DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY

CIRCULAR NO.SU/Sci./B.Sc. Syll./31/2015

It is hereby notified for information to all the 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 in the Faculty of Science as under** on behalf of the Academic Council under Section-14[7] of the Maharashtra Universities Act, 1994 :-

Sr. No.	Name of the Subject	Semester
[1]	B.Sc. Automobile Technology IInd Year, [Three Year Degree Course].	III & IV
[2]	B.Sc. Horticulture IInd Year, [Optional].	III & IV
[3]	B.Sc. Chemistry IIIrd Year, [Optional].	V & VI
[4]	B.Sc. Analytical Chemistry IIIrd Year, [Optional].	V & VI
[5]	B.Sc. Agrochemical & Fertilizer IIIrd Year, [Optional].	V & VI
[6]	B.Sc. Geology IIIrd Year, [Optional].	V & VI
[7]	B.Voc. Multimedia & Animation, [Three Year Degree Course].	I to IV
[8]	B.Voc. [1] Industrial Automation, [2] Automobile & [3] Travel & Tourism, [Three Year Degree Course].	I to VI
[9]	B.Voc. Jewellery Design & Gemology, IInd Year [Three Year Degree Course].	III & IV
[10]	Diploma in Industrial Automation for Community College at University Campus.	

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./
2015/6860-7259
Date:- 08-07-2015.

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Director,
Board of College and
University Development.

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Copy forwarded with compliments to:-

1] The Director, C.V.E.T., Dr. Babasaheb Ambedkar Marathwada University Campus, Aurangabad.

2] 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, [B.C.S. Unit],
5] The Programmer [Computer Unit-1] Examinations,
6] The Programmer [Computer Unit-2] Examinations,
7] The Record Keeper.
Dr. Babasaheb Ambedkar Marathwada University.

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S*/-090715/-

DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD

Syllabus of
B.Sc. III Year

Agrochemicals and Fertilizers

Semester – V & VI

[Effective from 2015-2016 onwards]

DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY AURANGABAD.

Agrochemicals and Fertilizers Curriculum

B.Sc. III year

(Semester Pattern)

Course Structure

Class	Paper No.	Title of Paper	Lectures	Marks
B.Sc. III yr		**SEMESTER V**		
	XV	Organic Manures	45	50
	XVI	Fertilizers	45	50
	XVII	Practicals	90	100
		SEMESTER VI		
	XVIII	Plant nutrition and fruit preservation	45	50
	XIX	Agricultural technology	45	50
	XX	Practicals	90	100

B.Sc. Third Year
Semester-V
(Agrochemicals & Fertilizers)

Paper - XV **Periods: 45**
Marks: 50

Organic Manures

UNIT-I

Introduction to Manures 14Hrs

Definition, Scope

Bulky and concentrated manures

Introduction to farm yard manure

Preparation, Composition, applications and Importance

Improved methods of handling farm yard manure (F.Y.M.)

UNIT-II

Compost: 6Hrs

Rural and Urban Compost Preparation, composition and application to field

UNIT-III

Gobar Gas Technology: 8Hrs

Construction of gobar gas plant

Chemistry of gobar gas production

Preparation, Importance and application of Gobar gas manure

UNIT-IV

Green Manuring 6Hrs

Introduction, Preparation, Importance and application of green manures

Green manuring in situ and green leaf manuring

UNIT-V

Oil Cakes 6Hrs

Edible and non edible oil cakes: Preparation application to the field

Bone meal and Blood meal: Preparation application to the field

UNIT-VI

Organic Farming: 5Hrs

Modern approach to the farming and its effect on soils

B.Sc. Third Year

(Agrochemicals & Fertilizers)

Paper – XVI **Periods: 45**

Marks: 50

Fertilizers

(Introduction to Fertilizer)

