

AC 14/07/2016

Item No: 4.6

UNIVERSITY OF MUMBAI



Master of Architecture **in** **Urban Design**

**First and Second Years (Semesters I - IV), Revised Course
(REV- 2016) from Academic Year 2061 -17**

(As per Choice Based Credit and Grading System with
effect from the academic year 2016–2017)

From Co-ordinator's Desk:

To meet the challenge of ensuring excellence in engineering education, the issue of quality needs to be addressed, debated and taken forward in a systematic manner. Accreditation is the principal means of quality assurance in higher education. The major emphasis of accreditation process is to measure the outcomes of the program that is being accredited. In line with this Faculty of Technology of University of Mumbai has taken a lead in incorporating philosophy of outcome based education in the process of curriculum development.

Faculty of Technology, University of Mumbai, in one of its meeting unanimously resolved that, each Board of Studies shall prepare some Program Educational Objectives (PEO's) and give freedom to affiliated Institutes to add few (PEO's) and course objectives and course outcomes to be clearly defined for each course, so that all faculty members in affiliated institutes understand the depth and approach of course to be taught, which will enhance learner's learning process. It was also resolved that, maximum senior faculty from colleges and experts from industry to be involved while revising the curriculum. I am happy to state that, each Board of studies has adhered to the resolutions passed by Faculty of Technology, and developed curriculum accordingly. In addition to outcome based education, **Choice Based Credit and Grading System** is also introduced to ensure quality of engineering education.

Choice Based Credit and Grading System enables a much-required shift in focus from teacher-centric to learner-centric education since the workload estimated is based on the investment of time in learning not in teaching. It also focuses on continuous evaluation which will enhance the quality of education. University of Mumbai has taken a lead in implementing the system through its affiliated Institutes Faculty of Technology has devised a transparent credit assignment policy adopted ten points scale to grade learner's performance. Choice Based Credit and Grading System were implemented for First Year Master of Architecture from the academic year 2016-2017. Subsequently this system will be carried forward for Second Year Master of Architecture in the academic year 2017-2018.

Dr. Suresh K. Ukarande

Co-ordinator,

Faculty of Technology,

Member - Academic Council

University of Mumbai, Mumbai

Master of Architecture (M. Arch.) in Urban Design Degree Program

PREAMBLE

It is proposed to offer a regular M. Arch postgraduate course in Urban Design of two-year duration open to students with a B.Arch. qualification. This course is designed to enhance the skills of, young aspiring architects to be involved in the active planning and design of urban settlements which are under rapid transformation in India. This course would prepare a student to work within the planning framework in our context with government institutions, non-governmental institutions and other private agencies.

Objectives of Urban Design Course are as follows:

- 1] to attain a fundamental understanding of the context of the urban.
- 2] to identify, define and analyze current urban design issues.
- 3] to develop urban design principles for the sustainable growth of our cities.
- 4] to develop successful strategies for the implementation of the urban design principles.
- 5] to evaluate the performance of urban design projects, policies and processes.
- 6] to work successfully with communities, public / private planning institutions and other stakeholders in the city.
- 7] to develop research skills and enhance knowledge in the field of Indian urbanism in innovative ways

As stated in the above objectives, the course is structured to achieve knowledge in some of the verticals that it considers important, so that the students are able to address the contemporary challenges that are encountered by the urban practitioner. This is shown below in the following diagram:

	DESIGN STUDIOS	PLANNING STUDIES	URBAN / URBAN DESIGN THEORY	ELECTIVES	RESEARCH and THESIS
SEMESTER 1	Urban Design Studios are proposed in each semester to introduce the students to map, analyse and synthesize in urban contexts.	The Planning Course introduces the student to the legal/institutional planning framework within which she/he would work.	This would help the student to develop theoretical framework to conceptualize and comprehend the nature of the urban, which is about people, place , their cultural practices, etc.	The electives are introduced to give courses to students as per the differing intents and objectives framed by the member intuitions. It can also be as per the strength of the faculty, their body of research work that these institutions have.	
SEMESTER 2					This would help the student develop a critical ability to conduct independent research on contemporary urban issues. It would finally culminate in students proposing their own area of research.
SEMESTER 3					
SEMESTER 4					

The syllabus following the preamble is indicative of the direction each course should take. It should be detailed by each institution depending on the vision they have of the field. The institution should provide for a detailed reading list that they should make available to students.

