DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY

CIRCULAR NO.ACAD/NP/B.Sc.-Ist Yr./SEM.-I & II/173/2013

It is hereby notified for information of all concerned that, on the recommendations of the Board of Studies/Ad-hoc Boards/ Committee under the Faculty of Science, the Hon'ble Vice-Chancellor has accepted the **following revised syllabi for B.Sc. First Year progressively and Syllabus of B.Sc. Textile and Interior Decoration, Semester-V & VI** on behalf of the **Academic Council Under Section-14(7) of the Maharashtra Universities Act, 1994** ***as appended herewith.***

Sr. No.	*Revised Syllabus*	
[1]	*B.Sc. [Instrumentation Practice]*	*Semester- I & II,*
[2]	*B.Sc. [Forensic Science]*	*Semester- I & II,*
[3]	*B.Sc. [Bio-Chemistry]*	*Semester- I & II,*
[4]	*B.Sc. [Networking & Multimedia]*	*Semester- I & II,*
[5]	*B.Sc. [Agro Chemical Fertilizer]*	*Semester- I & II,*
[6]	*B.Sc. [Analytical Chemistry]*	*Semester- I & II,*
[7]	*B.Sc. [Polymer Chemistry]*	*Semester- I & II,*
[8]	*B.Sc. [Environmental Science]*	*Semester- I & II,*
[9]	*B.Sc. [Textile & Interior Decoration]*	*Semester- V & VI,*

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

These **syllabi are available on the University Website www.bamu.net**

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.SC.-IST YEAR/
Sem-I & II/2013/10191-640
V.C.14[7] A-03.

Date:- 03-06-2013.

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Director,
Board of College and University Development.

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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 all syllabi on University Website [www.bamu.net].**

Copy to :-

1] The Controller of Examinations,

2] The Superintendent, [B.Sc. Unit],

3] The Superintendent, [Eligibility Unit],

4] The Programmer [Computer Unit-1] Examinations,

5] The Programmer [Computer Unit-2] Examinations,

6] The Director, [E-Suvidha Kendra], in-front of Registrar's Quarter,
Dr. Babasaheb Ambedkar Marathwada University,

7] The Public Relation Officer,

8] The Record Keeper,
Dr. Babasaheb Ambedkar Marathwada University.

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S/-030613/-*

DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD.

Revised Syllabus of

B.Sc. Ist Year

AGROCHEMICALS AND FERTILIZERS

SEMESTER-I & II

[Effective from 2013-14 & onwards]

Asdkhale
(Dr. A.M. Gokhale)
Chairman
Agrochem and Fert.

DISTRIBUTION

	Paper No.	Title	Period	Marks
Semester-I	**I**	**Organic chemistry**	**45**	**50**
	II	**Physical Chemistry**	**45**	**50**
	III	**Practical's**	**45**	**50**
Semester-II	**IV**	**Agricultural Chemistry**	**45**	**50**
	V	**Physical Chemistry for Agriculture**	**45**	**50**
	VI	**Practical's**	**45**	**50**

***Note:- Practical of Semester- I, Paper-III and Practical of Semester- II Paper-VI will be taken in annual pattern.**

B.SC. FIRST YEAR (FIRST SEMESTER)

(ONE CREDIT = 15 PERIODS)

Paper 1 Organic Chemistry **Periods = 45 Hrs**
Marks = 50

1 Classification, Preparations and reactions of following. 15 Hrs

i) Glycol, Glycerol and phenol compounds - Resorcinol, Cresols,Naphthols.

ii) Formaldehyde, acetaldehyde, acetone

iii) Amines - preparations and reactions of primary amine-methyl amine, ethlane

iv) Substituted carboxylic acid.

a) Hydroxyl acids-Lactic acid, preparation, reactions and optical activity.

b) Amino acids - Preparations, Separations, Dipolar nature of amino acids.

Chemical reactions involving carboxylic group, amino group and both groups.

II. Analysis of Organic Compounds **15 Hrs**

a) Detection of Elements - carbon, hydrogen, nitrogen, halogen and sulphur.

b) Estimation of element

i) Carbon and hydrogen by Liebig's method.

ii) Nitrogen by Kjeldahl method

iii) Halogen and sulphur by canes method.

c) Determinations of Empirical and molecular formulae

d) Modern methods for the estimation of element problems based on above methods.

Ill Alkaloids. 7 Hrs.

Introduction, Classification, Detennination of structure of Nicotine and its synthesis, Extractions of Nicotine.

Iv Heterocyclic Compounds 8 Hrs.

Introduction, classifications of heterocyclic compounds containing one hetero atom

a) Five membered heterocyclic compounds

i) Pyrrole ii)Furon iii) Thiophene.

Preparations and reactions

b) Six membered heterocyclic compounds

i) Pyridine ii) Quinoline

Preparations and reactions

B.SC. FIRST YEAR (FIRST SEMESTER)

Paper II – Physical Chemistry **Periods = 45 Hrs**
Marks = 50

1 Catalysis **5 Hrs**

Defamation of catalyst and catalysis. Positive and negative catalysis. Inhibitors Homogeneous Heterogeneous catalysis characteristics of catalyst. Theories of catalysis.

a) Intermediate compound formation theory

b) Adsorption theory**.**

c) Modern theory

Enzyme catalysis Biocatalysts. Examples.

II Separation Techniques. (Chromatography) **10 Hrs**

Principle and techniques of chromatography. Adsorption and partition chromatography. Paper chromatography and thin layer chromatography. Separation of plant pigments by chromatography. Gas chromatography.

