DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY

CIRCULAR NO. ACAD/NP/B.Arch.IV Yr./Syllabus/183/2013

It is hereby informed to all the concerned that, the syllabus prepared by the Ad-hoc Board in Architecture and recommended by the Faculty of Engineering and Technology the Hon'ble Vice-Chancellor has accepted the **"Revised Syllabus of *Fourth Year Architecture*" under the Faculty of Engineering and Technology** on behalf of the **Academic Council Under Section-14(7) of the Maharashtra Universities Act, 1994** as appended herewith.

This is effective from the Academic Year 2013-2014 and onwards.

All concerned are requested to note the contents of this circular and bring the notice to the students, teachers and staff for their information and necessary action.

University Campus,
Aurangabad-431 004.
REF.NO.ACAD/NP/B.ARCH.-IV/
2013/14073-81
V.C.14[7] A-07.
Date:- 15-06-2013.

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Director,
Board of College and
University Development.

Copy forwarded with compliments to:-

1] The Principals, affiliated concerned Colleges,
Dr. Babasaheb Ambedkar Marathwada University.
2] The Director, University Network & Information Centre, UNIC, with **a request to upload the above syllabus on University Website [www.bamu.net].**

Copy to :-

1] The Controller of Examinations,
2] The Superintendent, [Engineering Unit],
3] The Programmer [Computer Unit-1] Examinations,
4] The Programmer [Computer Unit-2] Examinations,
5] The Superintendent, [Eligibility Unit] ,
6] The Director, [E-Suvidha Kendra], in-front of Registrar's Quarter,
Dr. Babasaheb Ambedkar Marathwada University,
7] The Record Keeper,
Dr. Babasaheb Ambedkar Marathwada University.

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DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD.

Revised Syllabus of

ARCHITECTURE

FOURTH YEAR

[Effective from the Academic Year 2013-14 & onwards]

SEMESTER- VII

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad

Syllabus for Fourth Year Arch. Course (Part I)

Teaching Scheme					Examination Scheme				
Code No.	**Subject**	**Lecture Hours**	**Studio Hours**	**Total**	**Term Work**	**Pract Exam.**	**Theory Exam.**	**Total Marks**	**Duration**
411	Architectural Design - VI	--	12	12	100	150	--	250	
412	Architectural Building Construction & Material - VII	02	04	06	50	75	100	225	4 hours
413	Theory & Design of Structures VI	04	--	04	25	--	100	125	3 hours
414	Professional Practice - I	04	--	04	25	--	100	125	3 hours
415	Building Bylaws & Code of Practices	04	--	04	--	--	100	100	3 hours
416	Interior Design	--	04	04	25	75	--	100	
417	Research in Architectural Skills & Project (Introduction)	02	--	02	75	--	--	75	
		16	**20**	**36**	**300**	**300**	**400**	**1000**	

Note: Each Lecture / Studio Hour is of **50** minutes duration.

SEMESTER- VIII

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad

Syllabus for Fourth Year Arch. Course (Part II)

Teaching Scheme					Examination Scheme				
Code No.	**Subject**	**Lecture Hours**	**Studio Hours**	**Total**	**Term Work**	**Pract Exam.**	**Theory Exam.**	**Total Marks**	**Duration**
421	Professional Training - I	16 Weeks			--	250	--	250	--

Note:

The student has the choice to either do professional training II with the same Architectural firm under which he/she did professional training I, or to do it with another firm. However, no item submitted for viva exam 421 shall be submitted for the corresponding exam in 511.

ARCHITECTURAL DESIGN – VI

SUBJECT CODE NO.411	**TERMWORK - 100**
LECTURE HRS: NIL	**PRACTICAL - 150**
STUDIO: 12	**THEORY**
TOTAL : 12	

AIM :- To explore the design and form of building typologies that are the result of pressure on urban lands with a thrust on issues like urban land economics, technology & ecology.

OBJECTIVES :- To create an awareness with regard to the design of green buildings and sustainable architecture.

To inculcate the importance of services integration and construction in spatial planning in the context of multi faceted public activities in an urban context.

To explore computer aided presentation techniques involving 2D and 3D drawings, walk throughs and models as required.

COURSE :- Scale and complexity. Advance and complex problems involving multi-faceted public activities in an urban context.