Semester wise scheme of examinations for Master of Architecture (M. Arch) Urban Design

	EXAM CONDUCTED BY COLLEGE	TEACHING SCHEME			
		Lect.	Studio	total	Credits
	Semester I				
MUDC101	Urban Design History	2	--	2	2
MUDC102	Theory and Methods of Urban Design	2		2	2
MUDC103	Planning Techniques and Procedure- I	3		3	3
MUDE101	Compulsory Electives -1	3		3	3
MUDE102	Compulsory Electives-2	2		2	2
MUDS101	Landscape Design and Urban Ecology	2	2	4	4
MUDS102	Design Studio I		12	12	12
		14	14	28	28

SCHEME OF EXAMINATION SEMESTER I

		Examination Scheme			
		Theory (paper)	Sessional work		
	SEMESTER I		Internal	External viva	Total
MUDC101	Urban Design History	50	50		100
MUDC102	Theory and Methods of Urban Design		100		100
MUDC103	Planning Techniques and Procedure- I	50	50		100
MUDE101	Compulsory Electives		100		100
MUDE102	Compulsory Electives		50		100
MUDS101	Landscape Design and Urban Ecology		100		50
MUDS102	Design Studio I		450		450
	TOTAL	100	900		1000

SEMESTER I

URBAN DESIGN HISTORY

Marks (100) Hrs/Week –2

The unit explores the evolution of ideas and principles of urban design by focusing on the relationship between societal change and the formal organization of the urban environment. Historical, theoretical and critical lines of arguments will be pursued by examining urban places and spaces in their making, use and change, ranging from early civilizations to the present. The course also reviews the history and heritage of human settlements in India from ancient times to date. It also examines current trends in contemporary architecture planning and urban design practices in India and abroad.

THEORY AND METHODS OF URBAN DESIGN

Marks (100) Hrs/Week –2

The unit helps in introducing concepts, theories and methods of inquiry that are useful for urban design discourse and reflective practice, aiming at better programming and design. It will explore ways of reading, experiencing, comprehending, analysing, and representing, the urban context.

It will do so by introducing students to existing modes of reading cities through the perceptual/cognitive theories framed by Kevin Lynch and Christopher Alexander, behavioural theories by Amos Rapoport, psycho-geographical theories by Guy Debord, and other noted theoreticians. It should equip the students to innovate in reading and analysing urban settlements depending on the urban context they wish to engage.

The course should also help the students to comprehend and appreciate the evolution and formation of morphologies of urban settlements.

PLANNING TECHNIQUES AND PROCEDURE -1

Marks (100) Hrs/Week –3

Students will gain knowledge on the following subjects.

History and principles of planning in the international and national context,
Present planning and institutional framework available in the country, state and with local governments,
Introduction to present legal framework for planning,
Introduction to type of plan prepared by various levels of governments, etc

COMPULSORY ELECTIVES -1

Marks (100) Hrs/Week –3

This Elective course is designed on the vision and the strength of course in each individual institution. This elective will be attended by all the students.

COMPULSORY ELECTIVES-2

Marks (100) Hrs/Week – 2

This Elective course is designed on the vision and the strength of course in each individual institution. This elective will be attended by all the students.

LANDSCAPE DESIGN AND URBAN ECOLOGY

Marks (100) Hrs/Week – 4

This unit helps the student to gain knowledge on urban landscape; theories and practices. Through this the participants will comprehend the relationships between architecture, urban design, landscape design; simultaneously developing a historical perspective on the subject, both internationally and locally. This can be done through the study of case and best practices in the field.

The course also introduces the students to learn methods to analyse sites in relation to topography, vegetation, bio-diversity, etc. and other ecological conditions. The emergent patterns through these exercises should inform the design of the built environment.

This course is supplemented by a studio where the students are taught to implement these methods and respond by framing sensitive design strategies.

URBAN DESIGN STUDIOS

Marks (450) Hrs/Week- 12

The aim of the unit is to encourage, intensive design work on important contemporary urban and development challenges, to develop both practical skills and critical thinking.

The studio engages with a morphological and image structure survey / analysis of a selected part of a traditional urban area with detailed studies of urban landscape and streetscape.

It should help in the formulation of urban intervention and frame urban design proposals for the area.

The presentation of final proposals would be with three-dimensional models and sketches.

SEMESTER II

		TEACHING SCHEME			
Semester II		lecture	Studio	total	
MUDC201	Planning Techniques and Procedure-II	2	-	2	2
MUDC202	Transportation and Traffic for Urban Design	2		2	2
MUDE201	Choice based Elective -1	2		2	2
MUDC203	Research Methodology	2	2	4	4
MUDE202	Choice based Elective -2	2	2	4	4
MUDS201	Design Studio II		12		
		10	16	26	26

EXAMINATION SCHEME SEMESTER II

		Examination Scheme			
EXAM CONDUCTED BY UNIVERSITY		Theory (paper)	Sessional work		
SEMESTER II			Internal	External viva	Total
MUDC201	Planning Techniques and Procedure-II	50	50		100
MUDC202	Transportation and Traffic for Urban Design	50	50		100
MUDE201	Choice based Elective -1		100		100
MUDC203	Research Method		100		100
MUDS201	Choice based Elective -2		100		100
	Design Studio II		500		500
	TOTAL	100	900		1000

SEMESTER II

The following are detail syllabi for various subjects of Semester II of Master's degree in Urban Design

PLANNING TECHNIQUES AND PROCEDURES-2

Marks (100) Hrs/Week –2

The course should help the student comprehend the interaction between types and intensities of land use, transportation and broader dynamics of transformation in the physical environment.

