

## Industrial Biotechnology

### Details of course:-

Course Title	Course Structure			Pre-Requisite
	L	T	P	
<b>Industrial Biotechnology (BT326)</b>	3	1	0	NIL

### Course Objective:

The objective is to develop biotechnology approaches with the exploitation of enzymes, microorganisms, and plants that will yield 'green' industrial processes that are cost effective and sustainable.

### Course Outcome (CO):

1. Outline the basic concepts of fermentation, upstream and downstream processes.
2. Summarize the production of primary metabolites like organic acid Amino acids and alcohols and production of secondary metabolites like Antibiotics, Vitamins and Steroids.
3. Illustrate production of industrial enzymes, Biopesticides, Biofertilizers, and Biopreservatives
4. Explain production of modern biotechnology products like recombinant proteins, vaccines.

S.No.	Content	Contact Hours
1.	<b>Introduction to industrial bioprocess:</b> Fermentation, Basic concepts of Upstream and Downstream processes	<b>9</b>
2.	<b>Production of primary metabolites:</b> Organic acids, Amino acids and alcohols.	<b>8</b>
3.	<b>Production of secondary metabolites:</b> Antibiotics, Vitamins and Steroids	<b>8</b>
4.	<b>Production of enzymes and other bioproducts:</b> Production of Industrial Enzymes, Biopesticides, Biofertilizers, Biopreservatives, Biopolymers Biodiesel. Cheese, Beer, SCP & Mushroom culture, Bioremediation.	<b>9</b>
5.	<b>Production of modern biotechnology products:</b> Production of recombinant proteins, vaccines.	<b>8</b>
TOTAL		<b>42</b>

### Books:-