Examples of projects included- **airport, bus-terminal, railway-station, cinema complex, exhibition hall, indoor sports complex and campus planning.**

Design problems involving high density and/or large scale housing.

Display of competence in the application of knowledge gained from the following will be an essential requirement for all the design projects : Material and structures, Theory of Architecture, Environmental Science and behavioral science.

Term-work :-
i) One Main Project
ii) One time problem.

Reference Book :-
i) Time saver standards
ii) Kevin Lynch, site planning MIT Press Cambridge 1967
iii) Lawrence Halprin - CITIES

ARCHITECTURAL BUILDING CONSTRUCTION AND MATERIAL – VII

SUBJECT CODE NO.412		**TERMWORK –**	**50**
LECTURE HRS.	**– 02**	**PRACTICAL –**	**75**
STUDIO HRS.	**– 04**	**THEORY –**	**100**
TOTAL	**– 06**		

AIM :- To understand the concept of Pre-Engineered Buildings (PEB) with appropriate materials. Space frames for long span structures viz. OCTAMEC SPACE FRAMES, Zenith Steel pre-engineered buildings, PEB Steel Lloyd Structures.

Details of various parts of building including interiors with material.

OBJECTIVES :- To enable the students the latest techniques in Building Construction for long span columnless structures

To enable students appreciate the challenges in detailing for both the newly designed buildings as well as carrying out additions & alterations in existing buildings.

To enable the students to understand the various fittings furniture and equipment that are needed in buildings & their installation methods.

COURSE :-

UNIT – I **SMART MATERIALS**

Characteristics, classification, properties, energy behavior, intelligent environments. Recycled and ecological materials & energy saving materials.

Exercises of the above through case studies and drawings.

LONG SPAN PRE ENGINEERED STRUCTURES AND SPACE FRAMES .

The students are encouraged to visit & make case studies of pre-Engineered structures with photographs and detailing of fabrication.

UNIT – II **DETAILING OF WALLS, ROOFS AND FLOORING FOR INSTITUTIONAL BUILDINGS -**

a) Details of a residence - Selected spaces
b) Retailing of class rooms, library. (In School Colleges)
c) Detailing of Lecture Hall, auditorium & exhibition spaces.

UNIT – III **DETAILING OF WALLS, ROOFS AND FLOORING FOR COMMERCIAL BUILDINGS -**

a) Detailing of shop fronts, office spaces for commercial buildings including detailing of crucial elements such as entrance porches, main doors, staircase, show windows.
b) Detailing of façade & selected spaces for apartment buildings, hotels & hostels.

UNIT – IV **DETAILING OF BUILDINGS FURNITURE & FITTINGS**

a) Details of built in elements like kitchen counters, cupboard, room dividers, cabinet, toilet fittings.

UNIT – V **DETAILING OF EXTERIOR & INTERIOR ARCHITECTURAL ELEMENTS**

a) Indoor fountains, water walls, street furniture, hard and soft landscapes, swimming pools, water bodies and courtyard spaces.
b) Additions and alterations in existing buildings
   i) Residential
   ii) Commercial
   iii) Industrial

Term-work :- Exercises of selected items as decided by the teacher which include case studies & drawings.

Reference Book :-

i) Time saver standards for building types (All Volumes)
ii) Architects working details – By Susan Dawson
iii) Landscape planning3
iv) Grant W. Reid – Land scape Graphics Whitney Library of Design – 1987

THEORY AND DESIGN OF STRUCTURES VI

SUBJECT CODE NO – 413 | **TERM WORK - 25**
LECTURE HOURS – 04 | **PRACTICALS – NIL**
STUDIO HOURS – NIL | **THEORY – 100 MARKS**

AIM: To introduce the students the advanced development in structural form. The students are expected to understand the theory behind these structural forms and not expected to solve numerical problems.

OBJECTIVES:

- To inform the students about the recent developments in structural form.
- To increase the students ability to identify the structural forms suitable for architectural expression.
- The students are expected to analyze and understand the nature of stresses that are developed in the major elements of advanced type of structures.

COURSE:

UNIT I **DESIGN OF R.C.C. FRAMED STRUCTURE**
The students are expected to design a 2 storied R.C.C. framed structure with all calculations as per limit stress method.

