

# **DEVA MATHA COLLEGE, KURAVILANGAD**

**Affiliated to Mahatma Gandhi University, Kottayam**



## **SYLLABUS**

### **ADD-ON COURSE**

**In**

**Fundamentals of polymer synthesis and  
characterization techniques**

**Academic Year: 2021-22**



DEVA MATHA COLLEGE KURAVILANGAD

DEPARTMENT OF CHEMISTRY

*Add on Courses offered for Students : 2021-2022*

- **Fundamentals of Polymer Synthesis and Characterization Techniques - *for II DC Students***  
**DMCK/CHEM/AD 03/2021**
- **Forensic Science - *for II DC Students***  
**DMCK/ CHEM/AD 04/2021**
- **Preparation and Marketing of Milk Products - *for III DC Students***  
**DMCK/ CHEM/AD 05/2021**

**Department Coordinator: Dr. Deepthi John**

**Title: Fundamentals of polymer synthesis and characterization technique**

**Instructional Hours: 30**

**Duration: 6 months**

**Mode of Instruction: Online and Classroom teaching with practical session**

**Intake Capacity: 50**

**Eligibility: UG/PG students from Science stream**

# **Fundamentals of polymer synthesis and characterization techniques**

**In association with Central Institute of Plastic Engineering and Technology (CIPET) Palakkad**

## **COURSE OBJECTIVES**

- To understand the importance of the chemical approach to polymers and the subject provides an introduction to polymer science with respect to Plastics Processing, Plastics Recycling as well as Plastics Mould Manufacturing.
- To understand the different methods of polymer synthesis and techniques of polymer characterization

## **Syllabus:**

### **Module 1: Fundamentals of Plastic Processing techniques**

Injection Moulding-Extrusion Process Theory-Blow Moulding-Rotational Moulding-Thermoforming-Calendarling-Compression Moulding-Transfer Moulding

### **Module 2: Plastic Materials**

Thermoplastics – Commodity, Engineering, Specialty Plastics-Thermosetting Materials-Biopolymers

### **Module 3: Plastic Recycling**

Recycling Machines-Steps involved in recycling

### **Module 4: Fundamentals of Polymer Synthesis and Characterization**

Types of Polymerization process- Addition Polymerization and Condensation Polymerization

Characterization Techniques-Differential Scanning Calorimeter(DSC), Thermo gravimetric Analyzer(TGA), UV-Visible Spectroscopy and Fourier Transform Infrared Spectroscopy(FTIR)

## COURSE OUTCOME

- Students will understand about the basics of polymer science with respect to Plastics Processing, Plastics Recycling and Plastics Mould Manufacturing.
- Students will develop technical and professional skills, competencies, and thought processes sufficient to support further study or work in this field of Polymer Chemistry.
- Students will be able to evaluate the different methods of polymer synthesis and characterization techniques

**Assessment Procedure:** The add on course shall carry 60 marks with 50% Continuous Assessment (equal weightage to Assignment and viva voce) and 50% written examination of 1 hour duration.

### Grading

The percentage of marks obtained by a candidate in a course will be indicated in a letter grade. Evaluation of the performance of the student will be rated as shown in the Table.

Letter Grade	Marks %
A	90 and above
B	80-89
C	70-79
D	60-69
E	50-59
RA(Reappearance)	< 50
W	Withdrawn from the examination



  
Principal  
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Kuravilangad - 686 633