

**ADVANCES IN BIOTECHNOLOGY
(GENERIC ELECTIVE-II)**

Credits : 4

II Year / II Semester

Subject code : MBT19403 B

No. of lecture hours: 60

Unit 1: Biotechnology applications in agriculture	12Hrs
1.1 Crop seasons and crop rotation	(2)
1.2 Introduction to GM Crops	(2)
1.3 Sustainable agriculture	(2)
1.4 Applications of GM Crops: (Bt- Cotton; and golden rice)	(2)
1.5 Limitations of GM Crops	(2)
1.6 Bioethical issues on GM crops	(2)
Unit 2: Biotechnological applications in environment	12Hrs
2.1 Introduction to Environmental Biotechnology	(2)
2.2 Bioremediation and application	(2)
2.3 Phytoremediation- Concepts	(2)
2.4 Phytoremediation-Application	(2)
2.5 Conservation of biodiversity	(2)
2.6 Ethical Concerns	(2)
Unit 3: Biotechnological applications in Medicine	12Hrs
3.1 Stem Cells-Introduction	(2)
3.2 Stem cells – Properties	(2)
3.3 Types of stem cells – Embryonic, Foetal and Adult stem cells	(2)
3.4 Applications of stem cells	(2)
3.5 Human stem cells – Applications in reproduction and regenerative medicine	(2)
3.6 Ethical and legal issues	(2)
Unit 4: Biotechnological applications in Industrial biotechnology	12Hrs
4.1. Introduction to industrial biotechnology	(2)
4.2. Industrial Microorganisms	(2)
4.3. Isolation of microorganisms for industrial products	(2)
4.4. Preservation of industrial microorganisms	(2)
4.5. Microbial products	(2)
4.6. Applications of Industrial biotechnology	(2)
Unit 5: IPR	12Hrs
5.1 Introduction to IPR	(2)
5.2 Protection of copy rights	(2)
5.3 Ignorance of Laws	(2)
5.4 Patents in Biotechnology and their importance	(2)
5.5 Societal Aspects of Biotechnology	(2)
5.6 Ethical Aspects of Biotechnology	(2)