UNIT II **PRESTRESSING – Definition**
Principles of Prestressing, Pretensioning and Post-tensioning. Materials of Prestressing, systems of prestressing – applications & uses stresses of prestressed concrete members. Approximate design of simple prestressed beams.

UNIT III **SHELLS**
Definition: Various forms & classification of shells. Advantages & disadvantages. Preformed Shells – Cylindrical shells, Hyperbolic Paraboloids, free forms.

UNIT IV **PREFABRICATION**
The concept – Principles – Prefabrication system for buildings.

UNIT V **CABLE STRUCTURES**
Simply curved suspended roofs, Combination of cables and struts. The students are encouraged to do case studies of advanced structural forms and make a presentation.

TERM WORK:

1) To design a 2-storied R.C.C. framed structure with all calculations viz. footings, columns, plinth beams, floor beams, slabs etc.
2) Written notes on the topic as given in UNIT II to UNIT V without any calculations. Case study presentation is compulsory.

REFERENCE BOOKS:

- Structure & form in Modern Architecture – Crasby Lockwood & Son Ltd. London 1962.
- Michaels Leonard – Contemporary structures in Architecture 1950.
- Felix Candella – Architecture and structuralism 1963.
- M.M. Ratwani & V.N. Vazirani Analysis of structures.

PROFESSIONAL PRACTICE – 1

SUBJECT CODE NO. 414		**TERMWORK –**	**25**
LECTURE HRS.	**– 04**	**PRACTICAL –**	**00**
STUDIO HRS.	**– 00**	**THEORY –**	**100**
TOTAL	**– 04**		

AIM :- To expose the students to issues concerning architectural practice..

Details of various parts of building including interiors with materials.

OBJECTIVES :- To enable the students to understand the issues of professional practice.

To expose the students to various professional bodies and their note in professional practice in India.

To expose the students on some of the important legislations concerning architectural practice in India.

COURSE :-

TENDER

Its meaning and significance. Invitation to Tender – Private Invitation. Public notice and negotiations. Tender notice and its characteristics. Opening of Tender. Acceptance of Tender. Types of Tenders characteristics, advantages & disadvantages of various type of tenders.

CONTRACT

General principles. The Articles of Agreement and Appendix. Definition & scope of some of the terms.

SCOPE OF CONTRACT

Contractors' Duties & liabilities Architects' Duties and liabilities. Determination of contract, certificates and payments.

ARCHITECTS ACT 1972

Architects Act 1972 and its implications. Council of Architecture and its role. The Indian Institute of Architects and its role. Code of Professional conduct as laid down by Council of Architecture and Indian Institute of Architects.

ARCHITECTURAL COMPETITIONS

Purpose of Architectural competitions. Council of Architecture guidelines on Architectural competitions. Types of competition. Single stage competition & two stage competition.

CONDITIONS OF ENGAGEMENT

Normal Services – Construction stage & Supervision Stage – Additional Services. Special services and partial services. Total construction cost. An overview of the calculation of fees & professional charges. The underlying basis for the calculation of fees.

SOCIAL ROLE

Social responsibilities of Architects. Architect & office and its management. Location of office, organization structure, responsibilities towards employees, consultants & associates elementary accounts, tax liabilities. Filing of records, correspondence & drawings, Presentation in meetings, recording minutes of meetings.

Term-work :- Notes on the above topics to be submitted in a file to be signed by the Teacher periodically. A small report to be prepared by each student after visiing, Architects' office.

Reference Book :-

i) Architects Act 1972
ii) Publication of Hand book of Professional Practice by IAA
iii) Roshan Namavali – Professional Practice – Lakhani Book Depot, Mumbai
iv) Ar. V. S. Apte, Architectural Practice & procedure Padmaja Bhide, Pune 2008.

BUILDING BYE LAWS & CODE OF PRACTICES

SUBJECT CODE NO. 415		**TERMWORK –**	**00**
LECTURE HRS.	**– 04**	**PRACTICAL –**	**00**
STUDIO HRS.	**– 00**	**THEORY –**	**100**
TOTAL	**– 04**		

AIM :- To make students understand the codes and regulations to be applied to Building Projects.

