



## **WMO ARTS AND SCIENCE COLLEGE, MUTTIL**

### **DEPARTMENT OF CHEMISTRY**

#### **CERTIFICATE COURSE ON**

#### **DETERGENTS AND HAND SANITIZER MAKING**

No. of Hours: 30

Course Co-ordinator: Dr. Thomas Thevara

#### **Course Objectives**

The objective of this certificate course is to provide students with an overview of the role of chemistry in society, manufacturing processes of soap, detergents, hand wash, and hand sanitizers, introduction to pharmaceutical chemistry, and analytical chemistry. Students will gain an understanding of the scientific principles behind these processes, and the importance of sustainability and quality control in manufacturing and analysis.

#### **Syllabus**

##### **Module 1: Chemistry in Service of Humanity**

Chemistry and society - Chemistry and sustainable development- Green chemistry and sustainability- Chemistry in energy and environment- Chemistry in health and medicine.

##### **Module 2: Manufacture of Soaps, Detergents, Hand Wash, and Hand Sanitizer**

Soap making chemistry and techniques-Types of soap: Hard soap, soft soap, transparent soap-Detergent chemistry and manufacturing processes-Hand wash and hand sanitizer chemistry and formulations- Quality control and analysis of soap, detergent, hand wash, and hand sanitizer.

##### **Module 3: Introduction to Pharmaceutical Chemistry**

Introduction to pharmacology and pharmaceutical chemistry-Drug discovery and development-Drug delivery systems and formulations-Pharmacokinetics and pharmacodynamics-Pharmaceutical analytical techniques.

## **Module 4: Analytical Chemistry in Service of Humanity**

Analytical techniques for chemical analysis-Qualitative and quantitative analysis-Instrumental methods of analysis: Spectroscopy, chromatography, mass spectrometry-Quality assurance and quality control in chemical analysis-Applications of analytical chemistry in industry and research.

### **Course Outcome**

- Understand the role of chemistry in service of humanity
- Understand the manufacturing processes of soap, detergents, hand wash, and hand sanitizers
- Understand the principles of drug discovery and development, and pharmaceutical analytical techniques
- Analyze chemical samples using various analytical techniques
- Understand the importance of sustainability and quality control in chemical manufacturing and analysis.