

Course Title	Industrial Microbiology			Course Code	BST 31322		
Year	3	Semester	1	Credits	02	Theory (hr)	15
						Practical (hr)	30
						Independent Learning (hr)	

Aim of the Course:

To provide the knowledge and exposure on the applications of microorganisms in various industries

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Explain the growth and metabolism of microorganisms: fermentation process.
- Describe the main types and designs of fermenters.
- Describe the general methods for monitoring and controlling of the fermentation process.
- Describe different industrial microbiological products and processes (i.e. fermented food and beverages, pharmaceuticals, industrial chemicals, bio-fuels, bio-fertilizers, and bio-treatment of contaminated environments).
- Explain the process of production of a given fermented product in the respective industry.

Course Capsule:

Theory
Introduction to industrial microbiology: history and overview; Growth and metabolism of industrial microbes: fermentation; Industrial fermenters: main types, designing, monitoring and controlling; Fermented food: dairy products, vinegar and other fermented food; Fermented beverages: brewery, wine and other fermented beverages; Food additives, pharmaceuticals, enzymes, organic acids and antibiotics; Bio fuels, bio fertilizers, bio pesticides, biopolymers; Waste water bio treatment

Practical
Production and operation activities of a fermented dairy product plant – industrial visits; Brewery – industrial visits; Waste water bio treatment plant – Field visit; Designing, monitoring and controlling of industrial fermenters – Tutorial; Guest lecture / Industry talk

Assessment:

Continuous assessment:	40%
End semester assessment:	60%