

॥ सा विद्या या विमुक्तये ॥



स्वामी रामानंद तीर्थ मराठवाडा विद्यापीठ, नांदेड

“ज्ञानतीर्थ” परिसर, विष्णुपुरी, नांदेड - ४३१६०६ (महाराष्ट्र)

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY NANDED

“Dnyanteerth”, Vishnupuri, Nanded - 431606 Maharashtra State (INDIA)

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संलग्नित महाविद्यालयांतील विज्ञान व तंत्रज्ञान विद्याशाखेतील पदवी स्तरावरील प्रथम वर्षाचे CBCS Pattern नुसारचे अभ्यासक्रम शैक्षणिक वर्ष २०१९-२० पासून लागू करण्याबाबत.

प रि प त्र क

या परिपत्रकान्वये सर्व संबंधितांना कळविण्यात येते की, दिनांक ०८ जून २०१९ रोजी संपन्न झालेल्या ४४व्या मा. विद्या परिषद बैठकीतील ऐनवेळचा विषय क्र.११/४४-२०१९ च्या ठरावानुसार प्रस्तुत विद्यापीठाच्या संलग्नित महाविद्यालयांतील विज्ञान व तंत्रज्ञान विद्याशाखेतील पदवी स्तरावरील प्रथम वर्षाचे खालील विषयांचे C.B.C.S. (Choice Based Credit System) Pattern नुसारचे अभ्यासक्रम शैक्षणिक वर्ष २०१९-२० पासून लागू करण्यात येत आहेत.

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|---|---------------------------------------|
| 1. Agricultural Microbiology | 18. Dyes and Drugs |
| 2. Agrochemicals & Fertilizers | 19. Electronics |
| 3. Analytical Chemistry | 20. Environmental Science |
| 4. B.C.A. | 21. Fishery Science |
| 5. B.Voc. (Food Processing, Preservation and Storage) | 22. Food Science |
| 6. B.Voc. (Web Printing Technology) | 23. Geology |
| 7. Biochemistry | 24. Horticulture |
| 8. Bioinformatics | 25. Industrial Chemistry |
| 9. Biophysics | 26. Information Technology (Optional) |
| 10. Biotechnology (Vocational) | 27. Mathematics |
| 11. Biotechnonology | 28. Microbiology |
| 12. Botany | 29. Network Technology |
| 13. Chemistry | 30. Physics |
| 14. Computer Application (Optional) | 31. Software Engineering |
| 15. Computer Science (Optional) | 32. Statistics |
| 16. Computer Science | 33. Zoology |
| 17. Dairy Science | |

सदरील परिपत्रक व अभ्यासक्रम प्रस्तुत विद्यापीठाच्या www.srtmun.ac.in या संकेतस्थळावर उपलब्ध आहेत. तरी सदरील बाब ही सर्व संबंधितांच्या निदर्शनास आणून द्यावी.

‘ज्ञानतीर्थ’ परिसर,

विष्णुपुरी, नांदेड - ४३१ ६०६.

जा.क्र.: शैक्षणिक-०१/परिपत्रक/पदवी-सीबीसीएस अभ्यासक्रम/
२०१९-२०/२९२

दिनांक : ०३.०७.२०१९.

प्रत माहिती व पुढील कार्यवाहीस्तव :

- १) मा. कुलसचिव यांचे कार्यालय, प्रस्तुत विद्यापीठ.
- २) मा. संचालक, परीक्षा व मूल्यमापन मंडळ यांचे कार्यालय, प्रस्तुत विद्यापीठ.
- ३) प्राचार्य, सर्व संबंधित संलग्नित महाविद्यालये, प्रस्तुत विद्यापीठ.
- ४) साहाय्यक कुलसचिव, पदव्युत्तर विभाग, प्रस्तुत विद्यापीठ.
- ५) उपकुलसचिव, पात्रता विभाग, प्रस्तुत विद्यापीठ.
- ६) सिस्टम एक्सपर्ट, शैक्षणिक विभाग, प्रस्तुत विद्यापीठ.

