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Item No. 4.78

UNIVERSITY OF MUMBAI



Syllabus for the Bachelor of Architecture

Programme : 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 learner, 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 to 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).

Sessional 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				
SR NO	Semester I EXAMINATION Exam conducted by individual colleges	THEORY				SESSIONAL MARKS				
		No of papers	duration	Max. marks	Min. Marks for passing	Internal		External		
	COURSES					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				
SR NO	Semester II EXAMINATION Exam conducted by individual colleges	THEORY				SESSIONAL MARKS				
		No of papers	duration	Max. marks	Min. Marks for passing	Internal		External		
	COURSES					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

UNIVERSITY OF MUMBAI



Syllabus for the Bachelor of Architecture

Programme : B.Arch.

**Bachelor of Architecture
(Semester III & IV)**

AC 27-2-13 Item 4

(As per Credit Based Semester and Grading System with
effect from the academic year 2013–2014)

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

Semester III Exam conducted by individual colleges		Teaching Scheme		Credits		
Sub No.	SUBJECTS	Lecture	Studio	Theo ry	Studio	Total
301	Architectural Design Studio		6		6	6
302	Allied Design Studio		3		3	3
303	Architectural Building Construction	3	3 classes Technology studio	3	1	4
304	Theory and Design of Structures	2		2	1	3
308	Architectural Building Services	2		2	1	3
305	Humanities	3		3		3
306	Environmental Studies	2		2		2
307	Architectural Representation & Detailing	2	2	2	2	4
309	Architectural Theory	2				2
320	College projects		3			3
321	Elective		3			3
	Total	16	20	16	20	36

Semester I II Exam Exam conducted by individual colleges		Examination Scheme			
Sub No.	SUBJECTS	Theory (paper)	Internal	External viva	Total
301	Architectural Design Studio		100	100	200
302	Allied Design Studio		100		100
303	Architectural Building Construction	50	50		100
304	Theory and Design of Structures	50	50		100
308	Architectural Building Services	50	50		100
305	Humanities	50	50		100
306	Environmental Studies		50		50
307	Architectural Representation & Detailing		100		100
309	Architectural Theory		50		50
320	College projects		100		100
320	Elective		100		100
	Total				1100

Syllabus (Course Content) for Second Year B. Arch. Semester III

301 Architectural Design Studio 3

Credits-6

Teaching Hours

Lectures- -----

Studio- 108 periods of 50 minutes duration -90 hours

Sessional marks-

Internal- 100

External ---100

Objectives:

Understanding space requirements for various activities for small groups of people
Understanding indoor and out door spaces created by built forms.

Design Objectives

Design of spaces suitable for the intended activity

Design of spaces as per the behavioral needs of individuals and groups.

Design and detailing of built form and required infrastructure with reference to methods of construction, and materials

Design projects

Built and Un-built spaces for multiple activities for a small group of people

Built and Un built spaces for relatively larger groups.

302 Allied Design Studio 3

Credits-3

Teaching Hours

Lectures

Studio- 54 periods of 50 minutes duration – 45 hours

Sessional marks-

Internal- 100

External -----

The course content will be developed by the individual colleges as per their choice of Allied Design scheme.

303 Architectural Building Construction & Materials 3

Credits-4

Teaching Hours-

Lectures-54 periods of 50 minutes duration- 45 hours

Studio- 54 periods of 50 minutes duration- 45 hours to be conducted as technology studio (out of which 15 hours are considered for credit calculations)

Scheme of examination

Theory: one paper of three hours duration Max. marks- 50 Min marks for passing- 20

Sessional marks-

Internal- 50 marks

External ----

Objectives-

Understanding concepts of framed structures in R.C.C.

Understanding methods of construction of various components of R.C.C. Structures

1. Structural framing in R.C.C for low rise buildings.
- 2 Foundation Systems, Floor Systems, Wall Systems, staircases, Roof Systems,
3. Moisture and Thermal protection in R.C.C. framed low rise buildings.
4. Movable light weight partitioning and paneling, Stairs in Interior spaces.

Sessional Work : based upon above in form of sketches, drawings, Case Studies, Reports.