UNIT-I

Nitrogenous fertilizers **6Hrs**

Manufacture, properties, forms and Rate of application of following fertilizers

i)Urea

ii) Ammonium Sulphate

UNIT-II

Phosphatic Fertilizers **6Hrs**

Manufacture, properties, forms and Rate of application of

i) Super Phosphate

ii) Rock Phosphate

UNIT-III

Potassic Fertilizer **6Hrs**

Manufacture, properties, forms and Rate of application of

i)Muriate of potash

ii)Sulphate of potash

UNIT-IV

Complex Fertilizers **7Hrs**

Manufacture, properties, forms and Rate of application of

i)Ammonium Phosphate

ii)Nitro phosphate

iii)Suphala

Advantages of complex fertilizers

UNIT-V

Micronutrient carriers **8Hrs**

Manufacture, properties, forms and Rate of application of

i) Ferrous sulphate

ii)Zinc sulphate

iii)Cupper sulphate

I v) Ammonium moliblate

v)Manganese sulphate

vi)Boro

UNIT-VI

Application of fertilizers **6Hrs**

Basal application of fertilizers
Split application of fertilizers

UNIT-VII

Bio fertilizers **6Hrs**

Introduction,
Types
Importance and Application

B.Sc. Third Year
(Agrochemicals & Fertilizers)

Paper – XVII **Periods: 45**
Marks: 50

Practicals Part-A

1. Identification of different N, P and K fertilizers.
2. Identification of complex fertilizers and Micronutrient carriers
3. Qualitative test of urea and ammonium sulphate
4. Laboratory test of super phosphate and Rock phosphate
5. Qualitative test of micronutrient carriers
6. Laboratory test of sulphala and nitrophosphate
7. Determination of potassium from soil using soil kit.
8. To determine acidity of ammonium sulphate
9. Estimation of organic matter from compost
10. Estimation of available zinc from fertilizer
11. Project Report.

B.Sc. Third Year
(Agrochemicals & Fertilizers)

Paper – XVII **Periods: 45**
Marks: 50

Practicals Part-B

1. Estimation of Nitrogen from manure.
2. Nitrogen determination from rural compost sample.
3. Identification of different oil cake samples (edible and non edible oil cake)
4. Determination of moisture from cotton seed cake.
5. Determination of mineral matter from gr.nut cake.
6. To determine Ash percentage from safflower cake.
7. Estimation of available nitrogen from urea.
8. Estimation of available phosphate from super phosphate.
9. Visit to soil testing laboratory.
10. Visit to vermiculture unit.
11. Project Report

B.Sc. Third Year
Semester-VI
(Agrochemicals & Fertilizers)

Paper – XVIII **Periods: 45**
Marks: 50

Plant Nutrition and Fruit Preservation

Unit-I

Hydroponics **6Hrs**

Methods of soil-less cultivation

Nutrient film technique (NFT)

Advantages and disadvantages of hydroponics

Applications of hydroponics in agriculture

Unit-II

Plant Nutrition **6Hrs**

Introduction essential elements in plant

Physiological role of essential elements in plant

Deficiency symptoms of essential elements in plants

Unit-III

Preservation of Fruits and Vegetables **6Hrs**

Spoilage of fruits and vegetables

Importance and Principles of Preservation

Methods of Preservation

Chemical preservatives – types and uses

Unit-IV

Canning and Bottling of Fruits and Vegetables **3Hrs**

Canned mango and canned vegetables

Unit-V

Fruit Beverages **6Hrs**

Preparation of fruit juices ,squashes, cordials

Preparation of orange and lemon squash

Preparation of Jams, Jellies

Preparation of fruit jelly, apple jam .mango jam, amla jam, Mixed fruit jam.

Unit-VI

Drying and Dehydration of Fruits and Vegetables **6Hrs**

Methods –sun drying, mechanical dehydration, drum drying

Preparation of raisins from grapes. Banana products like chips and powders

Preparation and preservation of pickles

Preparation of mango, lime ,chillies and vegetable pickles

Unit-VII

Preparation of crystallized fruits **6Hrs**

Preparation of Amla Candy

Preparation of Tomato products

Tomato Ketchup and puree

Unit-VIII

Post harvest technology for fruits and vegetables **6Hrs**

Harvesting, storage and marketing of fruits

Harvesting, grading, packaging, marketing and storage of vegetables

B.Sc. Third Year
(Agrochemicals & Fertilizers)

Paper – XIX **Periods: 45**
Marks: 50

Agricultural technology

Unit-I

Problematic Soils **10Hrs**

Introduction to saline and alkali soils
Classification
Diagnostic criteria and causes of their formation
Adverse effects
Reclamation and management of saline and alkali soils
Introduction to acidic Soils
Sources of soil acidity
Reclamation of acidic soils

Unit-II

Green House Technology **6Hrs**

Introduction
Components and design of green houses
Advantages
Applications in agriculture

Unit-III

Micro- irrigation **6Hrs**

Introduction
Drip and sprinkler irrigation systems,
Their components Advantages.
Their importance in water management

Unit-IV

Floriculture **8Hrs**

Introduction

Methods of cultivation

Important flower crops of Maharashtra state

Handling, transportation and storage of floriculture products Export potential in floriculture

Unit-V

Fishery: **4Hrs**

Inland fishery,

Culture fishery

Capture fishery

Unit-VI

Apiculture: **4Hrs**

Honey bee culture.