III) Adsorption, diffusion, osmosis and osmotic pressure. 10 Hrs

Laws of osmosis, Distribution !aw. Measurement of osmotic pressure.

IV. Determination of surface tension viscosity and its applications. **5 Hrs**

V. Common ion effect solubility product and buffer solution. **8 Hrs**

VI Photochemistry **7 Hrs**

Importance of photochemistry. Interaction between light and matter. Laws of photochemistry, photochemical reaction in agricultural with examples.

B.SC. FIRST YEAR (FIRST SEMESTER)

Paper-III (Practical)
[based on Paper-I & II]

Laboratory Course – I

Periods = 45 Hrs

Marks = 50

I Identification of Organic compounds (any seven) that includes.

1) Preliminary tests.

2) Nature of organic compounds

3) Element Detection

4) Functional groups

5) Physical constant

6) Preparation of one derivatives.

II Estimation of available chlorine in the given sample of bleaching powder.

III. Determination of molecular weight of organic acid.

IV. Estimation of copper by iodometry.

V. Determination of acid value of oil sample

VI. Determination of cell constant of conductivity cell.

VII. Determination of equivalent conductivity of acetic acid-

VIII. Determination of viscosity of liquid.

IX. Determination of surface tension of liquid.

X. Determination of surface tension of liquid by Stalognomenter.

XI. Hydrolysis of methyl acetate in presence of an acid.

XII. Estimation of soluble salts in solution by conduct meter.

(Note : Duration of practical should be four periods per week)

B.SC. FIRST YEAR (SECOND SEMESTER)

Paper-IV- Agricultural Chemistry **Periods = 45 Hrs**
Marks = 50

1. Alcohols **10 Hrs.**

Manufacture of ethanol from

a) Molasses b) starch

Rectified spirit, absolute alcohol and methylated spirit.

II Study and use of Agrochemicals in Agriculture and Agro industries 15 Hrs.

a) Insecticide - Organophosphorous insecticide

b) Fungicides - Sulphur, Copper fungicides.

c) Weedicides - Classifications, chemical nature mode of action.

d) Preparations and uses of following.

a)B.H.C. b) D.D.T.

Ill Pollution **10 Hrs.**

i) Introductions, Air pollutants, soil pollutants and water pollutants

ii) Pollution hazards

iii) Effect of air, water and soil pollution on plant and environment.

IV Plant diseases [s] **10 Hrs.**

Introduction, Diseases of major field crops.

i) Jowar ii) Sunflower iii) Sugarcane iv) Maize

B.SC. FIRST YEAR (SECOND SEMESTER)

Paper-V- Physical Chemistry for Agricultural **Periods = 45 Hrs**
Marks = 50

1. Electrochemistry **15 Hrs**

Electrolysis. Laws of electrolysis. Electrical conductance, specific and molecular conductance. Cell constant and its defermination. Transport number, ionic mobility. Types of electrodes and their working.

II Colloids **7 Hrs**

Definition. Important properties of colloids and its application in agriculture.

III Radioactivity **8 Hrs**

Artificial radioactivity. Radioisotopes. Application of radioactivity in agriculture.

IV Applications of physic chemical methods in agriculture. **15 Hrs.**

a) Respiration and transpiration in plants.
b) Mineral and organic colloids in soil.
c) Physiological processes in soil and plants such as humidity, adsorption .absorption and evaporation.
d) Determination of osmosis in plants.
e) Buffer capacity of soil.
f) Application of fluorescence and phosphorescence in agriculture.

B.SC. FIRST YEAR (SECOND SEMESTER)

Paper-VI Practical
[based on Paper-III & IV]

Laboratory Course-II

I. Estimation of iron by using potassium dichromate.

II. Determination of soluble salt of ca/mg by E.D.t.A. method.

III. Determination of percentage purity of sodium nitrite using potassium permagnate solution.

IV. Determination of dissolved oxygen from various water samples.

V. Identification of diseases of major field crops.(any five)

VI. To estimate the amount of acetic acid in vinegar solution.

VII. Separation of metal ion by paper chromatography.

VIII. Preparation of colloidal solution of sulfur.

IX. Determination of apparent specific gravity of soil sample. -

X. Preparation of plant sample for analysis.

XI. Preparation of soil sample for analysis.

XII. Determination of pH of water sample.

XIII. Determination of electrical conductivity of water sample.

Reference Books :

1) Text book of organic chemistry by P.L. Soni

2) Organic Chemistry by I.L. Finar (Vol. I and II)

3) Organic Chemistry by Bhal and Bhal.

4) Organic Chemistry by Jogindarsingh.

5) Text book of organic chemistry by M.K. Jain.

6) Text book of Physical Chemistry by Bhal and Tuli

7) Text book of Physical Chemistry by Gladstone.

8) Plant growth and development by A. Carlleopold.

9) Plant diseases by R.S. Singh.

10) Hand book of Agriculture by I.C.A.R.

11) Practical organic chemistry by Nadkami and Kothari.

12) Volumetric analysis by A.J. Mee.

13) Soil, Plant and Water analysis by P.C. Agarwal.

14) Crop production and field experimentation by Vaidya, Sahastrabudhe and Khuspe.

15) Analytical agricultural chemistry by Kanwar and Chopra.

16) Text book of practical organic chemistry by Vogel.

17) Text book of practical physical chemistry by Vogel.

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