Application to Architectural Design Projects.

304 Theory & Design of Structures 3

Credits- 3

Teaching Hours

Lectures- 36 periods of 50 minutes duration- 30 hours

Studio- 54 periods of 50 minutes duration- 45 hours

(to be conducted as technology studio out of which 15hours are considered for credit calculations)

Scheme of examination

Theory -one paper of two hours duration Max. marks- 50 Min marks for passing- 20

Sessional marks-

Internal- 50

External ----

Objectives:

Understanding of basic theories and principles of structural analysis

Understanding of properties of materials relevant to structural analysis

Understanding of behavior of structural elements under various conditions

1. Theory of simple bending

- a. Theory of simple bending only equations & problem.
- b. Design of timber & steel beams.
- c. Shear stress distribution.

2. Deflection

- a. Simply supported beams and cantilevers with distributed & point loads by Euler's theory.
- b. Introduction to Macaulay's method
- c. Application of deflection in structural planning

3. Direct AND Bending Stresses

- a. Combined stress distribution for Beam, column and footing
- b. Application to design the footing of wall and column (only plan dimension)

4. Basics of RCC

Grades of concrete and steel used in RCC.

Application of thumb rules for selecting dimensions of slab, beam and column for low rise and low span structures. Placement of steel based of Bending moment and shear force diagrams

5. Material testing

Cement(OPC)

Initial and final setting time

Consistency

Fineness

Compressive strength

Sand

Bulking, silt content, Fineness modulus

Bricks

Density, Water absorption, compressive strength

305 Humanities 3

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 ----

The study of the socio-cultural circumstances, the art and the architecture of the following:

The decline of the Roman Empire

The beginnings of Christianity and the formation of the Holy Roman Empire

Early Christian architecture

The Byzantine age

The Romanesque age

Medieval Europe

The Gothic age

The rise of Islam and its impact on Europe

The Crusades and their aftermath; the fall of Constantinople

The Renaissance in Italy

The rediscovery of the Classical past and its impact on art, architecture, science and philosophy

Humanism

The Masters of the Renaissance

Mannerism

The Renaissance in the rest of Europe

The Reformation, its impact on art and architecture

The Counter-Reformation

Baroque art and architecture

The age of discovery

Colonization and the changed world order

The Enlightenment

The age of revolution: America and France

The Industrial Revolution

Its rise in England

Demographic change and urbanization
New materials and technologies and their impact
New building types for the industrial age
The battle of 'styles'; nostalgia and exoticism
Neo-Classical and Neo-Gothic architecture

The Arts and Crafts Movements in Europe
Art Nouveau
Art Deco
Early modernistic impulses
Modern movements in art
Modern movements in architecture

306 Environmental Studies

Credits-2

Teaching Hours

Lectures- 36 periods of 50 minutes duration-30 hours

Sessional marks-

Internal- 50

External ----

Objective: To study and understand passive methods of environmental control

Climatology and Building Sciences

Micro climate and Macro climate
Energy flow in building
Human comfort
Traditional methods for achieving comfort

Passive Methods of control

Natural lighting
Solar Radiations and Architecture
Air flow patterns inside buildings and in building layouts
Natural ventilation

307 Architectural Representation & Detailing 3

Credits-4

Teaching Hours

Lectures- 36 periods of 50 minutes duration-30 hours

Studio- 36 periods of 50 minutes duration – 30hours

Sessional marks-

Internal- 100

External ----

Perspective-

Perspective of building elements

Perspective of interior spaces

Sciography-

Shades and shadows of buildings and parts of buildings

Sessional work – Perspective and Sciography exercises

Documentation and measured drawings

Methods of measurement of interior and exterior spaces, Building Elements.

Sessional work –

Architectural plans, sections, elevation of existing building/ interior space as per the measurements.

