

DEVA MATHA COLLEGE, KURAVILANGAD

Affiliated to Mahatma Gandhi University, Kottayam



REPORT

ADD-ON COURSE

In

Fundamentals of polymer synthesis and characterization techniques

Academic Year: 2021-22

Fundamentals of polymer synthesis and characterization techniques

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

Duration 30 hrs Mode of classes: Google Meet

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

SUMMARY REPORT

The programme was conducted by the department of Chemistry in association with Central Institute of Plastic Engineering and Technology (CIPET) Palakkad. The programme helped to familiarize the various processes involved in the production of plastics and also delivered a clear picture regarding the proper usage and disposal of plastics. The students were also made familiar with the polymer Characterization Techniques like Differential Scanning Calorimeter (DSC), Thermo gravimetric Analyzer (TGA), UV-Visible Spectroscopy and Fourier Transform Infrared Spectroscopy (FTIR). It also helped to strengthen the capacity of youths for sustainable employment. The programme was conducted according to the schedule given below.

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 |

PROGRAMME SCHEDULE

| Day | Time | Programme | Trainer |
|------------------------------------|------------------------|--|--|
| DAY 1 10-01-2022 | 7.00 PM to 9.30 PM | Introduction to Polymers | Dr. Deepthi John Dept. of Chemistry Deva Matha College |
| DAY 2 12-01-2022 | 7.00 PM to 9.30 PM | Fundamentals of Plastic Processing Technique | Mr. Nikhil K R Trainer from CIPET |
| DAY 3 13-01-2022 | 7.00 PM to 9.30 PM | Extrusion Moulding: Theory | Mr. Boby Deol Sharma Trainer from CIPET |
| DAY 4 15-01-2022 | 7.00 PM to 9.30 PM | Plastic Recycling | Mr. Lijo K T Trainer from CIPET |
| DAY 5 17-01-2022 | 7.00 PM to 9.30 PM | Rotational Moulding and Thermoforming | Mr. Sarath R S Trainer from CIPET |
| DAY 6 18-01-2022 | 7.00 PM to 9:30 PM | Compression Moulding Molding | Mr. Boby Deol Sharma Trainer from CIPET |
| DAY 7 19-01-2022 | 7.00 PM to 9:30 PM | Plastic Materials | Ms. Rahna K R Trainer from CIPET |
| DAY 8 20-01-2022 | 7.00 PM to 9:30 PM | Calendering | Mr. Nikhil K R Trainer from CIPET |
| DAY 9 21-01-2022 | 7.00 PM to 9:30 PM | Blow Moulding | Mr. Boby Deol Sharma Trainer from CIPET |
| DAY 10 22-01-2022 | 7.00 PM to 9:30 PM | Injection Moulding | Mr. Sarath RS Trainer from CIPET |
| DAY11 24-1-2022 | 7.00 PM to 9:30 PM | Polymer Synthesis and Characterization | Ms. Rahna KR Trainer from CIPET |
| DAY11 25-1-2022 | 6.00 PM to 10.00 PM | Career in Polymer Technology, Assessment and Evaluation | Dr. Deepthi John Dept of Chemistry Deva Matha College |

Mark List

| Sl. No | Name | Score(out of 60) | Grade |
|--------|---------------------------|------------------|-------|
| 1 | VYSHNAVI P NAIR | 58 | A |
| 2 | ATHULYA MS | 58 | A |
| 3 | ADWAITH R NATH | 58 | A |
| 4 | NEERAJA SUDARSAN | 58 | A |
| 5 | ANAND JAYAKUMAR | 60 | A |
| 6 | ALEENA ANNA FRANCIS | 60 | A |
| 7 | ANJANA PRAMOD | 58 | A |
| 8 | ANGEL MARY JOJO | 60 | A |
| 9 | ELSEMARIYA JOSEPH | 60 | A |
| 10 | ARCHANA G | 57 | A |
| 11 | NANDANA SHAJI | 58 | A |
| 12 | MIDHUN GEORGE | 58 | A |
| 13 | YATHUKRISHNAN K AJAMON | 58 | A |
| 14 | AMALA K B | 58 | A |
| 15 | ANJITHA ANILKUMAR | 58 | A |