Introduce students to survey research process: primary and secondary sources of data, techniques of data collection, analysing and presenting physical and socio-economic data, questionnaire design, and administration of field as methods of identifying urban and regional problems, setting of goals, objectives and priorities, performance standards, spatial standards and standards for utilities. The students should also learn about the classification of regions, regionalization and deliberation technique for various types of regions; cluster and factor analysis methods.

Aerial photography: basic principles and techniques of photogrammetry, photo interpretation and remote sensing. Collection of data by photo-interpretation and remote sensing techniques, analysis and interpretation of these data and compilation of interpreted data for the metric maps, specific applications in urban and regional planning, housing, urban design and landscape analysis.

Analysis for understanding the structure of urban areas and demographic analysis, land value and density patterns, locational attributes of activity areas and locational dimensions of population groups. Forces of concentration and disposal, social area analysis, etc.

Preparation of urban and regional development plan various approaches comprehensive planning; systems approach to planning case studies identifying use of techniques.

TRANSPORTATION AND TRAFFIC FOR URBAN DESIGN

Marks (100) Hrs/ Week- 4

The unit presents both fundamental and advanced traffic and personal/public transport strategies for better urban design.

Besides basic engineering and design principles for roads and streets, it explores transport policy and planning choices at the local scale in relation to multi-modal optimization programs and projects.

Emphasis is on the full integration of local transport parameters into urban design, as well as on comprehensive strategies towards environmental innovation.

CHOICED BASED ELECTIVES-1

Marks (100) Hrs/Week –2

The institution would, as per its own strength, design a set of electives on urban/urban design theory from which the student would choose as per their own interest.

RESEARCH METHODS

Marks 100 Hrs 2 per week

The course would expose the students to various structures of knowledge, cultural theory which would equip them into framing methodologies to structure and explore their area of concern.

The course would have a dual purpose of not only assisting the students towards understanding the methods of research in exploring the urban field and articulating their concern but also to structure the synopsis of their thesis.

CHOICE BASED ELECTIVES-2

Marks (100) Hrs/Week –4

The institution would as per its own strength design a set of electives on urban/urban design theory from which the student would choose as per their own interest.

URBAN DESIGN STUDIOS II

Marks (450) Hrs/Week –12

The studio would help students identify broad urban design principles, based on any urban issue that the institution might choose to address. These principles would be generated through an intense process of site mapping, analysing and identify patterns in a chosen urban context.

The studio should simultaneously explore and innovate on techniques of representation for these complex urban conditions.

The principles abstracted through the study should be used to frame urban design programs and projects. The studio should finally assist the students with the technique of place making for the given project.

SEMESTER III

	SEMESTER III EXAM CONDUCTED BY COLLEGE	Lecture	Studio	Total	Credits
MUDC301	Development Finance	2		2	2
MUDC302	Urban bye laws and planning Legislation	2		2	2
MUDE301	Choice Based Elective-1	2		2	2
MUDE302	Choice Based Elective-2	2		2	2
MUDS301	Urban Design III		12	12	12
MUDC303	Thesis I	2	2	4	4
		10	14	24	24

SEMESTER III EXAMINATION

			Examination Scheme		
	SEMESTER III EXAM CONDUCTED BY COLLEGE	Theory (paper)	Sessional work		
	Semester III		Internal	External viva	Total
MUDC301	Development Finance	50	50		100
MUDC302	Urban bye laws and planning Legislation	50	50		100
MUDE301	Choice Based Elective-1		100		100
MUDE302	Choice Based Elective -2		100		100
MUDS301	Urban Design III		450		450
MUDC303	Thesis I		150		150
	TOTAL	100	900		1000

SEMESTER III

DEVELOPMENT FINANCE

Marks (100) Hrs/Week –2

The course would introduce the students to the economic, financial frameworks, and the attendant institutional frameworks of project and property development in both the public and private sectors.

It should inform the students of the present mode of financing projects and discuss their strengths and weakness through the relevant case studies.

It should also introduce the students to the fundamental concepts and principles of investing and financing of real estate projects. They would understand the macro-economic fundamental that assist in the creation of an apt environment for real estate investments environment while also appreciate the micro level details of a real estate project.

The students should be encouraged to create financial mechanisms for their own projects being parallel conceived in the Design Studio.

URBAN BYLAWS AND PLANNING LEGISLATION

Marks 100 Hrs 2 per week

This course engages the student with the awareness of govt. policies, regulations, rules and laws related to land, property and urban development.