308 Architectural Building Services 1

Credits- 3

Teaching Hours

Lectures- 36 periods of 50 minutes duration- 30 hours

Studio- 54 periods of 50 minutes duration- 45 hours to be conducted as technology studio (out of which 15 hours are considered for credit calculation)

Scheme of examination

Theory -one paper of two hours duration Max. marks- 50 Min marks for passing- 20

Sessional marks-

Internal- 50

External ----

Objectives: understanding basic services required for a building and interior spaces

Sanitation:

Sanitary appliances and user space requirement

Various types of traps used with appliances

Design of toilets

Drainage and water supply connections to various appliances

Systems of building drainage

Water supply

Direct and indirect water supply for buildings

Connection from Municipal water main- Ferrule, water meter.

Design of water storage tanks, and down take pipes

Taps and valves used with various appliances

Sessional work_

Market survey for appliances and accessories,

Water supply calculations

Water supply layout- connection from municipal main to buildings

Water supply connections within the building
Design of toilets with water supply and drainage connections

309 Architectural Theory 1

Credits- 2

Teaching Hours

Lectures- 36 periods of 50 minutes duration – 30 hours

Studio- -----

Sessional marks-

Internal- 50 marks

External ---

READING

Objectives:

1. To understand and comprehend ideas in architecture through writings in architecture
2. To appreciate architecture as the development of changing ideas over time, and as the representation of their particular time and context. To be able to chart the change of ideas chronologically over time.
3. To become familiar with and improve comprehension about architecture using theoretical texts and architectural criticism.

Sessional Work:

Students are expected to read from short and long writings about architecture and communicate their comprehension in writing and discussions/presentation in class. It is suggested that texts from the following authors be used to build up a body of knowledge about architecture (this is only a representative list):

Vitruvius, Andrea Palladio, John Ruskin, Louis Sullivan, Adolf Loos, Le Corbusier, writings from the Bauhaus, Peter Blake, Philip Johnson, Charles Jencks, Robert Venturi, Adrian Forty, Christopher Alexander, Leon Krier, Kevin Lynch, Rem Koolhaas, Bjark Engels, Charles Correa, Romi Khosla,

320 College Projects 3

Credits- 3

Teaching Hours-

54 periods of 50 minutes duration – 45 hours

Sessional marks-

Internal- 100

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.

321 Elective 3

Credits- 3

Teaching Hours

Studio- 54 periods of 50 minutes duration – 45 hours

Sessional marks-

Internal- 100

External -----

(to be developed by individual colleges)

Technology Studio

Credit and marks as per the scheme of examination for individual courses

Teaching Hours

Studio- 54 periods of 50 minutes duration – 45 hour

Objectives

Integration of courses
Combined studio time

Technology studio is the studio time for students where guidance for technical courses will be available.

Combined Studio classes to be used for Sessional work for individual courses as well as for integration of courses

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

BACHELOR OF ARCHITECTURE SEMESTER III DETAILS OF SCHEME OF EXAMINATION										
	Semester III EXAMINATION Exam conducted by individual colleges	THEORY				SESSIONAL MARKS				
		No of papers	duration	Max. marks	Min. Marks for passing	Internal		External		
Max. marks	Min. Marks for passing					Max Marks	Min. Marks For passing	Max. marks for the course		
SR NO	COURSES									
301	Architectural Design 3	---	----	---	---	100	50	100	50	200
302	Allied Design 3	----	---	---	---	100	50	---	----	100
303	Architectural Building Construction 3	1	3 HOURS	50	20	50	25	---	---	100
304	Theories and Design of Structures 3	1	2 HOURS	50	20	50	25	---	---	100
305	Humanities 3	1	2 HOURS	50	20	50	25	---	---	100
306	Environmental Studies 3	---	---	---	---	50	25	---	---	50
307	Architectural Representation & Detailing 1	---	---	---	---	100	50	---	---	100
308	Architectural Building Services1	1	2 HOURS	50	20	50	25	----	----	100
309	Architectural Theories 1	---	---	---	---	50	25	---	---	50
320	College projects 3	---	---	---	---	100	50	---	---	100
321	Elective 3	---	---	---	---	100	50	---	---	100
Total marks for the examination										1100

Total marks for the examination = 1100
Minimum marks for passing the examination= 550

