

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**

<b>Program: UG</b>	<b>Class: ALL</b>	<b>Semester: IV</b>	<b>Session: 2023-24</b>
<b>Subject: Chemistry (Honours)</b>			
<b>1</b>	<b>Course code</b>	<b>CHST-05</b>	
<b>2</b>	<b>Course title</b>	<b>Aspect of Cleaning agents and hygiene products</b>	
<b>3</b>	<b>Course type</b>	<b>Skill Enhancement Course (SEC)</b>	
<b>4</b>	<b>Pre-requisite (if any)</b>	<b>This course is Open for all</b>	
<b>5</b>	<b>Course Objective</b>	<b>The objective of this course to make students aware about the roll of chemistry in surroundings.</b>	
<b>6</b>	<b>Course Learning Outcomes (CLO)</b>	<b>By the end of this paper Students will be able to</b> <ol style="list-style-type: none"><li>1. The students should learn fundamentals household chemicals, cleaning agent, technology of soap and detergent &amp; soap.</li><li>2. The students should define house hold products, natural, soap, detergent and various processes of household products</li><li>3. The students should explain preparations and reactions of household chemicals, reaction of floor, reaction of soap, and history of household products.</li><li>4. Student should have the basic knowledge of hygiene and sanitation.</li></ol>	
<b>7</b>	<b>Credit Value</b>	<b>4</b>	
<b>8</b>	<b>Total Marks</b>	<b>Max. Marks (40+60): CCE+ESE</b>	<b>Min. Passing Marks:</b>

**Part B – Content of the course**

**Total No. of Lectures-Tutorials-Practical (4 hours per week):**

**L-T-P: 60-0-00**

<b>Unit</b>	<b>Topic</b>	<b>No. of Lectures</b>
<b>1</b>	<b>(A) Household chemicals:</b> History of household Industry, Basic Theory of Household Chemicals, and Raw material required for household product, Product manufacture in household industry. Role of household product in day to day life.	<b>6</b>

	<b>(B) Cleaning agents:</b> Introduction, synthesis and applications of Natural cleaning agents, cleaning action, Floor cleaner, Toilet Cleaner, Bathroom Cleaner, Kitchen Cleaner.	
2	<b>Technology of Soap:</b> Chemistry of soap; Raw material for soap industry and their selection; hard fats yielding and oil yielding soaps; Chemical reactions of soaps; Hard and Soft soaps; Plant and process employed in soap manufacture; Liquid hand wash and liquid dish wash.	6
3	<b>Detergents and surfactants:</b> Introduction; Different terms used in detergents; Raw materials for detergents; Washing action of detergents; Types of detergents; Introduction of surfactants; Types of surfactants.	6
4	<b>A)</b> Principles of Food Hygiene, Food handling habits and personal hygiene. Types of Soil (Food residues on equipment surfaces) and its properties. <b>(B)</b> Types of sanitizing agents and their properties. Physical sanitizing agent's example Hot water, Steam and UV light. Acid and alkaline cleaners. Chlorine, iodine and their compounds as sanitizers, Quaternary ammonium compounds, phenolic compounds as sanitizers. Advantages and disadvantages of these sanitizers.	6
5	<b>Importance of sanitation and conservation:</b> Sanitation facilities and procedures in food plant operations. CIP system. Cleaning premises and surroundings. Common Pests in food services rodents, insects, birds, house flies, cockroaches, ants and their control. Hazards in food chain physical, chemical, biological	6

### Part C – Learning Resources

#### Text Books, Reference Books, Other resources

#### Suggested Reading:

- 1.Small scale industries and house hold industries in developing economy by Shetty M.C.
2. Manufacture of perfume cosmetics and detergents by Prasad Giri Raj.
3. Industrial chemistry by B.K.Sharma
4. Flavours & Essential oils, Industries SBP Board
5. Perfumes soaps & cosmetics by Poucher.
6. Guide to improving Food Hygiene - Ed Gaston & Tiffney
7. Food Poisoning and Food Hygiene (3rd Edition) -Betty C.Hobbs
- 8.Principles of Food Sanitation - Marriott. Norman G.
9. Hygiene in food manufacturing and Handling - Barry Graham- Rack and Raymond Bmsted

