



बिरसा मुंडा ट्रायबल युनिवर्सिटी Birsā Munda Tribal University

राजपिपला, जि० नर्मदा Rajpipla, Dist. Narmda

Established by Tribal Development Department, Govt. of Gujarat

School of Science

B.Sc. (Chemistry) Programme

Subject Code & Name: - BS05MICHE1 & Agriculture Science

Teaching and Evaluation Scheme:

Teaching Scheme				Examination Scheme			
Credits				Component Weightage			
				CCE		SEE	
L	T	P	Total	TH	PWE	TH	PWE
2	-	2	4	25	25	25	25

Programme Name	B.Sc.
Semester	V
Course Code	BS05MICHE2
Course Title	Agriculture Science
Course Content Type (Th./Pr.)	Theory & Practical
Course Credit	4
Sessions+ Lab. Per Week	4
Total Teaching/Lab. Hours	60 Hours
* 2 Laboratory = 1 Session	

Learning Objectives

1. Classify fertilizers based on nutrient content, origin, and form
2. Define complex fertilizers and distinguish them from mixed fertilizers
3. Identify micronutrients (Zn, Fe, Mn, Cu, B, Mo, Cl) and their functions
4. Define insecticides and explain their role in pest management
5. Identify commonly used insecticides and their applications
6. Define herbicides and explain their importance in weed control
7. Identify key herbicides such as 2,4-D; 2,4,5-T; Simazine; Atrazine; TCA; Monuron; Dalapon; and Glyphosate
8. Recognize potential hazards to humans, crops, and the environment and methods to minimize risks

Prerequisites (if any)

Learning Outcomes

On the completion of this course, students will be able to:

1. Define fertilizers and explain their importance in plant nutrition
2. Classify nitrogenous fertilizers into different forms (ammoniacal, nitrate, amide)
3. Evaluate the impact of soil conditions on nitrogen efficiency



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4. Identify commonly used complex fertilizers and their applications
5. Define insecticides and explain their role in pest control
6. Identify banned and restricted insecticides
7. Describe their basic chemical characteristics, common names, and uses

Detailed Contents

UNIT	TOPIC/SUB-TOPIC	TEACHING HOURS
I	Fertilizers Fertilizers: Introduction, Definition & Classification, Nitrogenous fertilizers: Introduction, Definition & Classification, Manufacturing process & properties of N fertilizers, Fate of N fertilizers and reactions in soil, Phosphate fertilizers: Introduction, Definition & Classification Manufacturing process & properties of phosphate fertilizers, Complex fertilizers: Introduction, Advantages, Examples, Fertilizer mixture: Advantages, Disadvantages, Types, Secondary and Micronutrient fertilizers.	15
II	Insecticides and Herbicides Introduction, Definition & Classification of insecticides Inorganic and organic insecticides 2.3 Insecticidal act and rules, insecticides banned, Insect pests of important crops and stored grains, Definition and Classification of herbicides, Some important herbicides (Structure, Chemical names, common names and uses): 2, 4-D, 2, 4, 5-D, Simazine, Atrazine TCA, Monuron, Dalapon, Glyphosate, Precautions in storage and handling of herbicides	15

Text Book(s)

1.

Reference Books

1. Chemistry of Insecticides and Fungicides-U.S. Sree Ramula.
2. Chemistry of Herbicides- Homer.
3. Chapman, R. F. – The Insects: Structure and Functions
4. A Textbook of Fertilizers by Dipak Ranjan Biswas
5. Chemistry of Fertilizers and Pesticides in Agricultural Systems

Web Resources

1. Google books, INFLIBNET, Google Web

Required Software(s) (if any)





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Practical(s) (if any)	
1. Determination of nitrogen from given fertilizer sample 2. Estimation of total N from plant sample by Micro Kjeldahl's method 3. Handling and storage of fertilizers 4. Determination of zinc content from micronutrient fertilizer (EDTA Method) 5. Determination of acidity (in terms of H_2SO_4) of ammonium sulfate 6. Estimation of copper from micro nutrient carrier	30

L:: Lecture, **T::** Tutorial , **P::**Practical

CCE:: Continuous and Comprehensive Evaluation

(CCE Theory includes Mid Semester Examination, Assignment, MCQ quizzes, Seminar, Reflective notes, class participation, case analysis and presentation, slip tests (announced/ surprised), attendance etc. or any combination of these)

PWE:: Practical Work Examination

(PWE includes Laboratory practical work, project work, viva simulation exercise work etc.)

SEE:: Semester End Evaluation