OBJECTIVES :- To provide an introduction to the codes and Bye-Laws applicable to building projects.

To understand the importance & necessity of Building Bye-laws.

To understand the impact of Building Bye-laws on Built environment.

COURSE :- **INTRODUCTION TO BUILDING CODES & NORMS**

UNIT – I

Need & nature of Building Codes, standards and regulations, overview of basic terms, nature of Building Codes in special regions like heritage zones, air funnels, environmentally sensitive zones, disaster prone regions, coastal zones, hilly areas, etc.

UNIT – II **STUDY OF BUILDINGS REGULATIONS -**

Overview and administrative processes for obtaining Building Permits at various stages, General Land use, building classifications & permissible uses, Tenement Densities.

FLOOR SPACE INDEX (FSI)

Norm for interior & exterior open spaces; set-backs & margins, norms for building projections in open spaces, guideline for open green areas.

UNIT – III **NORMS FOR VEHICULAR AREAS**

Means of access, norms for access widths for various types of buildings, requirements of parking spaces, standards for turning radius, access to service areas.

UNIT – IV **NORMS FOR FIRE PROTECTION**

Overview of fire protection norms for various building classifications, norms for fire exit ways and building material, concept of fire , doorways, stairways, passages & corridors, fire escapes.

UNIT – V **NORMS FOR BUILDING SERVICES**

Norms for lighting and ventilation, introduction to basic terminologies, components of daylight factor, general principles of openings for good lighting, consideration in artificial lighting, general principles for natural & mechanical ventilation, overview of norms for acoustical & electrical installations.

UNIT – VI **REQUIREMENT FOR PARTS OF BUILDINGS -**

Plinth, habitable rooms, kitchen, wet areas, mezzanine, store rooms, elevated parts like, chimneys, parapets etc. Norms for ventilation ducts for toilets, norms for open to sky courtyards.

UNIT – VII **NORMS FOR SUB-DIVISION OF LAND**

Minimum plot area, compulsory open spaces. Maximum building construction in open spaces. Width of roads according to length.

UNIT – VIII **INTRODUCTION TO LOCAL BUILDING BYE-LAWS**

Study of local administrative provisions for obtaining building permits, bye-laws of M.I.D.C., Factory Inspector, pollution control board, CIDCO, etc.

Reference Book :-

i) National building code of India - 1970
ii) Buch, N. Mahesh – Planning the Indian city.
iii) Khosla R. K. – Urban & rural development in India, Delhi Indian Publishers & Distributors.
iv) Bye-Laws –
1) Aurangabad Municipal Corporation,
2) Maharashtra Industrial Development Corporation

INTERIOR DESIGN

SUBJECT CODE NO – 416 | **TERM WORK - 25**
LECTURE HOURS – NIL | **PRACTICALS – 75**
STUDIO HOURS – 04 | **THEORY – NIL**
TOTAL - 04

AIM: The objective of the course is to create awareness and exposure to interior designer a discipline that is closely related to the field of architecture and supplementing it. It would offer a sedimentary knowledge and overview of the various aspects of interior design.

OBJECTIVES:

- To introduce the vocabulary of interior design.
- To familiarize the students with an overview of interior & furniture design and design movements through history.
- To inform the various components of interior spaces & treatment & finishes for the same.
- To familiarize the students with the various components of interior design like lighting, landscaping and furniture.

COURSE:

UNIT I Designing the size and form of interior spaces using user-activity analysis & anthropometrics. The effect of enclosure fenestration, colour & lighting on perception of space. Application of scale, proportion to enhance the quality of space.

UNIT II Two Interior schemes of different function type: Residential and commercial at different scales which form major design assignments.

UNIT III Decorative materials for ceiling, walls, floors, drapery & upholstery for openings & furniture respectively and matching them with overall colour schemes and composition. Sources & collection of information through market study.

TERM WORK:

1) Interior Furniture layout of Residential premises viz: living room, bed room, dining & kitchen. Specification for materials used for furniture, flooring, ceiling etc.
2) Interior layout of commercial premises viz: shops, offices, banks, showrooms etc. Any Two of the above.

