DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY

CIRCULAR NO. SU/Sci./B.Sc. Syll./38/2015

It is hereby inform to all concerned that, on the recommendation of the various Board of Studies, Ad-hoc Boards & Committees, the Hon'ble Vice-Chancellor has accepted the revised semester-wise syllabi on behalf of the Academic Council under Section-14[7] of the Maharashtra Universities Act, 1994 in the Faculty of Science as under :-

Sr. No.	Name of the Subject	Semester
[1]	B.Sc. Polymer Chemistry IIInd Year, [Optional]	V & VI
[2]	B.Sc. Networking and Multimedia IIInd Year, Three Year Degree Course	V & VI
[3]	B.Sc. Dry Land Agriculture IInd Year, [Optional]	III & IV
[4]	B.Sc. Sericulture IInd Year, [Optional]	III & IV
[5]	B.Sc. Workshop Technology IInd Year, Three Year Degree Course	III & IV
[6]	M.Sc. Botany IInd Year [at college level]	III & IV

This is effective from the Academic Year 2015-16 & onwards as appended herewith.

All concerned are requested to note the contents of the 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/ SU / SCI./ 2015/
Date:- 28-07-2015.

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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

Copy to :-

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

Dr. Babasaheb Ambedkar Marathwada University.

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S*/-030815/-

Dr. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,
AURANGABAD.

REVISED SYLLABUS

B.Sc. POLYMER CHEMISTRY

THIRD TEAR

SEMESTER SYETEM

(V AND VI SEMESTER)

(R.H. satpute)

Effective from JUNE 2015

Dr. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,
AURANGABAD.

B.Sc. POLYMER CHEMISTRY

Course structure in semester

(V AND VI SEMESTER)

Semester	Paper code	Paper No.	Title of paper	Marks
V	PCH - 501	XIII	Structure and properties of polymer - I	50
	PCH - 502	XIV	Advance polymer chemistry – I	50
	PCH - 503	XV	Lab course V	100
VI	PCH - 601	XVI	Structure and properties of polymer - II	50
	PCH - 602	XVII	Advance polymer chemistry – II	50
	PCH - 603	XVIII	Lab course VI	100

B.Sc. THIRD YEAR (SEMESTER V)

POLYMER CHEMISTRY (Theory)

Paper XIII

Structure and properties of Polymer - I Marks 50

I Adhesives:

Introduction, classification, adhesive action, development of adhesive action and strength. Factors affecting adhesive action, chemical and physical binding process, Preparative methods of adhesive and comparative applications of adhesives.

II Inorganic Polymers :

Introduction to inorganic polymers, history, polyphosphozenes, synthesis, properties, structure and applications. Synthesis of silicon fluid, silicon resin, silicon elastomer. Importance and applications of inorganic polymers. Polysiloxanes, types, preparation, properties and applications. Recent trends of inorganic polymers. Introduction to biopolymers

III Spectroscopic studies on polymers:

Infrared spectroscopy of polymer, Sample preparation for IR measurement, Qualitative structural analysis with the aid of IR absorption spectroscopy. NMR and MASS spectroscopic analysis of polymers.

Paper – XIV

Advance Polymer Chemistry – I Marks 50

I Methods of preparation, properties and applications of:

1) Styrene polymer 2) Polyacetals 3) Fluro polymers

II Co-ordination Polymers :

Introduction and survey of catalyst, Ziegler-Natta catalysis, component and their interactions. Polymerisation reactions, mechanism of Ziegler-Natta polymerisation catalyst. Condensation and step growth polymerisation.

III Co-polymerisation :

Introduction, classification, copolymerisation behaviour, reactivity ratios, free radical copolymerisation, effect of structure on reactivity of free radical copolymerisation, preparation of block and graft copolymers. Technical significance of copolymerisation.

SEMESTER – VI

POLYMER CHEMISTRY (Theory)

Paper – XVI

Structure and properties of Polymer - II Marks 50

I Rheology and mechanical properties:

Concept of rheology, viscous flow, non Newtonian fluids. Hooks equation, viscoelasticity, Maxwell model, Vioget model, Deformation behaviour of polymer material, Relaxation and Retardation. Flexible behaviour of polymer in flow.

II Plastic processing techniques:

Introduction, factors affecting the processing, principles of processing, mixing operation, extruders and extrusion process, compression, injection and transfer moulding and Calendaring.

III Polymer properties and testing:

Introduction to mechanical, thermal, electrical and optical properties of polymer.

IV Fibre Technology : Natural and synthetic fibres, fibre properties, tenancity, moisture content and moisture regain, crimpt, electrical and mechanical crease, crease resistant and retaining properties fabric stability. Processing of fibre, fibre after treatment, processing properties of polyamides nylon, PET.

Paper – XVII

Advance Polymer Chemistry - II Marks 50

IV Elastomers:

Vulcanisation, reinforcement, compounding and elastomeric properties. Preparation, properties and applications of: Styrenebutadine rubber, Nitrile and neoprene rubber and ethylene propylene diene monomer rubber (EPDM).

V Polymer composites:

Introduction, classification, types of matrix, particulate fillers, mechanical properties of composites, preparation and applications of composites.

VI Polymer Industries and Environment:

Effluents and their disposal, plastic wastes, sources, disposal wastes, recycling of plastic waste primary and secondary recycling, Biodegradation.

B.Sc. THIRD YEAR (V Semester)
POLYMER CHEMISTRY (Practical)
Paper XV (Lab Course V)

1. Determination of molecular weight by viscometry.
2. Determination of molecular weight by end group analysis.
3. Determination of molecular weight distribution of a polymer sample by fractional precipitation.
4. Preparation of laminates.
5. Preparation of molding powder.
6. Evaluation of polymer by standard test method.
7. Purification of solvent by vacuum distillation.
8. Steam distillation.

(VI Semester)
Paper XVIII (Lab Course VI)

1. Preparation of PS, PVC and PMMA by bulk, Suspension and solution polymerization.
2. Preparation of alkyd resin.
3. Determination of Hydroxyl value of polymer sample.
4. Determination of iodine value of polymer sample.
5. Determination of Total Temporary permanent hardness of water.
6. Determination of chemical oxygen demand in waste water.
7. Polymer modification: Preparation of polyvinyl alcohol from polyvinyl acetate.
8. Softening of water by using ion exchange method.

Visit to industries and laboratories should be arranged.

Note: Viva-voce and record book is compulsory.

(R.H. Satpute)