



# बिरसा मुंडा ट्रायबल युनिवर्सिटी

## Birsa Munda Tribal University

राजपिपला, जि. नर्मदा Rajpipla, Dist. Narmada

Established by Tribal Development Department, Govt. of Gujarat

### School of Science

### B.Sc. (Zoology) Programme

Subject Code & Name: - BS02MDCHE1: Agricultural Chemistry

### Teaching and Evaluation Scheme:

Teaching Scheme				Examination Scheme			
Credits				Component Weightage			
				CCE		SEE	
L	T	P	Total	TH	PWE	TH	PWE
3	-	1	4	37.5 %	12.5 %	37.5 %	12.5 %

Programme Name	B.Sc. (Zoology)
Semester	II
Course Code	BS02MDCHE1
Course Title	Agricultural Chemistry
Course Content Type (Th./Pr.)	Theory & Practical
Course Credit	3+1
Sessions+ Lab. Per Week	3+2
Total Teaching/Lab. Hours	45 Theory Hours + 30 Practical Hours
* 2 Laboratory = 1 Session	

### Learning Objectives

1. Agricultural chemistry often aims at preserving or increasing the fertility of soil with the goals of maintaining or improving the agricultural yield and improving the quality of the crop
2. As a form of applied sciences, some main aims of agricultural chemistry are: Increase yield of crops and livestock. Improving the quality of products. Reducing the cost of products.
3. To convert natural resources into viable business enterprises through scientific, technical, public private partnership and marketing support.





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#### Learning Outcomes

On the Completion of this course, students will able to:

1. Demonstrate the ability to apply appropriate theoretical knowledge, access relevant information, understand the principles of project and experimental design
2. Utilize practical skills, technology and computational systems when addressing problems and challenges related to agriculture.
3. Students will understand and analyze the current events and issues that are occurring in agriculture and how they affect your future in agriculture.
4. Students will be able to recognize and examine the relationships between inputs and outputs in their agricultural field to make effective and profitable decisions.
5. Acquire the ability to engage in independent and life-long learning in the ever-changing agricultural production system/enterprises.

#### Detailed Contents

UNIT	TOPIC/SUB-TOPIC	TEACHING HOURS
I	<b>Introduction of Soil Science</b> Soil-pedagogical and edaphological concepts, origin of the earth, rocks and minerals, weathering, soil profile, retention of water by soil, movement of soil water, layer silicate clays-genesis and classification, cation and anion exchange, humus-fraction of organic matter, carbon cycle, soil colloids, soil organic matter	15
II	<b>Soil Chemistry, Soil Fertility &amp; Nutrient Managements</b> Soil chemistry, soil pH and buffer pH, soil as a source of plant nutrient, all about nitrogen, phosphorous, potassium, secondary nutrients, micro nutrients, nutrient deficiency and toxicity, soil fertility evolution	15
III	<b>Manures, Fertilizers &amp; Agrochemicals</b> Manures-types, composition and values, green manures, composition of organic waste, classification of fertilizers-N,P and K, Nitrogenous fertilizers, potassium fertilizers, secondary and micronutrients fertilizers, complex fertilizers, mixed fertilizers, organophosphates, impacts of fertilizers on the environment Insecticides, herbicides, pesticides	15





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Unit – IV Practical(s)	30 Hours
<b>Basic techniques &amp; Calculations (Any five)</b> <ol style="list-style-type: none"><li>1. Determination of EC and pH of soil</li><li>2. Determination of cation exchange capacity of soil</li><li>3. Estimation of organic carbon content in soil</li><li>4. Determination of densities of soil</li><li>5. Determination of moisture content from soil and plant</li><li>6. Determination of maximum water holding capacity (MWHC) of soil.</li><li>7. Determination of hydraulic conductivity of soil</li></ol>	
<b>Text Book(s)</b>	
1. Introductory soil science, D.K. Das, Kalyani publishers	
<b>Reference Books</b>	
1. A handbook of soil. Fertilizer and manure, P.K. Gupta, Agribios	
2. Soil fertility and fertilizer, samual L. Tisdale and Nelson, PHI Learning publishers	
3. Fundamentals of soil science, V.N. Sahai, Kalyani publishers	
<b>Web Resources</b>	
<a href="http://www.agrigyan.in">www.agrigyan.in</a>	

**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