The course include the study of the Constitution of India and subsequently the study of Urban Land Ceiling Act, Rent Control Act, Land Acquisition Act, , Environment Protection Act, Co-operative Society Act, Apartment Ownership Act, Maharashtra Town and Regional Planning Act and the National building Code and any other important/relevant act.

It also includes the study of Development Control Rules and Regulation, including special regulations for TDR, protection to heritage and conservation, etc.

CHOICE BASED ELECTIVES -1

Marks 100 Hrs 2 per week

The institution would as per its own strength design a set of electives from which the student would choose as per their own interest.

CHOICE BASED ELECTIVES-2

Marks (100) Hrs 2 per week

The institution would as per its own strength design a set of electives from which the student would choose as per their own interest.

URBAN DESIGN III

Marks (450) Hrs 12 per week

In this semester the studio should allow the students to engage with various actors and agencies, learn to communicate with them, and devise pragmatic and localized programmatic strategies on

complex urban issues. The aim would be to provide a practice orientation to the studio. It is in this studio that the students can learn to formulate urban design possibilities through a process of continuous interaction with these actors and agencies.

THESIS

Marks (150) Hrs 2 per week

The Thesis is divided into two parts one that is initiated in semester III and the second demonstrated in semester IV. In the first part students are required to put forth theoretical arguments and raise critical issue, which would help them create a method to observe, map, analyse and frame possibilities of interventions or initiate transformation in a particular urban condition. The first part of the thesis would assist the students to simultaneously be able to create the structure of the argument of the thesis that would culminate in the form a written report.

SEMESTER IV

	SEM IV EXAM CONDUCTED BY UNIVERSITY	TEACHING SCHEME			
		lecture	Studio	total	
	Semester IV				
MUDE401	Choice Based Electives-1		4	4	4
MUDE402	Choice based Electives-2		4	4	4
MUDS401	Thesis		16	16	16
				24	24

**SCHEME OF EXAMINATION
SEMESTER IV**

	SEM IV EXAM CONDUCTED UNIVERSITY	BY	Examination Scheme		
			Theory (paper)	Sessional work	
			Internal	External viva	Total
MUDE401	Choice Based Electives-1		50		50
MUDE402	Choice based Electives-2		100		100
MUDS401	Thesis		300	550	850
	TOTAL		450	550	1000

SEMESTER IV

The following are detail syllabi for various subjects of Semester IV of M. Arch in Urban Design

ELECTIVES-1

Marks (50) Hrs/ Week-2

The elective should assist the students in formulating and strengthening the research methods adopted by the students for their thesis work.

ELECTIVES-2

Marks (100) Hrs/ Week –2

These elective which should be as per the students requirement and should help the students in articulating the theoretical framework of their thesis

THESIS

Marks (850) Hrs/Week- 15

In this semester the students are required to demonstrate their urban design proposal based on principles and methods that have been framed in the earlier semester. The students should be assisted in evolving a representational system for communicating the proposal that would be done through periodic reviews with their guide/guides. This would be additional to the written report that is a part of the submission of the earlier semester.

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UNIVERSITY OF MUMBAI



Manual on
CREDIT and GRADING SYSTEM
for
Undergraduate and Postgraduate Programmes
in
ARCHITECTURE
under
FACULTY OF TECHNOLOGY

**(As per Credit Based Semester & Grading System with effect from the
Academic Year 2012-2013)**

Introduction

1.1 Recommendations of National Regulatory Authorities

The University Grants Commission (UGC), the National Assessment and Accreditation Council (NAAC), the Distance Education Council (DEC) and even the National Knowledge Commission (NKC) have time and again come out with recommendations for improving the quality and effectiveness of Higher education provisions in the country. The ministry of Human Resource Development at the Central level and the Ministry of Higher & Technical Education, Govt. of Maharashtra have also repeatedly stressed on the need for universities to pay prompt attention to improve the quality of education.

An important concern voiced more strongly in recent times, is the need to develop a Choice-Based Credit System (CBCS) in tune with global trends and the adoption of a sound grading system for reflecting learner performance. To quote Shri S. K. Tripathi, former Secretary, Dept. of Secondary and Higher Education, Ministry of Human Resource Development, Govt. of India, “..... *The demand for socially relevant, economically productive, globally competitive, culturally sustaining and individually satisfying programmes that cater to the needs of the present times is fast growing. The constraints of pursuing programmes and participation in pre-determined combination of Courses pose rigidities not in keeping with the demands of the changing times....* ***There is a need for a fully convertible credit-based system acceptable to other universities.***

Recommendation of the UGC in its *Action Plan for Academic and Administrative Reforms* (Ref. UGC letters January 2008; March 2009) “..... *Curricular flexibility and learners’ mobility is an issue that warrants our urgent attention. These can be addressed by introducing credit based courses and credit accumulation. In order to provide with some degree of flexibility to learners, we need to provide flexibility in course selection and also a minimum as well as a maximum permissible span of time in which a course can be completed by a learner... The Choice-Based Credit System (CBCS) imminently fits into the emerging socioeconomic milieu, and could effectively respond to the educational and occupational aspirations of the upcoming generations. In view of this, institutions of higher education in India would do well to invest thought and resources into introducing*

CBCS. Aided by modern communication and information technology, CBCS has a high probability to be operationalised efficiently and effectively — elevating learners, institutions and higher education system in the country to newer heights...”.

