Govt. T. R. S. (Autonomous) College Rewa (M.P.)

(Affiliated to A.P.S. University Rewa)

Department of Chemistry

Syllabus for B.Sc. Chemistry on CBCS

Session 2023-24

Part A - Introduction			
Program: UG (Diploma)	**Class: B.Sc. Chemistry**	**Semester: III**	**Session: 2023-24**

Subject: Chemistry			
1	**Course code**	**CHST-01**	
2	**Course title**	**BIOFERTILIZERS (PRACTICAL BASED COURSE)**	
3	**Course type**	**Skill Enhancement Course**	
4	**Pre-requisite (if any)**	**Open for All**	
5	**Course Objective**	The objective of this course to make students aware about the roll of chemistry in daily life.	
6	**Course Learning Outcomes (CLO)**	**By the end of this course, the students will be able to:** • Learn about the adulteration • Prepare new innovative formulations	
7	**Credit Value**	**3+1**	
8	**Total Marks**	**Max. Marks (40+60): CCE+ESE**	**Min. Passing Marks:**

Part B – Content of the course

Total No. of Lectures-Tutorials-Practical (2 hours per week):
L-T-P: 30-0-00

Unit	Topic	No. of Lectures
1	General account about the microbes used as biofertilizer – Rhizobium – isolation, identification, mass multiplication, carrier based inoculants, Actinorrhizal symbiosis. Azospirillum: isolation and mass multiplication – carrier based inoculant, associative effect of different microorganisms. Azotobacter: classification, characteristics – crop response to Azotobacter inoculum, maintenance and mass multiplication.	**9**
2	Cyanobacteria (blue green algae), Azolla and Anabaena azollae association, nitrogen fixation, factors affecting growth, blue green algae and Azolla in rice cultivation.	**7**
3	Mycorrhizal association, types of mycorrhizal association, taxonomy, occurrence and distribution, phosphorus nutrition, growth and yield – colonization of VAM – isolation and inoculum production of VAM, and its influence on growth and yield of crop plants.	**7**

4	Organic farming – Green manuring and organic fertilizers, Recycling of bio-degradable municipal, agricultural and Industrial wastes – biocompost making methods, types and method of vermicomposting – field Application. destroying enzymes: superoxide dismutase, catalase, peroxidase, mechanism of action.	**7**

Part C – Learning Resources

Text Books, Reference Books, Other resources

Suggested Reading:

1. Dubey, R.C. (2005). A Text book of Biotechnology S.Chand & Co, New Delhi.
2. John Jothi Prakash, E. (2004). Outlines of Plant Biotechnology. Emkay Publication, New Delhi.
3. Kumaresan, V.(2005). Biotechnology, Saras Publications, New Delhi.
4. NIIR Board. (2012). The complete Technology Book on Biofertilizer and organic farming. 2nd Edition. NIIR Project Consultancy Services.
5. Sathe, T.V. (2004) Vermiculture and Organic Farming. Daya publishers.
6. Subba Rao N.S. (2017). Biofertilizers in Agriculture and Forestry. Fourth Edition. Medtech.
7. Vayas,S.C, Vayas, S. and Modi, H.A. (1998). Bio-fertilizers and organic Farming Akta Prakashan, Nadiad.

Suggested equivalent online:

Part D – Assessment & Evaluation

Suggested Continuous Evaluation Method

Any remark / suggestion:

This course can be opted as an elective by the students of the following subjects:

Open for All

Continuous & Comprehensive Evaluation shall be based on allotted Assignment and Class Test

Keywords:

Useful microbes, Cyanobacteria, Mycorrhiza, Organic farming, Recycling, Vermicompost

Govt. T. R. S. (Autonomous) College Rewa (M.P.)

Department of Chemistry

Syllabus for B.Sc. Chemistry

on CBCS

Session 2023-24

Part A - Introduction			
Program: UG (Diploma)	**Class: B.Sc. (Hons) Chemistry**	**Semester: III**	**Session: 2023-24**
Subject: Chemistry (Honours)			

1	**Course code**	**CHSP-01**	
2	**Course title**	**BIOFERTILIZERS (PRACTICAL BASED COURSE)**	
3	**Course type**	**Skill Enhancement Course**	
4	**Pre-requisite (if any)**	**Open for All**	
5	**Course Objective**	The objective of this course to make students aware about the roll of chemistry in daily life.	
6	**Course Learning Outcomes (CLO)**	**By the end of this course, the students will be able to:** • Learn about the adulteration • Prepare new innovative formulations	
7	**Credit Value**	**1**	
8	**Total Marks**	**Max. Marks (60+40):**	**Min. Passing Marks:**

Part B – Content of the course

Total No. of Lectures-Tutorials-Practical (4 hours per week):
L-T-P: 00-0-15

Unit	Topic	No. of Lectures
1	1. Preparation of simple Organochlorine pesticides. 2. To calculate acidity/alkalinity in given sample of pesticide formulations as per BIS specifications. 3. To calculate active ingredient in given sample of pesticide formulations as per BIS specifications. 4. Preparation of Neem based botanical pesticides.	**15**

Part C – Learning Resources

Text Books, Reference Books, Other resources
Suggested Reading: 1. Perry, A.S.; Yamamoto, I.; Ishaaya, I.; Perry, R.Y.(1998),**Insecticides in Agricultureand Environment**, Springer-Verlag Berlin Heidelberg. 2. Kuhr, R.J. ; Derough, H.W.(1976),**Carbamate Insecticides: Chemistry, Biochemistryand Toxicology**, CRC Press,USA.
Suggested equivalent online:
Part D – Assessment & Evaluation
Suggested Continuous Evaluation Method
Any remark / suggestion:
This course can be opted as an elective by the students of the following subjects:
Continuous & Comprehensive Evaluation shall be based on allotted Assignment and Class Test

Keywords:
Chlorine, pesticidw,BIS.

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