डॉ. बाबासाहेब आंबेडकर मराठवाडा विद्यापीठ, औरंगाबाद

परिपत्रक क्रमांक/एस.यू./विज्ञान/अभ्यासक्रम/७४/२०१४

या परिपत्रकाद्वारे सर्व संबंधीतांना सुचित करण्यात येते की, विज्ञान विद्याशाखेने शिफारस केल्यानुसार बी. एस्सी. / एम. एस्सी. प्रथम व द्वितीय वर्षाच्या सुधारित अभ्यासक्रमास आणि बी. एस्सी. प्रथम वर्षाच्या अभ्यासक्रमात किरकोळ बदल करण्यास विद्यापरिषदेच्या वतीने मा. कुलगुरु यांनी, त्यांना प्राप्त असलेल्या विशेष अधिकार महाराष्ट्र विद्यापीठ अधिनियम-१९९४ कलम १४(७) अन्वये मान्यता दिलेली आहे. त्या अनुषंगाने सुधारीत तयार केलेल्या अभ्यासक्रमाची प्रत या परिपत्रकासोबत आपल्या पुढील कार्यवाहीसाठी पाठविण्यात येत आहे.

[1]	B.Sc. Physics	Semester-III & IV,
[2]	B.Sc. Chemistry	Semester-III & IV,
[3]	B.Sc. Botany	Semester-III & IV,
[4]	B.Sc. Zoology with minor changes	Semester-I & II,
[5]	B.Sc. Zoology	Semester-III & IV,
[6]	B.Sc. Fisheries	Semester-III & IV,
[7]	B.Sc. Electronics (Opt.)	Semester-III & IV,
[8]	B.A./B.Sc. Mathematics	Semester-III & IV,
[9]	B.Sc. Computer Science	Semester-I & II,
[10]	B.Sc. Information Technology	Semester-I & II,
[11]	B.C.A.	Semester-I & II,
[12]	B.Sc. Computer Science(Opt.)	Semester-I & II,
[13]	B.Sc. Information Technology(Opt.)	Semester-I & II,
[14]	B.Sc. Computer Application(Opt.)	Semester-I & II,
[15]	B.Sc. Computer Maintenance(Opt.)	Semester-I & II,
[16]	B.Sc. Biotechnology (Progressively)	Semester-I to VI,
[17]	B.Sc. Biotechnology (Opt.) (Progressively)	Semester-I to IV,
[18]	B.Sc. Sericulture Technology	Semester-I & II,
[19]	B.Sc. Networking Multimedia	Semester-III & IV,
[20]	B.Sc. Bioinformatics	Semester-I & II,
[21]	B.Sc. Hardware & Networking	Semester-I & II,
[22]	B.Sc. Animation	Semester-I & II,
[23]	B.Sc. Dairy Science & Technology	Semester-III & IV,
[24]	B.Sc. Biochemistry	Semester-III & IV,
[25]	B.Sc. Analytical Chemistry	Semester-III & IV,
[26]	B.Sc. Textile & Int. Decoration with minor changes	Semester-I & II,
[27]	B.Sc. Textile & Int. Decoration	Semester-III & IV,
[28]	B.Sc. Home Science with minor changes	Semester-I & II,
[29]	B.Sc. Home Science	Semester-III & IV,
[30]	B.Sc. Agro.Chem. & Fertilizers	Semester-III & IV,

..2..

[31]	B.Sc. Geology	Semester-III & IV,
[32]	B.A. Statistics with minor changes	Semester-I & II,
[33]	B.A. Statistics	Semester-III & IV,
[34]	B.Sc. Statistics with minor changes	Semester-I & II,
[35]	B.Sc. Statistics	Semester-III & IV,
[36]	B.Sc. Industrial Chemistry	Semester-III & IV,
[37]	B.Sc. Horticultural	Semester-I & II,
[38]	B.Sc. Dry land Agriculture	Semester-I & II,
[39]	B.Sc. Microbiology	Semester-III & IV,
[40]	M.Sc. Computer Science	Semester-I to IV,
[41]	M.Sc. Information Technology	Semester-I to IV.

हा सुधारीत व नवीन तयार केलेल्या अभ्यासक्रमाचा आराखडा शैक्षणिक वर्ष २०१४-१५ करिता मर्यादित असेल व विद्यापरिषदेच्या अंतिम मान्यतेनंतर हे परिपत्रक नियमित ठेवण्याबाबत या कार्यालयाद्वारे नवीन परिपत्रक पारीत करण्यात येईल. तसेच सुधारीत व नवीन तयार केलेल्या अभ्यासक्रमाची प्रत विद्यापीठाच्या संकेतस्थळावर उपलब्ध आहे.

करिता, या परिपत्रकाची सर्व संबंधितांनी नोंद घ्यावी.