The **National Knowledge Commission (NKC)** under the chairmanship of Mr. Sam Pitroda, in its report to the Prime Minister on 29th November 2006) has also reiterated the importance of higher education and the contribution it has made to economic development, social progress and political democracy in independent India. However, the Commission has also pointed out to a “serious cause for concern” at this juncture. According to Mr. Pitroda, “ *it is important for us to recognize that there is a quiet crisis in higher education in India which runs deep. And the time has come to address this crisis in a systematic, forthright manner. There is a need for a transition to a course credit system where degrees are granted on the basis of completing a requisite number of credits from different courses, which provides learners with choices....*

1.2 Rationale for introduction of Credit and Grading System

The UGC while outlining the several unique features of the Choice-Based Credit System (CBCS) has, in fact, given in a nutshell, the rationale for its introduction. Among the features highlighted by the UGC are: *Enhanced learning opportunities, ability to match learners’ scholastic needs and aspirations, inter-institution transferability of learners (following the completion of a semester), part-completion of an academic programme in the institution of enrolment and part-completion in a specialized (and recognized) institution, improvement in educational quality and excellence, flexibility for working learners to complete the programme over an extended period of time, standardization and comparability of educational programmes across the country, etc.*

This credit and grading based system enables a much-required shift in focus from teacher-centric to learner-centric education since the workload estimated is based on the investment of time in learning, not in teaching. It also focuses on continuous evaluation which will enhance the quality of education. It can be concluded from the above discussion that it is very much essential to implement the credit and grading based higher education in India. University of Mumbai has taken a lead in implementing the system through its affiliated Institutes. In this regard it is very much essential to train and educate the faculty and staff in the new approach of education

system for successful implementation. The essential information is made easily accessible through this manual. Course credit structure, examination/assessment and grading are mainly focused aspects of this manual and discussed in subsequent chapters.

1.2 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 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.

1.3The Syllabus Scheme

1.3.1 B.Arch programme

Duration of the program

The course leading to the degree of Bachelor of Architecture shall be a full time course, comprising of ten semesters. Each semester shall have the duration of one academic term. There will be an examination at the end of each Semester. A candidate for the degree of Bachelor of Architecture examination will be required to pass all the ten Semester examinations:

5 years; 10 semesters, divided into:

Basic Course (Stage 1) = 6 semesters

Advanced Course (Stage 2) = 4 semesters

The candidates admitted to the course shall complete the first stage within 5 years of admission to the course.

Scheme of teaching for Stage 1 of the course

As per Council of Architecture,

75 % of the total periods of study, common for all the colleges will be detailed out in the syllabus by the University of Mumbai. In order to give freedom to the institutions and to orient the course as per their own philosophy 25 % of the total periods of study will be detailed out by the by individual colleges.

30 hrs= 36 periods of 50 minutes duration.

Out of which 27 classes will be detailed out by the University.

Remaining 9 classes will be detailed out by the institutions.

Examinations.

Examinations for Semester I, Semester II, Semester III, Semester IV, Semester V to be conducted by colleges affiliated to university of Mumbai.

At the end of the first stage,

Examinations for Sem VI exam to be conducted by University of Mumbai as per the scheme of the examination as prescribed in the syllabus.

1.3.2 M.Arch Programmes

Duration of the program

The course leading to the degree of Master of Architecture shall be a full time course, comprising of four semesters. Each semester shall have the duration of one academic term.

There will be an examination at the end of each Semester. A candidate for the degree of Master of Architecture examination will be required to pass all the four Semester examinations:

Examinations.

Examinations for Master of Architecture Semester I, and semester III, to be conducted by colleges affiliated to university of Mumbai.

Examinations for semester II and s semester IV to be conducted by University of Mumbai as per the scheme of the examination as prescribed in the syllabus.

2. COURSE CREDIT STRUCTURE

As the requirements for a particular degree (undergraduate or postgraduate), a certain quantum of academic work measured in terms of credits is laid down in general. Every semester by satisfactorily clearing courses/other academic activities a learner earns credits. The amount of credit associated with a course is dependent upon the number of hours of instruction per week in that course. Similarly the credit associated with any of the other activities is dependent upon the quantum of work expected to be put in for each of the other activity per week.