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

Semester IV Exam conducted by individual colleges		Teaching Scheme		Credits		
Sub No.	SUBJECTS	Lecture	Studio	Theory	Studio	Total
401	Architectural Design Studio		8		8	8
402	Allied Design Studio		3		3	3
403	Architectural Building Construction	3	3 classes technology studio	3	1	4
404	Theory and Design of Structures	2		2	1	3
408	Architectural Building Services	2		2	1	3
405	Humanities	3		3		3
407	Architectural Representation & Detailing	2	2	2	2	4
409	Architectural Theory	2				2
420	College projects		3			3
421	Elective		3			3
	Total	14	22	14	22	36

Semester IV Exam Exam conducted by individual colleges		Examination Scheme			
Sub. No.	SUBJECTS	Theory (paper)	Internal	External viva	Total
401	Architectural Design Studio		100	100	200
402	Allied Design Studio		100		100
403	Architectural Building Construction	50	50		100
404	Theory and Design of Structures	50	50		100
408	Architectural Building Services	50	50		100
405	Humanities	50	50		100
407	Architectural Representation & Detailing		100		100
409	Architectural Theory		50		50
420	College projects		100		100
421	Elective		100		100
	Total				1050

Syllabus (Course Content) for Second Year B. Arch. Semester IV

401 Achitectural Design Studio 4

Credits-8

Teaching Hours

Lectures- -----

Studio- 144 periods of 50 minutes duration -120 hours

Sessional marks-

Internal- 100

External ---100

Objectives:

- To develop research skills for survey research and case study.
- To understand functioning of community spaces in rural areas/semi urban areas
- To study principles of design, construction, and technology based on tradition and experience.

Objectives of Design Projects

- To design spaces suitable for life style in rural/semi urban areas
- To conserve the natural surroundings and social fabric suitable for communities
- To design the buildings suitable to climatic conditions, by using local materials and traditional methods of construction.
- To understand and provide specific infrastructure required for communities.

Design projects

Built and un built spaces for Cluster & Communities,

402 Allied Design Studio 4

Credits-3

Teaching Hours

Lectures

Studio- 54 periods of 50 minutes duration – 45 hours

Sessional marks-

Internal- 100

External -----

The course content will be developed by the individual colleges as per their choice of Allied Design scheme.

403 Architectural Building Construction & Materials 4

Credits-4

Teaching Hours-

Lectures-54 periods of 50 minutes duration- 45 hours

Studio- 54 periods of 50 minutes duration- 45 hours to be conducted as technology studio (out of which 15hours are considered for credit calculation)

Scheme of examination

Theory :One paper of three hours duration Max. marks- 50 Min marks for passing- 20

Sessional marks-

Internal- 50 marks

External ----

Objectives-

- Understanding concepts of framed structures in Steel for low medium span building
- Understanding methods of construction of various components of steel structures
- Understanding concepts of trusses for low and medium spans

1. Structural framing in STEEL for low rise medium span buildings.

2. Foundation Systems, Floor Systems, Wall / Cladding Systems,

3. Roof Systems- concepts of trusses

4. Moisture and fire protections in STEEL framed low rise medium span buildings.

Sessional work

Based on above in the form of drawings, sketches, case studies, Reports

404 Theory & Design of Structures 4

Credits- 3

Teaching Hours

Lectures- 36 periods of 50 minutes duration- 30 hours

Studio- 54 periods of 50 minutes duration- 45 hours to be conducted as technology studio (out of which 15 hours are considered for credit calculations)

Scheme of examination

Theory -one paper of two hours duration Max. marks- 50 Min marks for passing- 20

Sessional marks-

Internal- 50

External ----

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. Analysis of short and long column

- a. Short & long columns, slenderness ratio etc.
- b. Euler's & Rankine's Theory

2. Analysis of fixed beams

- a. Advantages & disadvantages.
- b. Determination of negative & positive bending moments.
(confine the loading to point & UDL covering full span only).

3. Analysis by moment distribution method

Continuous two span and three spans beams with UDL and Point loads with and without support settlement. Single storey and single bay non sway frame under UDL and point load. Comparison of the analysis results of simply supported, continuous and portal frame idealization of three dimensional structures.

