

## PRACTICALS (HARD CORE COURSES)

### BTP 556 ANIMAL BIOTECHNOLOGY

#### Course outcome

The student will

CO 1. Learn the set-up of a typical cell culture laboratory

CO 2. Acquire sterilization techniques

CO 3. Learn the use different media

CO 4. Acquire techniques used in animal cell culture.

Cleaning and sterilization methods for tissue culture

Preparation of media, buffers

Maintenance of cultures (normal and tumor cell lines)

Separation of peripheral blood mononuclear cells

Cell counting (hemocytometer)

Lymphocyte culture technique

In vitro macrophage culture from mouse

Preparation of human metaphase chromosomes

Cell viability tests

Cell proliferation assay

Growth kinetics of cells in culture

*In vitro* fertilization and embryo transfer techniques

Cryopreservation techniques

Cytotoxicity tests

### BTP 557 ENVIRONMENTAL BIOTECHNOLOGY

#### Course outcome

The student will

CO 1. Acquire skills and techniques used in waste management

CO 2. Learn mechanisms of waste treatment

CO 3. Become skilled in vermicomposting and mushroom cultivation

CO 4. Understand biogas production

Production of compost (methods)

Vermicompost and its analysis

Cultivation of mushrooms

Biogas (biofuels) production

Wastewater treatment methods

Solid waste treatment methods

Experiments on biofouling and biofilms

Experiments on industrial waste treatment methods (e.g. distillery, whey)

### BTP 558 PROJECT WORK

#### Course outcome

The student will learn to:

CO 1. Work independently on a research project

CO 2. Gather background information and synthesise relevant information

CO 3. Create a hypothesis and objectives

CO 4. Learn to communicate scientific facts and present the same

CO 5. Analyse data and interpret the same

CO 6. Publish the results