2.1 Credit Assignment

The courses for B.Arch or M.Arch programmes are lecture based or studio based. For B, arch the Teaching per week is for 30 hours = 36 periods of 50 minutes duration. The courses have assigned no. of periods per week as described in the scheme of teaching.

Credit (C) for a course is dependent on the number of hours of instruction per week in that course, and is obtained by using a multiplier of one (1) for lectures, As well as studio. For programmes in Architecture one teacher/guide is assigned to a small group of students. Students get individual guidance from the teacher, and learning in the studio is more effective.

2.2 Minimum Credit Requirements

The minimum credit required for award of a B.Arch degree is **340**. Out of which (36X9) =324 credits are normally divided into Theory courses, studios, electives, seminars and projects in duration of nine semesters. And 16 credits will be granted for completion of professional practice of 16 weeks duration.

The minimum credit required for award of a M. Arch degree is **96**. The credits are distributed in four semesters as shown in the structure and syllabus manual of each programme. Courses generally progress in sequences, building competencies and their positioning indicates certain academic maturity on the part of the learners. Learners are expected to follow the semester wise schedule of courses given in the syllabus manual of respective programmes.

2.3 Course/Subject codes

B.ARCH Programmes: In the syllabus manual of each programme of a particular discipline, subject code is assigned for each course. The subject code consists of seven to eight digits. First three digits (letters) indicate the program of a particular discipline, next digit (letter) indicates course is either core/compulsory or elective or project or seminar or Dissertation. A fifth digit (number) indicates semester of a program and sixth and seventh digit (number) indicates serial number of course. An eighth digit (number) is only applicable for elective course which indicates the serial number of elective course in that group.

The first two letters used in coding of courses indicates respective programmes. The following is the list of programmes and letters assigned in course/subject codes;

I	Architecture-	BAR
II	M.Arch- Urban Design-	MUD
III	M.Arch- Arch. And Urban Conservation	MUC
IV	M.Arch Project management -	MPM
V	M.Arch By research partly by papers	MRP

B.ARCH

Core/compulsory course	Elective course	projects	Seminar	Dissertation
***C101	***E1011	***P101	---	***D901

M. ARCH

Core/compulsory course	Elective course	projects	Seminar	Dissertation
***C102		***P101	***S301	***D401

Where,

First three digit (letters) *** : indicates program name

Fourth digit (letter) C : indicates Core/Compulsory course;

 P : indicates project

 E : indicates Elective course

 S : indicates Seminar

 D : indicates Dissertation

Fifth digit (number) 1/3/4 : indicates semester in which that course to be studied

sixth and seventh digit (numbers) 01 : indicates serial number of course

Eigth digit (number) 1/2/3/4 : indicates serial number of a elective course in a group

3. EXAMINATION / ASSESSMENT AND GRADING

Semester wise performance assessment of every registered learner is to be carried out through various modes of examinations. These include Internal Assessment and End Semester Examination.. The modes of evaluation and distribution of weightage for each of the assessments is given in the syllabus manual of each programmes. Normally weightage of Internal Assessment and End Semester Examination is equal. In studio based courses continuous assessment should be carried out and appropriate weightage should be given to each assignment/course project and proper record of the same to be preserved by the concerned faculty for the purpose of inspection as and when required.

3.1 Attendance

Attendance for all Theory, studio, Seminar, and Project/Dissertation is compulsory. As per the University ordinance 119, 75% attendance is compulsory for keeping the term.

3.2 Modes of Assessment/Evaluation

3.2.1 Evaluation for lecture based Courses

Various modes of assessment are used for rating learners' performance in a lecture based. The methods of evaluation include Internal Assessment and End Semester Examination. Relative weightage for Internal Assessment is generally 50 per cent. This will consist of class tests, seminars, presentation of reports or documentation, small assignments, projects to be carried out individually or in a group. The weightage for Internal Assessment may be 100 percent for some courses.

The end semester examination will be held as per the scheme of the examination and university schedule and the relative weightage for this would be 50 per cent. This examination will cover the full syllabus of the course for the respective semester.

3.2.2 Evaluation for studio based courses

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.

The internal sessional marks include progressive marking and evaluation after completion of the assignment. The weightage for Internal Assessment may be 100 percent for some courses.

The external evaluation for some courses may include viva voce examination or Jury as per the scheme of examination.

The weightage for internal assessment would be 50 percent and the weightage of external viva would be 50 cent wherever the external viva is conducted for the course.

If a candidate fails to obtain minimum passing marks for internal sessional work, he/she will not be allowed to appear for external viva for the respective course.

3.2.3 Evaluation of 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.

3.2.4 Evaluation of Elective courses

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.

Grades for electives will be given to each student as per his/her attendance, participation and satisfactory completion of assignments. These grades 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.