4. Introduction to Steel Design

Basic information about different steel section used as structural members and steel table. Brief introduction to planning of low rise and low span steel structures

5. Soil Mechanics

- a. Importance of subject.
- b. Types of soil and their properties.
- c. Methods of compaction and consolidation.
- d. Void ratio, Porosity, Bulk density, Moisture content, Degree of saturation, Liquid limit, Plastic limit, etc.
- e. Test for assessing load bearing capacity of soil.
- f. Soil properties and characteristics relevant to the design of foundations.
- g. Criteria for selection of foundation type for different soil conditions.
- h. Effect of water level, settlement of soil.
- I. Failure of foundation systems.
- j. Improvement of soil properties.
- k. Design procedure for simple load bearing foundations.

6 Material testing

Coarse aggregate

Fineness modulus

Crushing test

Concrete

Compressive strength

Slump cone test

Mangalore tile
Flexure test

405 Humanities 4

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 ----

The study of the socio-cultural circumstances, the art and the architecture of the followings:

The rise of the Mahajanapadas
The organization of kingdoms
Art and architecture of the rock cut temples
Persian and Hellenistic influences

The Mauryas and the Guptas
The legacy of Ashoka

The resurgence of Hinduism
The rise of the Shaivite and Vaishnavite traditions
The great temples of India, their design, evolution and significance
Khajuraho, Konarak, Halebid, Belur, Somnathpur, Aihole, Badami, Pattadakal
The Dravida Style
The Nagara Style
Temple towns
Timber temple traditions of Kerala and Himachal Pradesh
The rise of the Vijayanagara empire
Development of state and domestic architecture in various parts of India

The rise of Islam
Timber mosques of Kerala
The influences of the Ghori/ Ghaznavid invasions

The establishment of the Sultanates

The Khaljis and Delhi
The later Sultanates: the Tughlaqs and the Lodhis- Art and architecture
The Gujarat and Deccan sultanates- Art and architecture
Rajput architecture

The Mughals
Babar and Humayun- Art and architecture
The interregnum of Sher Shah Suri
Akbar
His patronage, influence and syncretic legacy
Akbar's karkhanas of art, miniature painting and calligraphy
Akbar's architecture
Jehangir, Shahjehan and Aurangzeb- Art and architecture
The decline of the Mughals and the rise of regional powers

The establishment and influence of the East India Companies
The Portuguese and Dutch influence
The port cities of Calcutta, Madras and Bombay
The architecture of the Presidency towns
Company paintings

The uprising of 1857 and its aftermath
New British architecture in India
Neo-Classical architecture
Neo-Gothic architecture, its impact on Urbs Prima Indis

The influence of the Bombay School of Art on Art and architecture in the 19th century
Indo-Saracenic architecture

The urban architecture of Bombay in the early 20th century
Art movements in the early 20th century in India
The first Indian Architectural practices
Art Deco in Bombay and India
Modernist impulses in art and architecture in the years leading to independence

407 Architectural Representation & Detailing 4

Credits-4

Teaching Hours

Lectures- 36 periods of 50 minutes duration-30 hours

Studio- 36 periods of 50 minutes duration – 30hours

Sessional marks-

Internal- 100

External ----

SURVEYING AND LEVELLING

Objectives:

To Understand methods of survey, and documentation,
Introduction to tools and equipments of Land surveying
Introduction to modern methods of surveying

1. Brief history of land surveys executed by Government Departments
Information and working of land record offices

2. Reading of Survey maps, understanding of features and undulation of ground

3.Chain Survey and Triangulation

A study of instruments used for chain Survey

Chains, Ranging Rods, Tapes, Optical square, Cylindrical cross staff

B. Chain line ranging, Measurement of offsets in field book

C. Recording of Chain survey measurements in field book

D. Plotting of Chain survey, scales used in plotting

E. Calculation of Area

4.Transverse Survey

A. Instruments used Prismatic compass and Theodolite

B. Recording measurements of prismatic compass survey, magnetic Meridian, Back, Fore, and reduced Bearings, Local attraction and its correction