विद्यापीठ प्रांगण,
औरंगाबाद-४३१ ००४.
संदर्भ क्र.एस.यु./सा.शा./सबवि /२०१३-१४/
६५९९-७०२
दिनांक :- २७-०५-२०१४.

संचालक,
महाविद्यालये व विद्यापीठ
विकास मंडळ.

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या परिपत्रकाची एक प्रत :-

१) मा. परिक्षा नियंत्रक, परिक्षा विभाग,
२) मा. प्राचार्य, सर्व संलग्नीत महाविद्यालये,
३) संचालक, युनिक यांना विनंती करण्यात येते की, सदरील अभ्यासक्रम विद्यापीठाच्या संकेतस्थंळावर उपलब्ध करुण देण्यात यावेत.
४) संचालक, ई-सुविधा केंद्र, विद्यापीठ परिसर,
५) जनसंपर्क अधिकारी, मुख्य प्रशासकीय इमारत,
६) कक्ष अधिकारी, पात्रता विभाग, मुख्य प्रशासकीय इमारत,
७) कक्ष अधिकारी, बी.ए. / बी.एस्सी./ बी.सी.एस./एम.एस्सी. विभाग, परीक्षा भवन,
८) अभिलेख विभाग, मुख्य प्रशासकीय इमारती मागे,
डॉ. बाबासाहेब आंबेडकर मराठवाडा विद्यापीठ, औरंगाबाद.

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DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD.

Revised Syllabus of

B.Sc. Second Year

Agrochemicals and Fertilizers

[Optional]

Semester–III & IV

[Effective for 2014-15]

DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY AURANGABAD

AGROCHEMICALS AND FETILIZERS CURRICULAM

B. Sc. II Year

(Semester Pattern)

Course Structure

Class	Paper No.	Title of Paper	Credits	Lectures	Marks
B. Sc. II		SEMESTER-III	3	45	50
	VII	Soil Science	3	45	50
	VIII	Biochemistry	3	45	50
	IX	Practical Based on Paper – VII	3	45	50
	X	Practical Based on Paper – VIII	3	45	50
		SEMESTER-IV			
	XI	Soil Chemistry	3	45	50
	XII	Agriculture Chemistry	3	45	50
	XIII	Practical Based on Paper – XI	3	45	50
	XIV	Practical Based on Paper – XII	3	45	50

B. Sc. Second Year

(Agrochemicals & Fertilizers)

Paper - VII **Periods : 45**

Marks : 50

Soil Science

I	Definition of Soil Concept of Solum	2 Hrs.
II	Rocks and Minerals Type of Rocks, Primary and Secondary Minerals Clay Mineral, Accessory Mineral	8 Hrs.
III	Weathering Physical Chemical and biological weathering . Factors affecting soil formation.	6 Hrs.
IV	Study of Soil Profile Definition, soil horizons and typical diagram of soil profile.	5 Hrs.
V	Soil Physical Properties 1. Soil texture and mechanical analysis of soil. 2. Soil structure. 3. Soil density and porosity. 4. Soil color. 5. Soil temperature 6. Soil aeration 7.soil Consistency	5 Hrs.
VI	soil fertility and productivity Definition, comparison between soil fertility and productivity and factors affecting them.	5 Hrs.
VII	Soil Testing : Importance methods and co-relation with crop response.. A note on soil testing kit.	5 Hrs.
VIII	Water movements and water loss from the soil system	5 Hrs.
VIII	Soil moisture constants and their importance in plant growth	4 Hrs.
		Total : 45

B. Sc. Second Year

(Agrochemicals & Fertilizers)

Paper - VIII **Periods : 45**

Marks : 50

Biochemistry

I	Scope and Importance of Biochemistry	2 Hrs.
II	Definition, classification, structure and properties of carbohydrates, biological significance of carbohydrates,	13 Hrs
III	Proteins and Amino acids Proteins: Introduction, definition, classification, properties and structure of proteins. Qualitative tests for identification of proteins. Amino acids: Definition, structure, classification and properties of amino acids.	10 Hrs.
IV	Lipids Introduction, Definition, components of fats-alcohols and fatty acids, classification of lipids, properties of fats and oils, biological significance of lipids.	5 Hrs
V	Enzymes Definition, classification, chemical nature of enzymes, factors affecting enzyme activity,role of enzyme as biological catalysts	5 Hrs.
VII	Animal Hormones and their functions	5 Hrs.
VII	Techniques in Biochemical analysis.	5 Hrs.

B. Sc. Second Year

(Agrochemicals & Fertilizers)

Paper - IX **Periods : 45**

Practical **Marks : 50**

Note : Duration of practical's should be four per week

I	Collection of Rock and Mineral samples from the area.
II	Method of collection of soil sample.
III	Preparation and preservation of soil sample in laboratory.
VI	Study of soil Augers and collection of soil sample with the help of Augers.
V	Determination of Water holding capacity of soil.
VI	To determine apparent specific gravity of soil.
VII	To determine absolute specific gravity of soil.
VIII	To determine percentage expansion of soil colloids.
IX	Use and applications of soil thermometer.

