

“Dissemination of Education for Knowledge, Science and Culture”
- Shikshanmaharshi Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha, Kolhapur

Raje Ramaro Mahavidyalaya, Jath

(AFFILIATED TO SHIVAJI UNIVERSITY, KOLHAPUR)

Certificate Course

In

**“PREPARATION OF HOUSEHOLD
CHEMICALS”**



SYLLABUS

TITLE: Processing and Preparation of Household Chemicals

1. **YEAR OF IMPLEMENTATION:** 2021-22
2. **PREAMBLE:** This syllabus is prepared for 12th pass with Chemistry students. At this level, to develop their interest towards household chemistry and also to prepare them for the industrial exposure. The interdisciplinary approach with vigor and depth is compatible to the syllabi of other universities. The units in the syllabus are well defined with scope and the number of lectures. The references are mentioned with relevance.
3. **GENERAL OBJECTIVES OF THE COURSE:**
 1. The students are expected to understand the fundamentals, basic principles, concepts and recent developments in the subject area.
 2. The practical course is in relevance to the theory courses to improve the understanding of the concepts.
4. **DURATION:** 3 Months
5. **ELIGIBILITY TO COURES:** 12th pass with Chemistry
6. **MEDIUM OF INSTRUCTION:** English
7. **STRUCTURE OF COURSE:**

Paper No. and Name
CCT 101: Introduction of Household Chemicals
CCL 102: Preparation of various household Products
CCP 103: Project on household Chemicals

A) **LIBRARY:** Reference and Textbooks, Journals and Periodicals, Reference Books for Advanced Books for Advanced studies.

B) **SPECIFIC EQUIPMENTS:** Computer, LCD, Projector, Visualizer, Smart board

C) **Laboratory Equipment:**

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|---------------------------------------|---------------------------------------|------------------------------------|
| 1. Digital balance with 1 mg accuracy | 2. Burette, pipette and conical flask | 3. 1/10 ⁰ C thermometer |
| 4. Polythene bottles , | 5. Measuring cylinder | 6. Stopper bottle |
| 7. Test tube, Beaker | 8. Evaporating dish | 9. Glass rod |
| 10. Wire gauze | 11. Burner | 12. Water bath |
| 13. Tripod stand | 14. Burettes stand | 15. Iron stand |
| 16. Test tube holder | 17. Test tube stands | 18. Dropper |

Learning Outcomes:

1. Preparation of sanitary acid

1. Students should define meaning of sanitary acid
2. Students should know different preparation of sanitary acid
3. Students should prepare various normality sanitary acids

2. Preparation of liquid soap

1. Students should define liquid soap
2. Students should know different reactions for preparation of liquid soap
3. Students should prepare liquid soap

3. Preparation of white phenyl

1. Students should define white phenyl
2. Students should know preparation of white phenyl
3. Students should prepare various compositions of phenyl

4. Solid soap manufacture

1. Students should define soap
2. Students should know different reactions for preparation of soap
3. Students should prepare various soaps

5. Reraction of active principle of herbal products: Babul, Chandan, haldi, Jasmin, Reetha and Neem.

1. Students should define herbal product, extraction technique.
2. Students should know different reactions for preparation of herbal products
3. Students should prepare various extracts of babul, chandan, haldi, jasmin, reetha, neem

4. Practical based on preparation of various cosmetic products by using herbal principle: Shampoo and Mouth wash.

1. Students should define cosmetic products
2. Students should know different reactions for preparation cosmetic products
3. Students should prepare shampoo and mouth

Evaluation System:

All the students will be continuously evaluated by,

a. Attendance	05 M
b. Assignments	05 M
c. Theory examination	40 M
d. Practical examination	30 M
e. Project	20 M
Total	100 M

Theory: Paper I: Introduction to Household Products Learning

Objectives:

1. To expose the students to various emerging new areas of Chemistry and apprise them with their prevalent in their future studies and their applications in various spheres of chemical sciences.
2. To enhance student sense of enthusiasm for chemistry and to involve them in an intellectually stimulating experience of learning in a supportive environment.

CCT 101: Introduction of Household Chemicals

Contact Hrs: 24

UNIT I

(06 Lectures)

Household chemicals: 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.

UNIT II

(06 Lectures)

Cleaning agents: Introduction, synthesis and applications of Natural cleaning agents, cleaning action, Floor cleaner, Toilet Cleaner, Bathroom Cleaner, Kitchen Cleaner

UNIT III

(06 Lectures)

Technology of Soap: 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.

UNIT IV

(06 Lectures)

Detergents and surfactants: Introduction; Different terms used in detergents; Raw materials for detergents; Washing action of detergents; Types of detergents; Introduction of surfactants.

Recommended Books: (Unit wise)

1. Small scale industries and house hold industries in developing economy by Shetty M.C. (Unit I)
2. Manufacture of perfume cosmetics and detergents by Prasad Giri Raj (Unit V)
3. Industrial chemistry by B. K. Sharma (Unit I and II)
4. Flavors & Essential oils, Industries SBP Board (Unit III)
5. Perfumes soaps & cosmetics by Poucher.(Unit III)
6. Manufacture of perfumes, cosmetics and detergents by Giriraj Prasad (Unit IV)
7. Manufacture of perfumes, cosmetics and detergents by Prasad. (Unit IV)

Learning Outcomes:

Unit I Household Chemicals

1. The students should learn fundamentals household chemicals.
2. The students should define house hold products, various processes of household products
3. The students should explain preparations and reactions of household chemicals, history of household products.

Unit II Cleaning agents

1. The students should learn fundamentals of various cleaning agents.
2. The students should define natural, floor, toilet, bathroom and kitchen cleaning agents
3. The students should explain preparations and reactions of natural, floor, toilet, bathroom and kitchen cleaning agents

Unit III Technology of Soap

1. The students should learn technology of soap
2. The students should define soap, hard and soft soap, liquid soap
3. The students should explain preparations and reactions of soap, liquid soap

Unit IV Detergents and surfactants

1. The students should learn fundamentals of detergents and surfactants

2. The students should define detergents, surfactants
3. The students should explain preparations and various types of detergents and surfactants

Practical Course: CCL 102: Preparation of various household Products

Contact Hrs.: 48

1. Preparation of sanitary acid
2. Preparation of liquid soap
3. Preparation of white phenyl
4. Solid soap manufacture
5. Extraction of active principle of herbal products: Babul, Chandan, haldi, Jasmin, Reetha and Neem.
6. Practical based on preparation of various cosmetic products by using herbal principle: Shampoo and Mouth wash.

Recommended Books:

1. Vogel's text book of Qualitative Chemical Analysis (Longman ELBS Edition)
2. Vogel's text book of Quantitative Analysis (Longman ELBS Edition)
3. Practical Organic Chemistry by A.I. Vogel
4. Practical Organic Chemistry by O.P. Agrawal.
5. Practical Organic Chemistry by F. G. Mann & B. C. Saunders
6. Comprehensive Practical Organic Chemistry Qualitative Analysis by V. K. Ahluwali
7. A Text Book of Quantitative Inorganic Analysis Including Elementary Instrumental Analysis: A.I. Vogel (Third Ed.).

Project course: CCP 103: Project on household Chemicals