following :

a. The survey and analysis of an area of about 10 – 25 ha in rural / urban context.

b. Planning proposal for a housing area of about 10 – 25 ha in rural / urban context.

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DEGREE OF BACHELOR OF ARCHITECTURE

UNIVERSITY OF MUMBAI

FOURTH YEAR ARCHITECTURE

4.5 BUILDING SERVICES – III

Teaching Hours

Lecture	**:**	**64 periods of 45 mins. Each (48 Hours)**
Studio	**:**	**96 periods of 45 mins. Each (72 Hours)**

Sessional Marks

Internal	**:**	**100**
External	**:**	**100**

Examination Scheme

Duration	**:**	**3 Hours**
Marks Max.	**:**	**100**
Marks Min.	**:**	**50**

OBJECTIVES :

- Studying advanced and specialised services for complex buildings.
- Applying in architectural design and preparing layout and details.

HVAC (HEATING, VENTILATION & AIR CONDITIONING) :

- Natural ventilation
- Heating of spaces – local and central heating
- Heating equipments
- Comfort conditions, temperature control, humidity control, air filtration, rate of ventilation.
- Mechanical ventilation in buildings.
- Plenum system, exhaust system, plenum and exhaust system.
- Fans, blowers and air filters.
- Thermal conductivity and insulation.
- Air conditioning – refrigeration and air cycle.
- Various systems of air conditioning - Unit, split, Package, Direct Expansion, Chilled water System.
- Duck work and air conditioning layout, fittings and fixtures.

FIRE REGULATIONS AND DESIGN REQUIREMENTS :

- Fire, causes of fire and spread of fire.
- Fire fighting, protection and fire resistance.
- Fire fighting equipment and different methods of fighting fire.
- Code of safety, fire regulations, fire insurance.

- Combustibility of materials.
- Structural elements and fire resistance.
- Fire escape routs and elements – planning and design.
- Wet risers, dry risers, sprinklers, smoke detectors, fire dampers, fire doors, water and curtains etc.

BUILDING ACOUSTICS :

- Terminology in acoustics – Factors influencing hearing conditions.
- Sound in spaces, between spaces, effect of opening and surfaces.
- Criteria for acoustics environment criteria for reverberation in spaces. Reverberation time.
- Background noise, structure borne sound.
- Sound absorption, acoustical materials.
- Sound isolation for equipments.
- Acoustics for auditoriums and lecture halls.
- Design for good hearing, loudness and distributing, reflection and diffusion of sound.
- Various sound amplifying systems.

SESSIONAL WORK :

- Application of above studies in current design problems and preparing design layout and details.

SYLLABUS

DEGREE OF BACHELOR OF ARCHITECTURE

UNIVERSITY OF MUMBAI

FOURTH YEAR ARCHITECTURE

4.6 BUILDING BYE LAWS – I

Teaching Hours

Lecture	**:**	**32 periods of 45 mins. Each (24 Hours)**
Studio	**:**	**------**

Sessional Marks

Internal	**:**	**50**
External	**:**	**-----**

Examination Scheme

Duration	**:**	**-----**
Marks Max.	**:**	**-----**
Marks Min.	**:**	**-----**

Survey of Bombay Municipal Corporation Act, 1888, with reference to Building Projects.

Study of Town Planning Act of 1954 in so far as it regulated the growth of built environment of Bombay till 1967.

Implications of Development Control rules for greater Bombay as approved by Government of Maharashtra on contemporary growth of built environment of Bombay.

Comprehensive study of Building Bye-laws relating to the strength and stability of structures, bye-laws relating to light and ventilation, sanitation and Buildings.

Study of special provisions in bye-laws in respect of factory and amusement buildings.

Tenures of land in Maharashtra State.

Sessional work based upon above topics.

SYLLABUS

DEGREE OF BACHELOR OF ARCHITECTURE

UNIVERSITY OF MUMBAI

FOURTH YEAR ARCHITECTURE

4.7 DESIGN DISSERTATION – I

Teaching Hours

Lecture : ------
Studio : 128 periods of 45 mins. Each (96 Hours)

Sessional Marks

Internal : -----
External : -----

Examination Scheme

Duration : -----
Marks Max. : -----
Marks Min. : -----

Scope for design consideration :

Design dissertation on a topic (project) approved by the college separately for each student and each student shall carry out dissertation considering the following aspect :

Method of construction, advance technology (concrete and steel), advances building services, climatology, theory of structures stuied up to 4th and 1st term of 5th year.