स्वाक्षरित / -

उपकुलसचिव

शैक्षणिक (१-अभ्यासमंडळ) विभाग

Swami Ramanand Teerth Marathwada University,
Nanded

Choice Based Credit System
(CBCS) Pattern
Course Structure

Faculty of Science B.Sc. First Year Syllabus

**Semester Pattern effective
from June- 2019**

SUBJECT : AGROCHEMICALS AND FERTILIZERS

B.S c. First Year Pattern Subject : AGROCHEMICALSANDFERTILIZERS

Sr. No.	Semester	Paper No.	Name of the Course	Instruction Hrs/week	Total period	Internal Evaluation	Marks of Semester	Total Marks	Credits
1	I	CCAGFI(Section A)	Introductory Soil Science (Pi)	03	45	10	40	50	2
		CCAGFI(Section B)	Agricultural Biochemistry (Pii)	03	45	10	40	50	2
2	II	CCAGFII (Section A)	Soil Chemistry (Piii)	03	45	10	4 0	50	2
		CCAGFII(Secti on B)	Food and Nutrition(PIV)	03	45	10	4 0	50	2
		CCAGFPI[CCAGF I &11(Section A& B)]	Practical's based on Section A & Section B of CCAGFI&CCAGFII(PV)	04	20 Practical's	20	8 0	100	4
									12

The syllabus is based on six(3x2)the or period s and 4/- practical periods per batch per week. Candidates should require to pass separately in theory and Practical examination.

Marks distribution:

- 1) Theor y exam: 40marks(30+10 for each paper)
- 2) Internal evaluation: 10 marks (Test or Assignment & attendance)

Objectives:

- a. To understand physical, chemical and biological aspects.
- b. To understand the basic components of soil, their origin and various physicochemical properties
- c. To manage the soil in various ways so as to improve their fertility and productivity
- d. To understand the proper methods of soil testing to select proper fertilizers and suitable crops aiming for higher production

B.Sc. First year (Semester-I)
Semester Pattern effective from-2019
Subject : AGROCHEMICALS AND FERTILIZERS
CCAGFI (Section A)
INTRODUCTORY SOIL SCIENCE(P-1)

Credits:02(Marks:50)

Periods:45

UNIT-I

1. Soil forming Rocks and Minerals: 12
Definition of soil, soil components, physical chemical and biological functions of soil, definition, classification and properties of rocks and minerals. Weathering: Definition and types, factors responsible for weathering.

Unit-II

2. Soil profile: 08
Definition, soil horizons and typical diagram of soil profile. Soil components.

UNIT-III

3. Soil physical properties and the importance in soil fertility: 13
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.

Unit-IV

4. Soil fertility and productivity: 12
Definition, comparison between fertility and productivity and factors affecting them Management of soil productivity.

CCAGFI (Section B)

AGRICULTURAL BIOCHEMISTRY (P-11)

Credits:02(Marks:50)

Periods:45

UNIT-I

1. Scope and Importance of biochemistry in Agriculture 02
2. Carbohydrates: 09
Definition, classification, structure and properties of Glucose, biological significance of carbohydrates,

Unit-II

3. Amino acids and Proteins: 10
Amino acids : Definition, structure, classification and properties of amino acids.
Proteins: Introduction , definition, classification, properties
and structure of proteins. Qualitative tests for identification of proteins.

UNIT-III

4. Lipids: 12
Introduction, Definition, components of fats –alcohols and fatty acids,
classification of lipids, properties of fats and oils, biological significance of lipids.

Unit-IV

5. Enzymes: 12
Definition , classification, chemical nature of enzymes, factors affecting enzyme activity,
role of enzyme as biological catalysts.

CCAGF (Section A)

**SOIL CHEMISTRY
(P-III)**

Credits:02(Marks:50)

Periods:45

UNIT-I

Soil Colloids:

1. Definition, types, nature, constitution, classification of collides, properties of soil colloids and their role in soil fertility.