10. Food Hygiene and Sanitation S. Roday  
 11. Food Microbiology W.C. Frazier and D.C. Westhoff  
 12. Food Chemistry (New Edition) Owin R. Fenema  
 13. Food Microbiology M.R. Adams and M.O. Moss  
 14. Safety of Foods (II Edition) H.D. Graham

**Suggested equivalent online:**

- MOOCs
- NPTEL:
- MIT:
- Web resources:  
 (all URLs accessed in May 2021)
- <https://www.aipsglobal.com/introductory-program-in-paint-coating-technology-ptct/>  
<http://www.destip.org/dlp.as>

**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:**

CIP system, Rodents, pests, house flies, Food hygiene, Sanitizing agent, Acid & alkaline cleaner, Detergent, Surfactant, washing action.

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**

<b>Program: UG</b>	<b>Class: ALL</b>	<b>Semester: IV</b>	<b>Session: 2023-24</b>
<b>Subject: Chemistry (Honours)</b>			
<b>1</b>	<b>Course code</b>	<b>CHSP-05</b>	
<b>2</b>	<b>Course title</b>	<b>Aspect of Cleaning agents and hygiene products (Practical)</b>	
<b>3</b>	<b>Course type</b>	<b>Skill Enhancement Course (SEC)</b>	
<b>4</b>	<b>Pre-requisite (if any)</b>	<b>This course is Open for all</b>	
<b>5</b>	<b>Course Objective</b>	<b>The objective of this course to make students aware about the roll of chemistry in surroundings.</b>	
<b>6</b>	<b>Course Learning Outcomes (CLO)</b>	<b>By the end of this paper Students will be able to</b> <ul style="list-style-type: none"><li>• Gain basic knowledge about painting industry and painting processes.</li><li>• Learn importance of paint and varnishes, as surface coating for protection.</li><li>• Get awareness about various formulations such as vehicle, solvent, thinner, filler and additives.</li><li>• Understand protection of metal surface from corrosion.</li><li>• Get basic idea of electrostatic painting for machine.</li><li>• Understand various pigments and their use as additives in paint.</li><li>• Get basic idea of lubricants.</li></ul>	
<b>7</b>	<b>Credit Value</b>	<b>2</b>	
<b>8</b>	<b>Total Marks</b>	<b>Max. Marks (40+60):</b>	<b>Min. Passing Marks:</b>

**Part B – Content of the course**

**Total No. of Lectures-Tutorials-Practical (4 hours per week):**

**L-T-P: 00-0-30**

<b>Unit</b>	<b>Topic</b>	<b>No. of Lectures</b>
<b>1</b>	<b>1. Analysis of household chemicals</b> <ul style="list-style-type: none"><li>• Sodium bicarbonate</li><li>• Sodium carbonate</li><li>• Calcium sulphate</li><li>• Calcium carbonate</li><li>• Fructose</li><li>• sucrose</li></ul> <b>2. Preparation of soap</b> <b>3. Physiochemical analysis of soap.</b> <b>4. Determination of alkali content and total fatty matter in cleansing agent.</b> <b>5. Analysis of soap &amp; synthetic detergent mixtures in bar form.</b>	<b>30</b>

**Part C – Learning Resources**

## Text Books, Reference Books, Other resources

### Suggested Reading:

1. Mann, F. G.; Saunders, B. C. (2009), **Practical Organic Chemistry**, Pearson Education.
2. Ahluwalia, V.K.; Dhingra, S. (2004), **Comprehensive Practical Organic Chemistry: Qualitative Analysis**, University Press.
3. Furniss, B.S.; Hannaford, A.J.; Smith, P.W.G.; Tatchell, A.R.(2012), **Vogel's Text book of Practical Organic Chemistry**, Pearson.
4. Leonard, J.; Lygo, B.; Procter, G. **Advanced Practical Organic Chemistry**, CRC Press.

### Suggested equivalent online:

1. <https://chembam.com/online-resources/experiments/metal-corrosion/>
2. [https://www.sciencebuddies.org/science-fair-projects/project-ideas/BioChem\\_p045/biotechnology-techniques/can-column-chromatography-separate-the-dyes-in-grape-soda#summary](https://www.sciencebuddies.org/science-fair-projects/project-ideas/BioChem_p045/biotechnology-techniques/can-column-chromatography-separate-the-dyes-in-grape-soda#summary)

## 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:

1. Separation, Detection, Chromatography, Kjeldahl, distillation, melting point,