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

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

Department of Chemistry

Syllabus for B.Sc. (Hons.) Chemistry on CBCS

Session 2022-23

Part A - Introduction			
Program: UG	**Class: B.Sc. (Hons) Chemistry**	**Semester: II**	**Session: 2022-23**
Subject: Chemistry (Honours)			

1	**Course code**	**CHGT-02 B**	
2	**Course title**	**Chemistry of Agriculture**	
3	**Course type**	**Generic Elective (GE)**	
4	**Pre-requisite (if any)**	**This Course is Open for All**	
5	**Course Objective**	The aim of this course is to make students understand the basic knowledge of agro-chemistry	
6	**Course Learning Outcomes (CLO)**	**By the end of this course, students will be able to:** • Learn about composition of soil. • Develop an understanding of different type of fertilizers. • Know about the pesticides,	
7	**Credit Value**	**4**	
8	**Total Marks**	**Max. Marks (40+60): CCE+ESE**	**Min. Passing Marks:**

Part B – Content of the course

Total No. of Lectures-Tutorials-Practical (4 hours per week):
L-T-P: 30-0-00

Unit	Topic	No. of Lectures
1	**Soil Analysis:** Formation of soil, classification of soil and properties of soil. Soil acidity, soil alkalinity, determination of soil pH, amending the soil, reclamation of acid soil, liming agent.	**5**
2	**Fertilizer** Types of fertilizer, advantages and disadvantages of fertilizers, importance of fertilizers. Functions of essentials nutrients, required characteristics of fertilizers. Bio fertilizer : general accounts about the microbes used as bio-fertilizer, Nitrogen fixing bacteria.	**6**
3	**Pesticides**: Introduction, classification, mode of action, uses and adverse effect of representative pesticides as DDT, Gammaxene, malthion, carbofuran, chloranil, alachlor Pest Control: Repellent, chemosterilants,	**6**

4	**Fungicides:** Introduction, classification, discovery, selectivity of fungicides, general mode of action of fungicides.	**5**
5	**Organic Forming:** Green manuring and organic fertilizer, recycling of biodegradable municipal, bio-compost making method, types and method of vermicomposting and its field application. Importance of Neem in Organic Agriculture, Need, benefit and preparation of organic fertilizers.	**6**
6	**Crop & Irrigation:** Importance of seed technology,Seed testing. Irrigation, methods (traditional & modern), conservation of rain water.	**2**

Part C – Learning Resources

Text Books, Reference Books, Other resources

Suggested Reading:

1. Banwell, C.N.; McCash, E.M.(2006), **Fundamentals of Molecular Spectroscopy**, Tata McGraw-Hill.
2. Kapoor, K.L.(2015),**A Textbook of Physical Chemistry**, McGraw Hill Education, ,Vol 4,5th Edition, McGraw Hill Education.
3. House, J.E.(2004), **Fundamentals of Quantum Chemistry**, 2nd Edition, Elsevier.
4. McQuarrie, D.A.(2016),**Quantum Chemistry**, Viva Books.
5. Chandra, A. K.(2001),**Introductory Quantum Chemistry**, Tata McGraw-Hill.
6. Kakkar, R. (2015),**Atomic & Molecular Spectroscopy**, Cambridge University Press.
7. Engel, T.; Reid, P.(2013),**Quantum Chemistry and Spectroscopy**, Pearson.
8. Atkins, P.W.; Friedman, R. (2010),**Molecular Quantum Mechanics**, 5th Edition, Oxford UniversityPress.

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:
DDT, Gammaxene, malthion, carbofuran, chloranil, alachlor, organic fertilizers ,acid soil, liming agent.

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

Department of Chemistry

Syllabus for B.Sc. (Hons.) Chemistry on CBCS

Session 2023-24

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

1	**Course code**	**CHGP-02 (Practical)**	
2	**Course title**	**Chemistry of Agriculture**	
3	**Course type**	**Skill Enhancement Course**	
4	**Pre-requisite (if any)**	**This Course is Open for All**	
5	**Course Objective**	The main objective of this course is to make students aware about agriculture.	
6	**Course Learning Outcomes (CLO)**	After completing this course, the students will be able to • Determine the effect of fertilizer and pesticides on soil. • Identify adulterations in food stuff.	
7	**Credit Value**	**2**	
8	**Total Marks**	**Max. Marks (40+60):**	**Min. Passing Marks:**

Part B – Content of the course

Total No. of Lectures-Tutorials-Practical (4 hours per week):
L-T-P: 00-0-60

Unit	Topic	No. of Lectures
1	1. Determination of the pH of soil using potentiometer. 2. Study of the effect of Potassium Bisulphate as food preservative under various conditions. 3. Study of common food adulterants in milk, oil, butter, sugar, turmeric powder and chilli powder. 4. Extraction of essential oils present in Saunf (aniseed), Ajwain (carum), Illaichi(cardamom). 5. Preparation of HCl extract from soil.	**60**

Part C – Learning Resources

Text Books, Reference Books, Other resources

Suggested Reading:

1. https://clu-in.org/download/ert/1844-r00.pdf
2. https://www.seminarsonly.com/Engineering-Projects/Chemistry/effect-of-potassium-bisulphite.php.
3. http://docshare01.docshare.tips/files/25092/250927757.pdf.
4. https://www.researchgate.net/publication/272492507_A_PROJECT_WORK_on_DETECTION_OF_ADULTERANTS_IN_SOME_COMMON_FOOD-STUFF

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:
pH, Titration, bisulphate, flask, filter paper.