C. Plotting of Transverse survey, Elimination of closing error

5. Various uses of Theodolite,

Finding out heights or distances of inaccessible structures

E. Lining out of large buildings, and roads

Sessional Work-

Based upon above in the form of plates, drawings, class Tests

408 Architectural Building Services 2

Credits- 3

Teaching Hours

Lectures- 36 periods of 50 minutes duration- 30 hours

Studio- 54 periods of 50 minutes duration- 45 hours to be conducted as technology studio (out of 18 hours are considered for credit calculation)

Scheme of examination

Theory -one paper of two hours duration Max. marks- 50 Min marks for passing- 20

Sessional marks-

Internal- 50

External ----

Objectives:

Understanding of external services of water supply and drainage for the buildings, and site lay outs.

Systems of building drainage

Design of under ground drainage system

Use of inspection chambers and disconnecting chambers

Connection to municipal sewer, use of Drop manhole

Ventilation of drainage system

Sewage disposal systems for small projects

Roof drainage

Site and surface drainage

Rain water harvesting

Various traps used in site layouts

Sessional Work- Drainage lay out

Surface drainage and rain water harvesting

409 Architectural Theory 2

Credits- 2

Teaching Hours

Lectures- 36 periods of 50 minutes duration – 30 hours

Studio- -----

Sessional marks-

Internal- 50 marks

External ---

WRITING

Objective:

1. To be able to write with clarity about architecture and ideas in architecture.
2. To be able to correctly use architectural terms to communicate architectural ideas.
3. To be able to convey effectively in words the thinking behind one's own designs being carried out in various studios.
4. To learn to use referencing and citation as an essential tool of writing, and to understand clearly issues and consequences of plagiarism.

Sessional Work: this semester sessional work may be carried out in the form of writing workshops leading to short and longer pieces of writing. Resources persons such as published writers, architectural journalists and academics may be invited to conduct these workshops and encourage interaction in writing and reading by the students themselves. Much of the resource material from the previous semester may be relied upon to ensure vertical continuity of the subject.

420 College Projects 4

Credits- 3

Teaching Hours-

54 periods of 50 minutes duration – 45 hours

Sessional marks-

Internal- 100

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.

421 Elective 4

Credits- 3

Teaching Hours

Studio- 54 periods of 50 minutes duration – 45 hours

Sessional marks-

Internal- 100

External -----

(to be developed by individual colleges)

Technology Studio

Credit and marks as per the scheme of examination for individual courses

Teaching Hours

Studio- 54 periods of 50 minutes duration – 45 hour

Objectives

Integration of courses

Combined studio time

Technology studio is the studio time for students where guidance for technical courses will be available.

Combined Studio classes to be used for Sessional work for individual courses as well as for integration of courses

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

BACHELOR OF ARCHITECTURE SEMESTER IV DETAILS OF SCHEME OF EXAMINATION										
SR NO	Semester IV EXAMINATION Exam conducted by individual colleges	THEORY				SESSIONAL MARKS				
		No of papers	duration	Max. marks	Min. Marks for passing	Internal		External		
	COURSES					Max. marks	Min. Marks for passing	Max Marks	Min. Marks For passing	Max. marks for the course
401	Architectural Design 4	---	----	---	---	100	50	100	50	200
402	Allied Design 4	----	---	---	---	100	50	---	----	100
403	Architectural Building Construction 4	1	3 HOURS	50	20	50	25	---	---	100
404	Theory and Design of Structures 4	1	2HOURS	50	20	50	25	---	---	100
405	Humanities 4	1	2HOURS	50	20	50	25	---	---	100
407	Architectural Representation & Detailing 4	---	---	---	---	100	50	---	---	100
408	Architectural Building Services2	1	2HOURS	50	20	50	25	----	----	100
409	Architectural Theories 2	---	---	---	---	50	25	---	---	50
420	College projects 4	---	---	---	---	100	50	---	---	100
421	Elective 4	---	---	---	---	100	50	---	---	100
Total marks for the examination										1050

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

Total marks for the examination = 1050

Minimum marks for passing the examination= 525