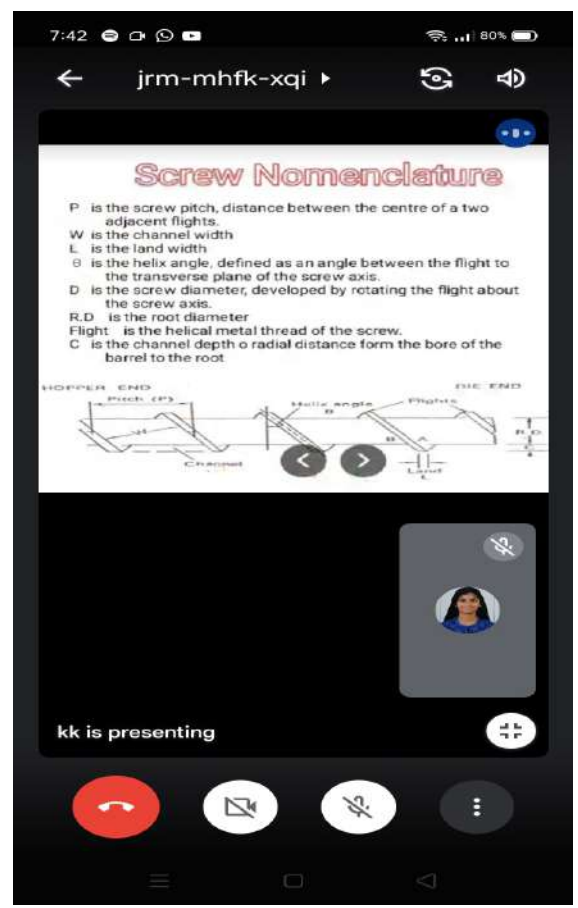
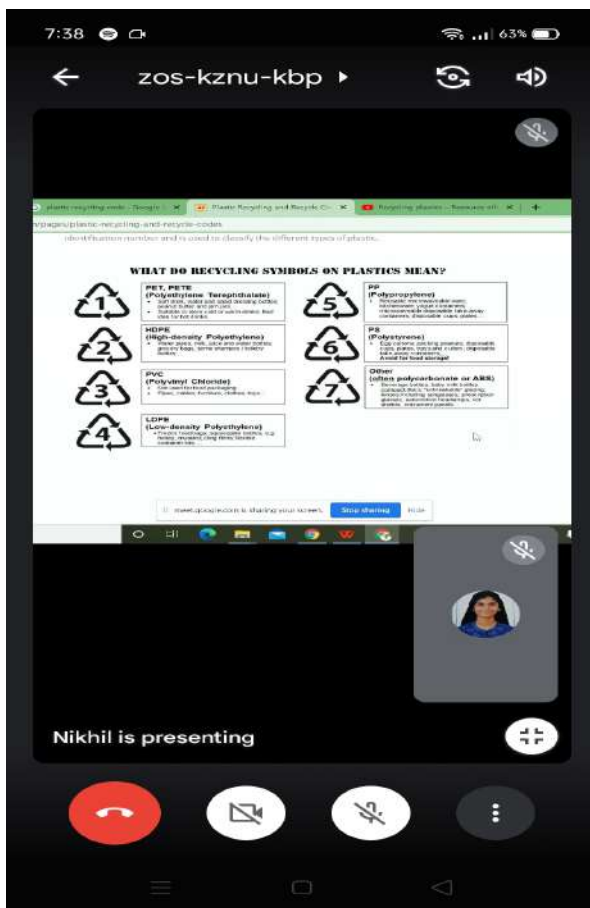
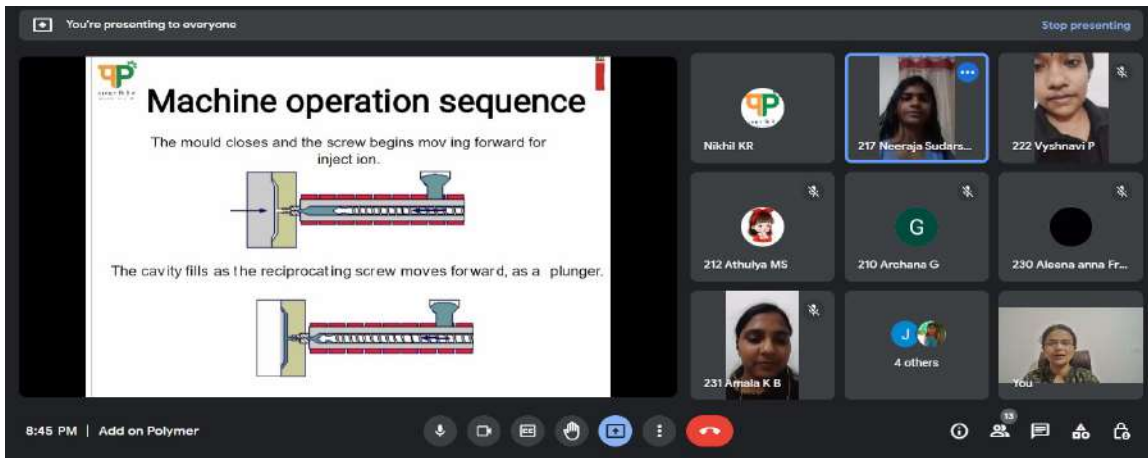
FEED BACK