The end semester examination is mandatory. The grade for courses can be awarded only after successfully completion of both Internal Assessment and End Semester Examination of the respective course as per the scheme of the examination.

3.3 Grading of Performance

3.1 Letter Grade and Grade Point Allocation

The credit and grading system will be effective from the academic year 2012-2013 for Faculty of Technology of University of Mumbai. In every course, based on the combined performance in all assessments in a particular semester as per the curriculum/syllabus, the student is awarded a letter grade. These letter grades not only indicate a qualitative assessment of the student’s performance but also carry a quantitative (numeric) equivalent called the Grade Point. The letter grades and their equivalent grade point applicable for **undergraduate** programme and postgraduate programme are given below:

Percentage of Marks Obtained	Letter Grade	Grade Points	Performance
75.00 and above	O	10	Outstanding
70.00– 74.99	A	9	Excellent
65.00– 69.99	B	8	Very Good
60.00 – 64.99	C	7	Good
55.00 – 59.99	D	6	Fair
50.00 – 54.99	E	5	Satisfactory
Less than 50.00	F	0	Fail

A learner who remains **absent** in any form of **evaluation/examination, letter grade** allocated to him/her should be **AB** and corresponding **grade point** is **zero**. He/She should reappear for the said evaluation/examination in due course.

3.2 SGPI/ CGPI Calculation

3.2.1 Semester Grade Performance Index (SGPI)

The performance of a learner in a semester is indicated by a number called Semester Grade Performance Index (SGPI). The SGPI is the weighted average of the grade points obtained in all the courses by the learner during the semester. For example, if a learner passes five courses (Theory/Projects/ Seminar /electives etc.) in a semester with credits C_1, C_2, C_3, C_4 and C_5 and learners grade points in these courses are G_1, G_2, G_3, G_4 and G_5 respectively, then learners' SGPI is equal to:

$$SGPI = \frac{C_1 G_1 + C_2 G_2 + C_3 G_3 + C_4 G_4 + C_5 G_5}{C_1 + C_2 + C_3 + C_4 + C_5}$$

The SGPI is calculated to two decimal places. The SGPI for any semester will take into consideration the F grade awarded in that semester. For example if a learner has failed in course 4, the SGPI will then be computed as:

$$SGPI = \frac{C_1 G_1 + C_2 G_2 + C_3 G_3 + C_4 * ZERO + C_5 G_5}{C_1 + C_2 + C_3 + C_4 + C_5}$$

The courses for B.Arch programs have

A)only sessional marks (internal + external) or

B) Theory and internal sessional marks. The grades are given on the basis of total marks obtained by adding internal and external marks obtained by the learner.

In case of A, passing grade will be given for more than 50% marks

(internal 50% + external 50%) divided by 2

The letter grades and their equivalent grades points with the courses with only sessional marks will be as follows:

GRADE POINTS FOR COURSES WITH ONLY SESSIONAL WORK

Percentage of Marks Obtained	Letter Grade	Grade Points	Performance
75.00 and above	O	10	Outstanding
70.00– 74.99	A	9	Excellent
65.00– 69.99	B	8	Very Good
60.00 – 64.99	C	7	Good
55.00 – 59.99	D	6	Fair
50.00 – 54.99	E	5	Satisfactory
Less than 50.00	F	0	Fail

In case of B, passing grade will be given for 45% (Theory 40% + sessional 50%) divided by 2

The letter grades and their equivalent grades points for the courses with theory and internal sessional marks will be as follows:

GRADE POINTS FOR COURSES WITH THEORY EXAM AND SESSIONAL WORK

Percentage of Marks Obtained	Letter Grade	Grade Points	Performance
75.00 and above	O	10	Outstanding
70.00– 74.99	A	9	Excellent
65.00– 69.99	B	8	Very Good
60.00 – 64.99	C	7	Good
55.00 – 59.99	D	6	Fair
50.00 – 54.99	E	5	Satisfactory
45.00 –49.00	p	4	pass
Less than 45.00	F	0	Fail

Note: SGPA for under graduate and post graduate programmes in Architecture will be calculated on the basis of this grading system.

SGPA for a learner between 4.5 and 5 should be rounded as 5, if the learner has obtained 50% aggregate marks in that particular semester examination.

3.2.2 Cumulative Grade Performance Index (CGPI)

An up to date assessment of the overall performance of a learner from the time s/he entered the University of Mumbai is obtained by calculating a number called the Cumulative Grade Performance Index (CGPI), in a manner similar to the calculation of SGPI. The CGPI therefore considers all the courses mentioned in the curriculum/syllabus manual, towards the minimum requirement of the degree learner have enrolled for, since learner entered the University of Mumbai. The CGPI is calculated at the end of every semester to two decimal places and is indicated in semester grade report cards.