Research analysis and data collection

Site selection and justification

Climatic conditions

Socio-economic problems

Communication

Transportation

Landscape and town / urban planning

Each students work shall include intensive dissertation on the above points and shall include briefs on selection of site, methodology of dissertation, designing of the selected project and proper presentation of the drawings as volume i and detail of the site, its analysis and justification, case studies and analysis, data, brief on structural system and services selected for the project, programme for the selected project, etc as volume ii.

Design dissertation work as per volume i and volume ii above prepared by the student during 2nd term of the 4th year and 1st term of the 5th year shall be examined by an external jury appointed by University of Mumbai.

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DEGREE OF BACHELOR OF ARCHITECTURE

UNIVERSITY OF MUMBAI

FOURTH YEAR ARCHITECTURE

4.8 PROFESSIONAL PRACTICE – I

Teaching Hours

Lecture	**:**	**128 periods of 45 mins. Each (96 Hours)**
Studio	**:**	**-----**

Sessional Marks

Internal	**:**	**-----**
External	**:**	**-----**

Examination Scheme

Duration	**:**	**3 Hours**
Marks Max.	**:**	**100**
Marks Min.	**:**	**50**

Office :

Office set up and administration

Filling and recording of letters and drawings.

Nature of partnership, registration of firm and dissolution.

Practice Procedure and conduct, membership of professional organisation.

Architect's Registration Act.

Code of Professional Conduct.

Code relation to Architectural Competition.

Architect's Services and scale of normal and partial fees.

Architect's Act 1972 for registration.

Copy-rights of drawings.

Tenders.

Types of tenders and tenders document, tender draft notices and invitation of tenders.

Procedure for opening and selection of tenders.

Analysis and report to owner.

Work order.

Contract.

Type of contracts and contract documents, detailed knowledge about various conditions of contract as published by the Indian Institute of Architects and specially about :

Earnest Money.

Security Deposit.

Retention Money.

Mobilisation Fund.

Bank Guarantee.

Architect's Instructions.

Clerk of works.

Variation and extras.

Defects after completion.

Certificates and payments.

Insurance and fire Insurance.

Liquidate damage.

Termination of the contract.

Arbitration clause.

Arbitration, Conciliation and Mediation.

Arbitration proceedings and Awards.

Duties and liabilities in profession.

Legal responsibility of architect to Employer.

Government bodies and local bodies.

Express and implied authority of the Architect.

Architect's relationship with the client and the contractor.

Duration of liability.

Consumer Protection Act 1986.

Note : Topics marked by asterisk (*) shall be dealt with by the Teacher in general but sufficient to impart knowledge on its use and application without going into detail in its legal aspects.

SYLLABUS

DEGREE OF BACHELOR OF ARCHITECTURE

UNIVERSITY OF MUMBAI

FOURTH YEAR ARCHITECTURE

4.9 ELECTIVES

Teaching Hours

Lecture	**:**	**------**
Studio	**:**	**128 periods of 45 mins. Each (96 Hours)**

Sessional Marks

Internal	**:**	**100**
External	**:**	**-----**

Examination Scheme

Duration	**:**	**-----**
Marks Max.	**:**	**-----**
Marks Min.	**:**	**-----**

Any one of the subjects belonging to -

Design group – Housing, Urban design, Ekistics, Transportation, Town planning and Landscape Architecture (divergent). Interior Design, conservation, Urban Geography, Environment.

Building Technology and Building Services groups- professional practice valuation (Convergent) Building Management, Sustainable Building Technology, Computer (3D studio & animation).

The elective so chosen should ordinarily be belonging to the complementary groups as far as the subject for Dissertation. However an exception could be made in case of a candidate who wants to correlate work in this subject to that of the dissertation.

A satisfactory completion in the elective will be a pre requisite to taking 4^{th} year examination.

Aesthetics – Architectural theory.

