

IIT Mandi
Proposal for a New Course

Course Name: **Understanding Biotechnology & its Applications**

Course Number: **IC136**

Credit: **3-0-0-3**

Prerequisites: **None**

Students intended for: **B. Tech. 1st year**

Elective or Compulsory: **Compulsory**

Semester: Odd/Even

Course Outline: (**Total number of contact hours: 40 hours**)

Objective: Broad objective of this course is to give an introduction to biotechnology and its applications in our daily life. This course will help students to get familiarized with various techniques that are used routinely towards this.

Unit 1 (Number of contact hours – **1 hr**): Introduction to “biotechnology” and the history of biotechnological developments with major milestones.

Unit 2 (Number of contact hours – **3 hrs**): Basic biology: Brief introduction to genes and genomes.

Unit 3 (Number of contact hours – **5 hrs**): Introduction to recombinant DNA technology and its application to genomics.

Unit 4 (Number of contact hours – **4 hrs**): Introduction to proteins and their products.

Unit 5 (Number of contact hours – **5 hrs**): Microbial biotechnology.

Unit 6 (Number of contact hours – **5 hrs**): Plant biotechnology.

Unit 7 (Number of contact hours – **5 hrs**): Animal biotechnology.

Unit 8 (Number of contact hours – **5 hrs**): Bioremediation and environmental biotechnology.

Unit 9 (Number of contact hours – **5 hrs**): Medical biotechnology.

Unit 10 (Number of contact hours – **2 hrs**): Biotechnology regulations and ethics.

Text Book:

Introduction to Biotechnology (3rd Edition) by William J. Thieman and Michael A. Palladino published by Benjamin-Cummings publishing company.

Other References:

- Biotechnology for Beginners by Reinhard Renneberg published by Academic press.
- Basic Biotechnology 3rd Edition by Ratledge Colin published by Cambridge university press.

Other Faculty Members interested in teaching this course:

Proposed

by: _____ School: _____

Signature _____ Date _____

Approved / Not Approved

Chairman, Senate

Date: _____