SUMIT BERA | 18MS60R11

MATERIALS SCIENCE AND ENGINEERING

EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2020	M.TECH	IIT Kharagpur	8.11 / 10
2016	M.Sc (Polymer Science)	CIPET, Bhubaneswar	8.17 / 10
2014	B.Sc (Chemistry Hons))	University of Calcutta	56.37%
2010	HIGHER SECONDARY EXAMINATION	West Bengal Council of Higher Secondary Education	66.6%
2008	SECONDARY EXAMINATION	West Bengal Board of Secondary Education	78.62%

WORK EXPERIENCES

R & D Research Experience

Researcher-Product development at **Innocule materials and additives pvt ltd**

Job Responsibilities:

1.Planning and executing research activities for development of new product lines
2. Should be able to read research papers, analyze and conduct experiments independently
3. Visiting client sites for product trial and other technical services, overall monitoring and supervision of plant trials

COURSEWORK INFORMATION

1. Polymer Science and Technology:

Science and Technology of Polymer, Polymeric Materials, Conducting Polymer, Manufacture of Industrial Polymers, Processing and Fabrication of Polymer, Polymer blends and alloys, Advanced composites, Polymers for electronic and Photonic applications, Polymer testing, Biodegradable Polymer, Rubber Science.

2. Characterization Techniques:

DSC,TGA, DTA,TEM, SEM, XPS, NMR, MASS Spectroscopy.

PROJECTS

M.Tech Project:

Self healing elastomer through Metal Ligand interaction

Supervisor: Dr. Rajat Kumar Das, IIT-Kharagapur

Description: Our intention is to produce a triblock copolymer having with a hard block in middle and at the two end soft block including ligands that makes a dynamic reversible crosslinking by making the metal –ligand complex with different metal salt ions. The dynamic crosslinking provide good mechanical and self healing properties to the materials.The block copolymer is prepared by RAFT polymerization techniques using a raft agent.

M.Sc Project :

Development of Biosensor for cholesterol sensing

Supervisor: Dr. Lakshmi Unnikrishnan, LARPM-CIPET,Bhubaneswar

Description: Development of a multilayered polymer composite structure for application as a transducer in biosensors. Study the efficiency of rGO in facilitating electron flow to the conducting polymer transducer substrate. Optimization of parameters for electropolymerization of PPy on FTO substrate.Determination of the effect of DBS in developing continuous conducting channels within PPy and improving the interface between rGO and PPy. Investigation of the sensitivity of the optimized system towards increasing H_2O_2 concentration.

SKILLS AND EXPERTISE

Software skills: Origin, Chemdraw

Skill of materials characterization tools:

Knowledge of handling UV-Vis Spectrometer, FTIR, GPC, DSC,TGA, DTA, UTM.
Knowledge of analysis on TEM, SEM, XPS, NMR Spectroscopy, MASS Spectroscopy, GPC.

Skill of Materials processing:

Injection moulding, Blow Moulding, Compression moulding, Extrusion moulding, Extrusion and injection blow moulding.

POSITIONS OF RESPONSIBILITY

Student Representative

Departmental student placement Representative at CDC, IIT-Kharagpur

Conference Volunteer

Volunteer in International Conference on Functional Materials-2020 at IIT Kharagpur