SYLLABUS

DEGREE OF BACHELOR OF ARCHITECTURE

UNIVERSITY OF MUMBAI

FIFTH YEAR ARCHITECTURE – PART 1

5.1 DESIGN DISSERATITION

Teaching Hours

Lecture	**:**	**-----**
Studio	**:**	**192 periods of 45 mins. Each. (144 Hours)**

Sessional Marks

Internal	**:**	**300**
External	**:**	**600**

Examination Scheme

Duration	**:**	**----- Note : Syllabus as prescribed**
Marks Max.	**:**	**----- at the 4th Year Architecture to**
Marks Min.	**:**	**----- be continued in the First Term of 5th Year**

Scope for design consideration :

Design dissertation on a topic (project) approved by the college separately for each student and each student shall carry out dissertation considering the following aspect :

Method of construction, advance technology (concrete and steel), advances building services, climatology, theory of structures stuied up to 4th and 1st term of 5th year

Research analysis and data collection

Site selection and justification

User requirements and justification

Climatic conditions

Socio-economic problems

Communication

Transportation

Landscape and town / urban planning

Each student's work shall include intensive dissertation on the above points and shall include briefs on selection of site, methodology of dissertation, designing of the selected project and proper presentation of the drawings as volume i and the detail of the site, its analysis and justification, case studies and analysis, data, brief on structural system and services selected for the project, programme for the selected project, etc as volume ii

Design dissertation work as per volume I and volume II above prepared by the student during 2nd term of the 4th year and 1st term of the 5th year shall be examined by an external jury appointed by university of Mumbai.

SYLLABUS

DEGREE OF BACHELOR OF ARCHITECTURE

UNIVERSITY OF MUMBAI

FIFTH YEAR ARCHITECTURE

5.2 PROFESSIONAL PRACTICE – II

Teaching Hours

Lecture : 64 periods of 45 mins. Each (48 Hours)
Studio : -----

Sessional Marks

Internal : 50 100
External : -----

Examination Scheme

Duration : 3 Hours
Marks Max. : 100
Marks Min. : 50

Instructions in the following should be such as to understand the purpose and implication of its application, instructions to the students should be general without going to much in detail in legal aspects.

- Acquisition.
- General principals of land acquisition with reference to norms of compensation.

Purpose of acquisition.

- Elements of valuation – market value methods of valuation specially income capitalisation technique and physical method of valuation.
- Elementary example including one for ownership flats and premises. Building up or determining rate of capitalisation based on gilt - edged theory and general investment market theory.

Valuer and his function including registration.
Meaning of immovable property – ownership and possession.
Joint tenancy and tenancy in common.
Different types of tenures of land – as commonly found leasehold and freehold and lease and other rents.

Rent – different types of rent – standard rent, example on working out of standard rent.
Rateable value and its relation to rent – nature and purpose of rateable value.

Definition of property – ownership – possession – joint tenancies and tenancy in common - types of tenure with special reference to freehold and leasehold tenure.
Principal types of landed properties – their outgoings calculation of rented value and not income market value.

Principals governing the rate of interest required for different types and class of properties – gilt edge securities.

Application of the above principal to elementary example of valuation of properties with freehold and leasehold tenure.

Valuation : Ownership basis flats.
Use in practice (construction is not contemplated).
Gross annual value rateable value and their application.
Note on sessional work to be done - Each students is required to submit his report, observations and procedure in regular journals on the following topics –
Report on ancient lights.
Report on dilapidation's and repairs.
Valuation report of a property be done,
Report on acquisition of property.

Easement of light, Ventilation and Access.

All Acts Related to Non Agricultural Lands in relation to building Activities related to regions such as M. R. T. P., M. H. AD. A., & M. M. R. D. A. Acts.

Note : Topics marked by asterisk (*) shall be dealt with by the Teacher in general but sufficient to impart knowledge on its use and application without going into detail in its legal aspect.

Submission of the Sessional work to internal jury on any of the following topics including those listed in Professional Practice II.

Dilapidation.

Procedure for preparing report and schedule of dilapidation's.
Settlement of claim.
Law relating to structural and general repairs.
Fire Insurance.
Insurance policy and cover note.
Duties of Architect with respect to insurance policy for contract work.
Fire loss assessment claim and report.
Insurable value of the Property.