The CGPI will reflect the **failed status** in case of **F grade(s)**, till the course(s) is/are **passed**. When the **course(s)** is/are **passed** by obtaining a **pass grade** on subsequent examination(s) the **CGPI** will only reflect the **new grade** and not the **fail grades** earned earlier.

Example: Up to semester r a learner has registered for n courses, among which s/he has “F” grade in course i . The semester grade report at the end of semester r therefore will contain a CGPI calculated as:

$$CGPI = \frac{C_1 G_1 + C_2 G_2 + C_3 G_3 + \dots + C_i * ZERO + \dots + C_n G_n}{C_1 + C_2 + C_3 + \dots + C_i + \dots + C_n}$$

Even if a learner has **failed** in a course **more than once**, the course will figure **only once** in the **numerator** as well as the **denominator**. At the end of semester $r+1$ s/he has appeared for examination for k number of courses including the **backlog course** i and has cleared all the courses including the **backlog course**, the CGPI at the end of this semester is calculated as,

$$CGPI = \frac{C_1 G_1 + C_2 G_2 + C_3 G_3 + \dots + C_i * G_i + \dots + C_n G_n}{C_1 + C_2 + C_3 + \dots + C_i + \dots + C_n}$$

There will also be a **final CGPI** calculated which considers **all the credits earned** by the learner specified for a particular programme.

3.3 Heads of Passing

Theory examination, Internal Assessment, and external viva, should be independent (separate) heads for passing.

3.4 Promotion of Learner and Award of Grades

A learner will be declared **PASS** and eligible for **grade** in a particular course of **undergraduate and post graduate** programme if,

- A learner secures **at least 40% marks in theory for each head of passing** mentioned above.

And

- A learner secures at least 50% marks in internal sessional work for each head of passing.

And

- A learner secures at least 50% marks in external viva for each head of passing.

And it is mandatory that a learner secures at least 50 % marks as aggregate, i.e. 50% of the total obtainable marks for the examination with all the heads of passing taken together.

3.5 Carry Forward of Marks

In case of a learner who does not fulfill criteria mentioned in section 3.4 and fails in the **Internal Assessment** and/or **End Semester Examination** in one or more courses:

- A learner who **PASSES** in the **Internal Assessment** but **FAILS** in the **End Semester Examination** of the course shall reappear for the **End Semester Examination** of that course. However his/her marks of the **Internal Assessment** shall be **carried over** and he/she shall be entitled for grade obtained by him/her on passing.

The candidate may submit a fresh improved sessional work by applying to the controller of examination and can obtain fresh marks to be included as fresh sessional marks for the subsequent examination.

- A learner who **PASSES** in the **End Semester Examination** but **FAILS** in the **Internal Assessment** of the course shall **reappear** for the **Internal Assessment** of that course. However his/her marks of the **End Semester Examination** shall be **carried over** and he/she shall be entitled for grade obtained by him/her on passing.

3.6 Re-examination of Internal Assessment and End Semester Examination

Reexamination for Internal Assessment should be completed before the commencement of next semester theory examination.

Example: A learner who is supposed to reappear for Internal Assessment in semester- I course will appear for the re examination before commencement of End Semester Examination of semester -II.

A learner will re submit the sessional work of semester I in a predefined period and the new sessional marks will be given for re examination of semester I.

Records should be maintained properly for all the re-examinations as well as Internal Assessments.

Re examination of End Semester Examination will be conducted as per the schedule planned by University of Mumbai

3.7 Allowed to Keep Terms (ATKT):

1. A learner shall be allowed to take admission to Semester II irrespective of grades obtained in each course of Semester I.
2. A learner shall be allowed to take admission to Semester III if he/she passes (grade 'P' or above in each course) each of Semester I and Semester II

OR

He/ she fails in either semester I or semester II examination , but passes in all internal heads of passing of semester I.

Provided

The learner has kept satisfactory attendance for semester I and semester II in a college of architecture affiliated to University of Mumbai has completed the sessional work prescribed for the Semester I and semester II of the First Year of Bachelor of Architecture degree program .

3.8 Semester Grade Report

At the end of each semester the semester grade report, which reflects the performance of the learner in that semester, is prepared and issued to the learner. This report includes the fail grades as awarded. Even when a failed course is passed in a later semester, no new modified grade report for that semester in which the fail grade was awarded will be issued. In case of backlog courses learner should be issued separate grade report card as and when s/he passes the course/s.

The grade cards can be issued to the Learners on the basis of the calculations of SGPI/CGPI given in section 3.2 in a uniform format given by the University. The format of the grade card for the examinations conducted by the colleges shall be the same as the format for all the concerned programmes. The grade card will reflect the letter grade obtained by the learner, credit points of the individual courses of a particular semester, calculation of SGPI for each semester and the CGPI for all the successfully completed courses of Programme till that semester examination.