REFERENCE BOOKS:

- Ching Francis – "Interior Design Illustrated" Van nostrand Reinhold, London 1987.
- Rao M. Pratap – Interior Design Principles & Practice 3rd Ed. Std. publication 2004.
- Kurtich, John and Eakin Garret – Interior Architecture Van Nostrand Reinhold New York 1993.

RESEARCH IN ARCHITECTURAL SKILLS (PROJECT)

SUBJECT CODE NO – 417	**TERM WORK - 75**
LECTURE HOURS – 02	**PRACTICALS – NIL**
STUDIO HOURS – NIL	**THEORY – NIL**

AIM: The course provides students with a framework to understand some emerging concepts in Architecture and Projects of design complexity & equip the students with adequate architectural design research methods for the realization of their concept. During the course of study, the subject of the thesis is developed & the project articulated.

OBJECTIVES:

- To impart knowledge to the students on the tools & methods needed to handle a design project of reasonable complexity.

COURSE:

UNIT I Introduction to architectural thesis project. Selection of topics for architectural design thesis, design thesis topics based on building typologies, preparation of synopsis, methodology of design thesis.

UNIT II Emerging concepts in Architecture due to changes in social, economic, technological variables. Review of projects of design complexity, involving themes, sub-themes and architectural expression.

UNIT III **RESEARCH IN ARCHITECTURE**
Tools & methods required to handle a design projects. Scientific methods of research with special emphasis on architectural research methods. Architectural enquiry, visual observations, questionnaire format of enquiry. Literature review & case studies – data analysis, techniques, interpretation of data.

UNIT IV **THESIS REPORT WRITING AND PRESENTATION**

- Formats for presentation of data, case studies and analysis.
- Formats for presentation of thesis design – media appropriate in the architectural profession such as 2- dimensional drawings, physical models, 3- dimensional computer models.

UNIT V **REPORT WRITING**
Techniques in report writing, presentation of contextual information relevant to interpretation of the data collected, reporting the design development from concept to design solution explain the relation of the design to existing knowledge on the topic in the form of coherently written thesis report. The inputs to the students on various design thesis topics would be in the form of Expert / Guest Lectures. Each student in consultation with the faculty shall choose a thesis topics necessary data, review literature on the chosen topic & present a written paper at the end of the semester.

TERM WORK:

1) Choice of Topic.
2) Synopsis.
3) Case studies.
4) Data collection.
5) Site selection.
6) Concept.

REFERENCE BOOKS:

- Ian Border : Kurt Rueidell – The Dissertation, An Architectural students handbook. Architecture Press 2000
- Linda Grant & David Wang – Architectural Research Methods.
- Mukhi H.R. Technical Report Writing Specially prepared for Technical & competitive examinations. New Delhi Satya Prakashan 2000.

REVISED
DETAILED SYLLABUS
FOR
ARCHITECTURE
SEMESTER -VIII
2013-2014

PROFESSIONAL TRAINING - I

SUBJECT CODE NO – 421	**TERM WORK - NIL**
PERIOD OF TRAINING – 16 WEEKS	**PRACTICALS – 250**
	THEORY – NIL

AIM: To expose students to the daily realities of an architectural practice through 2 semesters of intensive professional training.

OBJECTIVES:

- To facilitate an understanding of the evolution of an architectural project from design to execution.
- To enable an orientation that would include the process of development of conceptual ideas, presentation skills, involvement in office discussions, client meetings, development of the concepts into working drawings, tendering procedure, site supervision during execution and co-ordination with the agencies involved in the construction process.

The training programme would be done in the office approved by the institution and in firms registered with Council of Architecture for atleast 10 years.

The progress of Professional Training shall be assessed by a Jury at the end of the training period. It shall be assessed through submission of Log books supported by visual documents maintained by students every month along with the progress report from the employer/s of Trainees.

The students will be evaluated based on the following criteria:

a. Adherence to time schedule. Discipline.
b. Ability to carry out the instruction on preparation of schematic drawings.
c. Ability to work as part of a team in an office.
d. Ability to participate in client meetings and discussions.
e. Involvement in supervision on project site.

At the end of the training programme a portfolio of work done during the period of training along with certification from the offices are to be submitted for evaluation by a viva voce examination. This will evaluate the understanding of the student about the drawings, detailing, materials, construction methods & services integration & knowledge gained during client meetings, consultant meetings & site visits.