



MANIPAL UNIVERSITY JAIPUR

School of Basic Sciences

Department of Biosciences

Course Hand-out

Introduction to Biotechnology | BT 1106 | 4 Credits | 3 | 0 | 4

Session: 2018-2019 | Faculty: Dr. Singh Abhijeet | Class: I Year

- A. Introduction:** This course is offered by Dept. of Biosciences as a core course in B.Sc. (Hons.) Biotechnology Programme targeting students who wish to pursue their career in the research field of Biotechnology or higher studies in applied field of Biology. The course offers basic understanding of different terms and applications of Biotechnology processes. Students are expected to have background knowledge of Biology
- B. Course Outcomes:** At the end of the course, students will be able to
- [BT 1106.1]. List the tools and techniques employed in Biotechnology
 - [BT 1106.2]. Understand the potential benefits and applications of Biotechnology
 - [BT 1106.3]. Understand about various branches of Biotechnology and their applications
 - [BT 1106.4]. Describe the steps used in RDT, DNA fingerprinting etc.
 - [BT 1106.5]. Apply the concepts and techniques related to antibody production
 - [BT 1106.6]. Relate the concepts of gene and genomes and Proteins and proteome.
 - [BT 1106.7]. Select safety guidelines and risk assessment in biotechnology
 - [BT 1106.8]. Analyse biological research project and generally employed in pathology labs, hospital labs to study biological samples-tissues, blood, body fluids etc. hence develop skills and enhance employability

Note: A minimum of 75% Attendance is required to be maintained by a student to be qualified for taking up the End Semester examination. The allowance of 25% includes all types of leaves including medical leaves.

C. SYLLABUS

Introduction and history of biotechnology. Basic concepts of biotechnology. Definition and descriptions of some important terminology in biotechnology. Study of various branches of Biotechnology including plant, animal, medical, industrial, environmental, marine biotechnology, bioinformatics. Introduction of genetic engineering; plant and animal tissue culture; fermentation technology; immobilized enzymes; monoclonal antibodies and hybridoma Technology; embryo transfer technology; introduction to gene and genomes, Proteins and proteome, recombinant DNA technology, DNA fingerprinting and forensic analysis. Current status of biotechnology and future of biotechnology in developing world. Role of biotechnology in Indian industry. Impact on agricultural sector. New trends in biotechnology. Practice of biotechnology in medicine, industry, agriculture, livestock improvement and environment. Brief account of safety guidelines and risk assessment in biotechnology. Future perspectives.

D. TEXT BOOKS

1. Bhatia, S.C. *Text Book of Biotechnology*. Atlantic Publisher and Distributor, New Delhi.
2. Chakravarty, A.K. *Introduction to Biotechnology*. OUP India. 2013.

E. REFERENCE BOOKS

1. Old, R.W. and Primrose, S.B. *Principles of gene manipulation: an introduction to genetic engineering*, Blackwell Science Publications, New Delhi, 2003.