13

Unit-II

2. **Soil water:**

8

Importance ,retentionandmovementofwaterinsoil.Soilmoistureconstants,Loss of Water in soil and plats.

0

UNIT-III

3. **Soil Organic Matter:**

Sources, composition and decomposition of soil organic matter. Influence of soil organic matter. Factors affecting decomposition of organic matter.

10

4. **Ion exchange properties of Soil:**

Introduction,Imp01tance,cationexchangeprocessin soil. Anion exchange.

04

Unit-IV

5. **Soil reaction and buffering of Soil:**

Definition, factors controlling soil pH.Relation of soil pH and nutrient availability. Buffer capacity of soil.

05

6. **Soil micro-organisms:**

Important microbial process in Soil. Biological nitrogen fixation, Nitrification, ammonification , denitrification.

05

Reference Books:

- 1.Fundamental of Soil Science:F011handTurk.

2. Principles of Soil Science: M. M. Rai.
3. Nature and properties of Soil: Boolanann and Brady
4. A text book of soil science: Dr. J. A. Daji.
5. Introduction to agronomy :Vaidya and Sahastrabudde.
6. Soil fertility and fertilizer : Tisdle and Nelson
7. Soil Science :P. S. Vaima and V. K. Agaiwal.
8. Soil fertility:TheoryandPracticebyJ.S.Kanwai-.
9. Dictionary of Soil and water management by J.R.Kadam,B.P.Ghildyal
10. Hand book of agriculture:I.C.A.R.Publication

CCAGFII (Section-B)
FOOD AND NUTRITION (P-IV)

Credits:02 (Marks:50)

Periods:45

UNIT-I

7. Nutrition:

Food-Definition ,functions of food-Physiological, Social and Psychological,
Balanced Nutrition and malnutrition

16

Definition , nutritional components of food, energy requirements and its
importance. Nutritional importance of following food constituents.

- Carbohydrates.
- Proteins.
- Fats and fatty acids.
- Minerals and water.
- Fibers

Unit-II

8. Vitamins:

10

Introduction,classification,properties,functionsand deficiency symptoms
of vitamins. A, D , E, K, Vit. B-complex(B 1 & B 12)and vitamin-C(Ascorbic
acid).

UNIT-III

9. Plant Hormones:

10

Introduction, Importance's, Structure, Physiological role of following plants and
Gibberellins Hormones.

- a) Cytokines.
- b) Abscisic acid.

Applications of plant hormones in agriculture.

Unit-IV

10. a) Biochemical changes during seeds germination
b) Biochemical changes during fruits ripening.
c) Commercial use of Hormones in Fruits ripening.

9

Reference Books : Biochemistry

1. Foods: Facts and principle by N. Snakuntala Many and M. Shadaksharaswamy.
2. Hand book of agriculture : I.C.A.R. Publications.
3. Plant physiology by Sunderam.
4. Plant biochemistry by Bonner.
5. Text book of biochemistry by West and Todd.

6. Elementary biochemistry by J.L.Jain, Sanjay Jain and Nitin Jain.
7. Elements of biochemistry by Srivastava.
8. Fundamentals of food and nutrition by S.R. Mudambi and M.V.

9. Fundamentals of biochemistry by B.P.; Pandey.
10. Introduction to modern biochemistry by P. Caifon.
11. Plant physiology and biochemistry by Agaiwal.
12. A Text book of plant physiology by N. Datta.
13. Food and nutrition by Swaminathan.

Course Outcomes:

1. Creation of skill and trained manpower for agriculture sector
2. Application of latest technology to understand the physiochemical properties of soils
3. To assess the soil health parameters and helping government programs of soil health card distribution.
4. To carry out soil fertility and productivity mapping for better management of soil resources
5. To correlate the soil properties with the choice of proper fertilizer doses.
6. To manage the biological properties of soil by adding organic manures.
7. The ultimate outcome should be the increased productivity of soils with better management so as to improve crop yield.