B. Sc. Second Year

(Agrochemicals & Fertilizers)

Paper - X **Periods : 45**

Practical **Marks : 50**

Note : Duration of practical's should be four per week

I	Determination of moisture from soil sample.
II	Determination of soil colour using a soil kit.
III	Preparation of HCL extract of soil.
VI	Determination of Ferrous from HCL extract.
V	Determination of phosphate from HCL extract.
VI	Determination of Calcium from HCL extract.
VII	Visit to sericulture industry.
VIII	Visit to Vermiculture Industry.

B. Sc. Second Year

(Agrochemicals & Fertilizers)

Paper - XI **Periods : 45**

Marks : 50

Soil Chemistry

I	Organic and inorganic colloid in soils, structure and properties of soil colloids and the process of caution exchange in soils.	4 Hrs.
II	Relation of soil reaction and nutrients absorption in soils	4 Hrs.
III	Study of soil orders with special reference to vertisol.	4 Hrs.
IV	Study of soil survey, field mapping, remote sensing.	5 Hrs.
V	Land capability classification Class I to VIII	3 Hrs.
VI	Soil organic Matter and Decomposition	8 Hrs.
VII	Soil Micro-Organisms and organic matter in soil And Important microbial transformations.	9 Hrs.
VIII	Mechanism of nutrient absorption by plants Methods of nutrient absorption.	8 Hrs.

B. Sc. Second Year

(Agrochemicals & Fertilizers)

Paper - XII **Periods : 45**

Marks : 50

Agricultural Chemistry

I	Photosynthetic efficiency of C4 Plants	4 Hrs.
II	Factors affecting photosynthesis.	4 Hrs.
III	Nature, properties and functions of important plant pigments.	4 Hrs.
IV	Classification, chemical nature, properties, deficiency symtoms Of vit A, D, E, K, C and B	10 Hrs.
V	Nutritional importance of following food constituents. 1) Carbohydrates. 2) Proteins. 3) Fats and fatty acids. 4) Minerals and water. 5) Fibers	4 Hrs.
VI	Digestion, absorption and excretion of food in animal body.	8 Hrs.
VII	Plant Hormones and their fanctions. a) Auxins b) Gibberellins c) Cytokinins. d) Abscisic acid. Applications of plant hormones in agriculture.	7 Hrs.
VIII	Nucleic acids and Nucleosides	4 Hrs.
		Total : 45

B. Sc. Second Year

(Agrochemicals & Fertilizers)

Laboratory Course - II

Paper - XIII **Periods : 45**

Practical **Marks : 50**

Note : Duration of practicals should be four per week

I Determination of moisture from plant sample.

II Determination of mineral matter from plant sample.

III Colour test of protein and carbohydrates (Qualitative test)

IV Estimation of reducing sugar from sugar cane juice.

V Estimation of non-reducing sugar from oil sample.

VI Determination of acid value from oil sample

VII Estimation of reducing and non-reducing sugar from Jaggary sample.

VIII Determination of saponification value from coconut oil.

B. Sc. Second Year

(Agrochemicals & Fertilizers)

Practical - XIV **Periods : 45**

Marks : 50

Note : Duration of practicals should be four per week

I	Separation of plant pigments from plant samples.
II	Estimation of Vit. C from Fruit Juice. (Lemon Juice)
III	Determination of moisture from concentrates given to feeding cattle.
IV	Determination of mineral ash from oil cake.
V	Preparation of mixing of farm and poultry feed.
VI	Determination of Nitrogen from soil using soil kit.
VI	Determination of phosphate from soil using soil kit.

B. Sc. Second Year

(Agrochemicals & Fertilizers)

Reference Books :

1 Hand book of Vermiculture – Bhawalkar

2 Hand book of Practical sericulture – CS.B. Mumbai.

3 Fundamenta'el of soil science – Forth and Turk

4 Nature and properties of soil by Brady.

5 Soil fertility and fertilizers by Tisdate.

6 Soil fertility : Theory and practice by J. S. Kanwar

7 Soil condition and plant growth by Russel.

8 Soil their Chemistry and fertility in tropical Asia by Tahmane and Motiramani.

9 Essential of physiological chemistry by A. K. Anderson.

10 Text book of Biochemistry by West and Todd.

11 Introduction to modern biochemistry by P. Carlon.

12 Plant Biochemistry by Bonner.

13 Analytical Agricultural Chemistry by J. S. Kanwar and S. L. Chopra.

14 Chemical analysis by Jackson.

15 Analysis of Soil by Hase.

16 Experimental Biochemistry by G. Litwalk.s