SYLLABUS

DEGREE OF BACHELOR OF ARCHITECTURE

UNIVERSITY OF MUMBAI

FIFTH YEAR ARCHITECTURE

5.3 ADVANCED BUILDING CONSTRUCTION

Teaching Hours

Lecture	**: 32 periods of 45 mins. Each (24 Hours)**
Studio	**: 64 periods of 45 mins. Each (48 Hours)**

Sessional Marks

Internal	**: 150**
External	**: 150**

Examination Scheme

Duration	**: ------**
Marks Max.	**: ------**
Marks Min.	**: ------**

FIRST TERM

Communication Systems – Lifts of various types such as passenger, goods, hospital etc. (with special reference to Design of lift cage) Escalators.

Arches and Portals – Arches and Portals in R. C. C. Steel and Laminated timber construction.

Domes Shells and Folded Plates - Folded Plates and barrel shells hyperbolic paraboloids, And domes in R. C. C., Geodesic domes and space frames.

Prestressed Concrete - Precast prestressed construction for large span structures (general principal application only).

Prefabricated Housing construction – Methods of prefabrication of components of a Building and their assembly, aspect of economy involved in larger repetitive work such as community housing etc.

Sessional work based upon above topics. Constructional details and concise report on method of construction and materials selected for Design project for 4th year.

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SYLLABUS

DEGREE OF BACHELOR OF ARCHITECTURE

UNIVERSITY OF MUMBAI

FIFTH YEAR ARCHITECTURE

5.4 WORKING DRAWING

Teaching Hours

Lecture	**: -------**
Studio	**: 64 periods of 45 mins. Each (48 Hours)**

Sessional Marks

Internal	**: 100**
External	**: -----**

Examination Scheme

Duration	**: ------**
Marks Max.	**: ------**
Marks Min.	**: ------**

Working Drawing of Frame Structure for Design problem done during 4th year Architecture, indicating to appropriate scale :

1) Foundation Plan.

2) Floor Plans.

3) Elevation and Sections as necessary.

4) 3 working details of interesting part of building.

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SYLLABUS

DEGREE OF BACHELOR OF ARCHITECTURE

UNIVERSITY OF MUMBAI

FIFTH YEAR ARCHITECTURE – PART – II (SECOND TERM)

5.5 PROFESSIONAL TRAINING

16 WEEKS TRAINING PERIOD

Sessional Marks

Internal	**: ------**
External	**: 200**

Examination Scheme

Duration	**: ------**
Marks Max.	**: ------**
Marks Min.	**: ------**

Professional Experience

During the Second Term the students have to undergo practical training out-side the institute, in such officers / organizations as will give him the necessary opportunity to improve and consolidate his Architectural knowledge.

During his practical training he is expected to work in accordance with the discipline of the organization and will make progress which will be carefully watched by the institution and the student will have to satisfy his employer as well as the institution. The student will give a report of his experience giving the type of experience he has gained.

Logbooks will have to be maintained by the students and counter–signed by the Principal of the firm as also the year master who will also co-ordinate training in the office as also educational objectives.

Proforma for professional experience –

Name of the student (Academic year)

Surname / Father's Name / Student's First Name
(Name of office / Organisation with address)

(i) Date of joining
(ii) Date of leaving

Employer's report : Brief details of the experience gained by the student stating the nature of work done.

Employer's opinion about students training any suggestion.

Signature
Professor in- charge

Signature
The Employer

Vive Voce shall be taken at the end of the training period by the University. The students are required to present long book, The examiners at Viva Voce shall examine the students on the topics of Part I and Part II of Professional Practice and the Professional Training.

Application of the above principal to elementary example of valuation of properties with freehold and leasehold tenure.

Valuation : Ownership basis flats.
Use in practice (Construction is not contemplated).
Gross annual value rateable value and their application.
Note on Sessional work to be done – Each student is required to submit his report, Observations and procedure in regular journals on the following topics –
Report on ancient lights.
Report on dilapidations and repairs.
Valuation report of a property be done.
Report on acquisition of property.

Easement of Light, Ventilation and Access.

All Acts Related to Non Agricultural Lands in relation to Building Activities related to regions such as M. R. T. P., M. H. AD. A. and M. M. R. D. A. Acts.

Note : Topics marked by asterisk (*) shall be dealt with by the Teacher in general but sufficient to impart knowledge on its use and application without going into detail in its legal aspect.

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