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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