MANIPAL UNIVERSITY JAIPUR

School of Basic Sciences

Department of Biosciences
Course Hand-out

Biotechnology Lab – I | BT 1136 | 2 Credits

Session: Jul- Dec 2018 | Faculty: Dr. Mousumi Debnath/Dr. Rajeev Mishra

A. Course Outcomes: At the end of the course, students will be able to:

BT 1136.1	To learn about good laboratory practices for developing laboratory skills
BT 1136.2	Identify and analyse various stages of cell cycle in plants and animals
BT 1136.3	Understand ultrastructure of various cell organelles using electron micrographs
BT 1136.4	Learn about working principle of various instruments used in the field of cell and molecular biology
BT 1136.5	Hands on practice of various tools and techniques of cell biology such as microscopy, staining, centrifugation, spectroscopy and chromatography for skill development and employability

B. SYLLABUS

Laboratory: Introduction to lab and lab environment, Good Laboratory Practices (GLP), Identification of different cells, mitosis in onion root tip, Study of electron micrographs of cell organelles- cell ultrastructure, specialized chromosomes, nucleus, Golgi body and endoplasmic reticulum, Study of different stages of mitosis in onion root tips, Study of different stages of meiosis in anthers of *Datura innoxia*, Study of Permanent slides of different cell organelles and specimens in the above mentioned class work material.

C. TEXT BOOKS

i. K.V. Chaitanya. *Cell and Molecular Biology: A Lab Manual*, PHI Publisher, India, 2013.
ii. J. Sambrook, E.F. Fritsch, T. Maniatis. Molecular Cloning: A Laboratory Manual. Cold Spring Harbor Laboratory, New York, 1989.
iii. M.S. Clark. Plant Molecular Biology - A Laboratory Manual, Springer, USA, 2014
iv. H.P. Puttaraju. *Molecular Biology & Biochemistry: A Lab Manual with Colour Plates (Manual Series-I)*. New India Publishing Agency, New Delhi, 2008.