| S .NO | Particulars | Very high (10) | High(8) | Adequate(6) | Low/less(4) | Very low/very less(2) |
|-------------|---|----------------|-----------|-------------|------------------|-----------------------|
| Indicator 1 | Usefulness of the programme | | | | | |
| Indicator 2 | Duration of the programme | | | | | |
| Indicator 3 | Course content | | | | | |
| Indicator 4 | Meeting your objectives | | | | | |
| Indicator 5 | Proportionate coverage on knowledge/skill | | | | | |
| Indicator 6 | Quality of presentation/course | Excellent (10) | Very good | Good (6) | Satisfactory (4) | Poor(2) |


| | | | | | | | | | |
|--------------------|--|--|------------|--|--|--|--|--|--|
| | materials | | (8) | | | | | | |
| Indicator 7 | Training Methodology | | | | | | | | |
| Indicator 8 | Course planning/coverage/schedule | | | | | | | | |
| Indicator 9 | Training hospitality | | | | | | | | |

| Sl No | Name | Ind 1 | Ind 2 | Ind 3 | Ind 4 | Ind 5 | Ind6 | Ind7 | Ind8 | Ind 9 |
|--------------|---------------------------|--------------|--------------|--------------|--------------|--------------|-------------|-------------|-------------|--------------|
| 1 | VYSHNAVI P NAIR | 10 | 8 | 10 | 6 | 8 | 8 | 8 | 6 | 6 |
| 2 | ATHULYA MS | 10 | 8 | 10 | 10 | 10 | 10 | 10 | 8 | 10 |
| 3 | ADWAITH R NATH | 10 | 8 | 10 | 8 | 6 | 8 | 6 | 6 | 4 |
| 4 | NEERAJA SUDARSAN | 8 | 8 | 8 | 6 | 6 | 8 | 6 | 6 | 8 |
| 5 | ANAND JAYAKUMAR | 8 | 6 | 10 | 8 | 8 | 8 | 8 | 8 | 10 |
| 6 | ALEENA ANNA FRANCIS | 10 | 6 | 8 | 8 | 8 | 8 | 6 | 6 | 8 |
| 7 | ANJANA PRAMOD | 10 | 6 | 10 | 10 | 10 | 10 | 10 | 10 | 8 |
| 8 | ANGEL MARY JOJO | 6 | 8 | 8 | 6 | 6 | 6 | 6 | 8 | 6 |
| 9 | ELSEMARIYA JOSEPH | 10 | 8 | 10 | 10 | 10 | 10 | 10 | 8 | 10 |
| 10 | ARCHANA G | 10 | 8 | 10 | 10 | 10 | 10 | 10 | 8 | 10 |
| 11 | NANDANA SHAJI | | | 8 | | | | | | |
| 12 | MIDHUN GEORGE | 10 | 8 | 10 | 10 | 10 | 10 | 10 | 8 | 10 |
| 13 | YATHUKRISHNAN K AJAMON | 10 | 8 | 8 | 10 | 10 | 10 | 10 | 8 | 10 |
| 14 | AMALA K B | 10 | 6 | 10 | 6 | 6 | 8 | 6 | 6 | 6 |
| 15 | ANJITHA ANILKUMAR | 6 | 6 | 8 | 6 | 6 | 6 | 4 | 4 | 4 |

Photos



Sample Certificate



DEVA MATHA COLLEGE KURAVILANGAD

CERTIFICATE


This is to certify that
has successfully completed the Add-on Course titled '**Fundamentals
of Polymer Synthesis and Characterization Techniques**'
(DMCK/CHEM/AD03/2021)
conducted by the Department of Chemistry of
Deva Matha College, Kuravilangad
during the academic year 2021-22 with '**A**' grade.

KURAVILANGAD
25 - 03 - 2022

DR. SUNIL C. MATHEW
PRINCIPAL

DR. DEEPTHI JOHN
CO-ORDINATOR



Dr. Deepthi John 
Course Coordinator
Assistant professor
Department of Chemistry



Principal
Deva Matha College
Kuravilangad - 686 633