Bee keeping,

Economic use of Honey and wax

Unit-VII

Soil and Water Conservation **7Hrs**

Soil erosion- definition and types

Importance

Methods of soil and water management

Waste land reclamation

Watershed management- definition and objectives

Water harvesting- definition, methods of water harvesting

B.Sc. Third Year
(Agrochemicals & Fertilizers)

Paper – XX **Periods: 45**
Marks: 50

Practicals Part-A

1. Determination of pH from soil sample
2. Determination of pH from water sample
3. Determine electrical conductivity of soil sample
4. Study of garden tools and implements
5. To determine total soluble salt from soil extract
6. Study and practice of grafting technique
7. Study and practice of budding technique
8. Visit to the fruit orchards /vegetable garden to study the package of practices
9. Preparation of fruit jam.
10. Preparation of fruit Jelly
11. Project Report.

B.Sc. Third Year
(Agrochemicals & Fertilizers)

Paper – XX **Periods: 45**
Marks: 50

Practicals Part-B

1 Preparation of Lime Juice

2 Preparation of Lemon squash.

3 Study of drip irrigation components /field visit.

4 Study of sprinkler irrigation components /field visit

5 Estimation of Ascorbic acid from Lemon juice

6 Estimation of reducing sugar from Lime juice

7 Estimation of non reducing sugar from fruit juice

8 Visit to fishery unit and fish seed farm.

9 Visit to Apiculture unit

10 Visit to fruit preservation industry

11 Project Report

B.Sc. Third Year

(Agrochemicals & Fertilizers)
Reference Books (Theory and Practicals)

Reference books for B.Sc. IIIrd year

1. Introduction to Agronomy –soil and water management.— Vaidhya and Sahasrabuddhe
2. Principles of Agronomy- Reddy and Reddi
3. Crop production and field experimentation – Vaidya and Saharabudhe and Khuspe
4. Seed Technology – Ratanlal Agrawal
5. Text book of Horticulture –K. Manibhushanrao
6. Basic Horticulture –Jitendra Singh
7. Fruit Growing - J.S. Bal
8. Fruit Physiology and Production- Amarsingh
9. Basic concept of fruit science –N.P.Singh
10. Fruits – Ranjeet Singh and Saxena
11. Floriculture in India –Randhwa and Mukhopadhya
12. Vegetable Growing –Chauhan
13. Vegetable science –Hazara and Som
14. Green house Technology –Arupratan Ghosh
15. Handbook of Saline and alkali soils -USDA
16. Vegetable Production in India- D.V.S.Chauhan
17. Vegetable growing in India – P.S. Arya and Santprakash
18. vegetable growing – Choudhary
19. Horticulture at glance- Amarsingh
20. Plant Propagation – Hertman et al
21. Preservation of fruits and Vegetables -Girdharilal and Tondon
22. Principles of fruit growing – Yawalkar and Kunte
23. Horticulture for competitive and college Exam- Suhas Diwase
24. Horticulture main book for Competitive Exam - R. N. Sable
25. Agriculture M.P.S.C. Main Exam- R. N. Sable
26. Foods and Nutrition – Sumati Mudambi
27. Plant Physiology- Pandey and Sinha
28. Plant physiology –Jain
29. Hand book of Agriculture –ICAR Publications
30. Sprinkler Irrigation – WALMI Publication
31. Drip Irrigation – WALMI Publication.

DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY AURANGABAD.

Agrochemicals and Fertilizers Curriculum

B.Sc. III year

(Semester V and VI)

Pattern of Theory Question Paper

Q1. Long Answer Question	10Marks
Or	
Q1.a) Short Answer Question	05Marks
b) Short Answer Question	05Marks
Q2. Long Answer Question	10Marks
Or	
Q2.a) Short Answer Question	05Marks
b) Short Answer Question	05Marks
Q3. Long Answer Question	10Marks
Or	
Q3.a) Short Answer Question	05Marks
b) Short Answer Question	05Marks
Q4. M.C.Q. (Multiple Choice Questions)	10Marks
Q5.Short Note (Any Two)	10Marks

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