

TITLE OF VOCATIONAL PROGRAMME

Preparation of Household Cleaning Agents and Disinfectants

Faculty : Science

Department : Chemistry

Household chemicals are non-food chemicals that are commonly found and used in almost every place like homes, schools, offices and markets. They are designed particularly to assist cleaning house and yard maintenance, pest control and for other hygiene purposes. Cleaning is the process of removing unwanted substances such as dirt, stains, infectious agents and other impurities from an object or environment. So Cleaning is very essential to stay fit & healthy. Cleaning also protect the health of human beings by controlling the transmission of diseases.

For Cleaning we require different types of cleaning agents and disinfectants. A cleaning agent is not the instrument used for cleaning but rather the chemicals in liquid or solid forms actually does the cleaning. They are either natural or synthetic substances that are used to aid the cleaning process. The toxicity of a chemical substance depends on the strength and nature as well as how long the person is in contact with it. So it is important to know the various aspects of their uses. This course is designed to learn about Preparation of household cleaning agents and disinfectants

CAREER SCOPE

- This course gives opportunity to students to learn in the field of their interest.
- Development of soft skills.
- Provides students hand on experience.
- It helps to understand the concept with a better application.
- Helps students to be financially stable person at young age with training & knowledge.
- Develop confidence, reduces fear and work as a stress buster at time
- Starting with small financial backup helps for secured future in life.
- Short term course build the future of the students.
- Helps students to achieve the dream life style.

Credit : 3	Programme : Vocational
Max.Marks : 100 Per Year	Min.Passing Marks : 33
Department : Chemistry	Course Code : Community Science
Duration of Programme : 2 SEM.	
Total No. of Lectures-Tutorials-Practical (In hours per week) : L-T-P : 1.0.2	

Semester-1	Topics	No.of Lect.
(Theory)	<u>HOUSE HOLD CHEMICALS</u>	15
Unit 1	Introduction of house hold industry, basic theory of house hold chemicals, requirement of raw materials, role of house hold products in daily life.	
Unit-2	<u>DISINFECTANTS AND CLEANING AGENTS</u> Introduction, types of disinfectants cleaning agent, and its applications, natural and synthetic cleaning agents, chemistry of cleaning action. Different types of cleaners (Floor,Kitchen,Bathroom,Toilets.)	

(Practical)	<p>Exp.1-Introduction of Laboratory equipments required: Exp.2-Detection of Raw materials from environment. Exp.3-Drying & Extraction of Raw Material Exp.4-Purification of Material Exp.5-Detection of Natural Cleaners Exp.6- Preparation of Floor, Kitchen, Bathroom, Toilets cleaners Exp.7-Natural Stain Remover Exp.8-Tour to any related Industry</p>	30
Semester-2	Topics	No.of Lect.
<p>Unit-3 (Theory)</p> <p>Unit-4</p>	<p style="text-align: center;"><u>HARD & SOFT SOAPS</u></p> <p>Chemistry of soap: Raw material for soap industry, chemical reactions of soaps: Hard and Soft soaps, flavor and fragrance used in soap manufacture, Liquid dish wash and Liquid hand wash.</p> <p style="text-align: center;"><u>DETERGENT AND SURFACTANTS</u></p> <p>Introduction of detergents & Surfactants Terminology use in detergents industry, Raw materials and washing action of detergent, Role of pH in detergent manufacturing.</p>	15
	<p>Exp.1-Natural Material required for soap (Neem/Aloevera /Rose petals / Lavender/Reetha (any two)</p>	

Practical	Exp.2-Drying and Purification Exp.3-Extraction of natural oil Exp.4-Synthesis of soap Exp.5-Moulding into various forms Exp.6-Identification of Natural Organic Detergents Exp.7-Preparation of detergents for dishes/clothes Exp.8-Testing of pH of the detergent Exp.9-Project on any above said topic	30
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LABORATORY EQUIPMENTS REQUIRED:

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| 1- Digital balance with 1 mg accuracy | 2- Burette, Pipette and Conical flask |
| 3-1/10 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

19-Soxhlet

20-Distillation unit

Suggested continuous Evaluation Methods:

Theory : 20 Marks for Test/Quiz, 05 Marks for theory Class interaction.

Practical : 08 Marks for Record File

Tour /Project : 07 Marks for Tour/Project.

Vivo-Vice : 05 Marks for Viva-voce

Practical Class Interaction: 05 Marks for practical class interaction.

Eligibility : : Pass in 10+2

LEARNING OUTCOMES: FOR STUDENTS

Unit I Household Chemicals:

- 1- The students should learn fundamentals of household chemicals.
- 2- The students should define various processes of household chemicals.
- 3 The students should explain preparations, uses and reactions of household chemicals.

Unit II Cleaning agents:

- 1- The students should learn fundamentals of different cleaning agents and Sanitary acids.
- 2- The students should define different strength of cleaning agents.
- 3- Preparation of sanitary acids of different strength.

- 4- The students should prepare various composition of phenyl.
- 5- The students should explain preparations and reactions of floor, toilet, bathroom and kitchen cleaning agents.

Unit III Hard & Soft Soap:

- 1- The students should learn technology of soap
- 2- The students should define soap, hard and soft soap and liquid soap.
- 3- The students should explain preparations and reactions of soap and liquid soap.
- 4- Students should define herbal product, extraction techniques.
- 5- Preparation of soap of different flavor and fragrances.

Unit IV Detergents and surfactants :

- 1- The students should learn basic of detergents and surfactants
- 2- The students should define detergents, surfactants and role of pH in it.
- 3- The students should explain preparations and various types of detergents and surfactants

Books and Study Materials:- (Unit wise)

- 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. Flavors & Essential oils, Industries SBP Board.
5. Perfumes soaps & cosmetics by Poucher.
6. Manufacture of perfumes, cosmetics and detergents by Giriraj Prasad.
7. Manufacture of perfumes, cosmetics and detergents by Prasad.

Recommended books : (PRACTICAL)

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. Agarwal
5. Practical Organic Chemistry by F.G. Mann & B.C. Saunders
6. Comprehensive Practical Organic Chemistry Qualitative Analysis by V.K.Ahluwali
7. Text book of Quantitative inorganic Analysis including elementary instrumental Analysis: A.I.Vogel (Third Ed.)