



**TULSIRAMJI GAIKWAD-PATIL College of Engineering and Technology**

Wardha Road, Nagpur - 441108

Accredited with NAAC A+ Grade

Approved by AICTE, New Delhi, Govt. of Maharashtra

**(An Autonomous Institution Affiliated to RTM Nagpur University)**



Department of Biotechnology

## **B. Tech Biotechnology**

### **Course Name BBT3602: Bioseparation Engineering**

| <b>BBT3602</b> | <b>Course Outcomes</b>  |
|----------------|---|
| <b>CO1</b>     | Analyze fermentation broths to identify downstream processing stages effectively.   |
| <b>CO2</b>     | Select appropriate cell disruption methods and evaluate their efficacy for removing insoluble solutes from fermentation broths.         |
| <b>CO3</b>     | Apply extraction and precipitation techniques to concentrate bioproducts efficiently.   |
| <b>CO4</b>     | Design purification protocols integrating membrane separation and chromatography techniques for bioproduct purification.                |
| <b>CO5</b>     | Formulate bioproducts using lyophilization and spray drying techniques, considering the role of excipients in dosage form formulations. |