

BS (4 Years) for Affiliated Colleges



Code	Subject Title	Cr. Hrs	Semester
BOT-403	Biohazards, Biosafety, Bioethics	3	VII
Year	Discipline		
4	BOTANY		

Syllabus Outline: Hazardous role of Microbes Ethical Manipulation of Gene and Safety Measures to Overcome Environmental Pollution.

Course Outline:

Hazardous Roles of Microbes in the Environment, Microorganisms as a Source of Disease and other Nuisances, Solution to various Hazards, new trends in Monitoring of toxic Environmental Hazards by Microbes.

Safety and the Genetic Manipulation of Organisms, Risk Assessment in Genetic Manipulation, Deliberate Release of Genetically Modified Microorganisms (GMOs), Role of Genetic Modification Safety Committee, Hazard Groups of Organisms, Guidelines for Microbial and Animal Cell Culture.

Cloning of Animal and Human Beings; Moral, Ethical, Legal and Patent Issues, Trade Secrets. International Regulations and contained Use of Genetically Modified Organisms (GMOs).

Radiation, Health and Safety; Sources and Laboratory use of Radiation, Radiation Protection, disposal of Radioactive Materials from Laboratories, Protection of Workers and Public. Environmental Pollution and Law.

Module Aims: The course is designed to provide essential knowledge about various Agents causing Biohazards. Highlighting the Reasons for Unethical use of Biodiversity and Guidance about Measurements leads to Biosafety.

Learning Strategies:

1. Lectures
2. Group Discussion
3. Laboratory work
4. Seminar/ Workshop

Learning Outcome: Students are expected to have knowledge about the Measurements of Environmental Sustainability. They will have idea for how to utilize the Biological Resources which are friendly to Environment.

Assessment Strategies:

1. Lecture Based Examination (Objective and Subjective)
2. Assignments
3. Class discussion
4. Quiz
5. Tests

Books Recommended:

1. **S.I. Cutter, (2003).** *Environmental Risks and Hazards.* Publishers Prentice Hall.
2. **Donnellan, C. (2002).** *Cloning.* Independent Educational Publication.
3. **Donnellan, C. (2001).** *The Ethics of Genetic Engineering.* Independent Educational Publication.
4. **O'Mahony, P.J. (2000).** *Nature, Risk, and Responsibility: Discourses of Biotechnology.* Routhedge Routhedge Publisher.
5. **Hansen, D.J. (2000).** *The Work Environment; Healthcare, Laboratories and Biosafety.* Lewi Publishers.
6. **Torrance, I. (2000).** *Bio-Ethics for new Millennium,* Saint Andrew Press.
