

▪ SEMESTER:- V

▪ COURSE NO.:- FIM-355

▪ COURSE TITLE:- FOOD BIO-TECHNOLOGY

▪ CREDITS:- 3(2+1)

➤ THEORY

| NO. OF UNITS | TOPICS | NO. OF LECTURES |
|--------------|---|-----------------|
| 1 | <i>Prospectus of Bio-Technology</i> | 2 |
| 2 | <i>Molecular genetics i.e. fundamentals of molecular biology with special reference to chemistry and biology and DNA. (Primary secondary and tertiary) structures</i> | 3 |
| 3 | <i>Biological role of DNA in cell metabolism</i> | 2 |
| 4 | <i>Genetic recombination mechanisms and technique used for improvement in microbial strains</i> | 2 |
| 5 | <i>Applications of genetical control mechanism in industrial fermentation process, (Induction, manipulation and recombination)</i> | 2 |
| 6 | <i>Recombinant-DNA technology (plasmids and cloning)</i> | 2 |
| 7 | <i>Cell and tissue culture</i> | 2 |
| 8 | <i>Continuous cultures</i> | 2 |
| 9 | <i>Secondary metabolites synthesis</i> | 2 |
| 10 | <i>Expression of foreign genes. promoter (Enzyme), biomass production by using various micro organisms</i> | 3 |
| 11 | <i>Application of Biotechnology in food (Food industries), pharmaceuticals and agriculture</i> | 3 |
| 12 | <i>Bio-gas plant</i> | 2 |
| 13 | <i>Bio technology approach for the exploitation of food and industrially important microorganisms</i> | 3 |
| | TOTAL | 30 |

➤ PRACTICALS

| NO. OF UNITS | TOPICS | NO. OF EXPT. |
|--------------|--|--------------|
| 1 | <i>Study of auxotroph</i> | 1 |
| 2 | <i>Micro propagation through tissue culture</i> | 1 |
| 3 | <i>Strain improvement through U.V. mutation for lactose utilization</i> | 2 |
| 4 | <i>Chemical mutagenesis using chemical mutagens (Ethidium bromide)</i> | 2 |
| 5 | <i>Determination of survival curves using physical and chemical mutagens</i> | 2 |
| 6 | <i>Isolation and analysis of chromosomal / genomic DNA from E.coli and Bacillus cereus</i> | 2 |
| 7 | <i>Separation of protoplast using cellulytic enzymes</i> | 2 |
| 8 | <i>Introduction of ELISA / Southern blot / DNA finger printing etc</i> | 1 |
| 9 | <i>Agarose gel electrophoresis of plasmid DNA</i> | 1 |
| 10 | <i>Pesticide degradation by pseudomonas spp</i> | 1 |
| | TOTAL | 15 |

➤ *Reference Books:*

- *Advances in Biotechnology Vol.1* *Murayy Moo-Young*
(Scientific and Engineering principles) *C.W. Gambell and C.Vezina*
- *Advances in Biotechnology Vol-II* *Murayy Moo-Young*
(Fuels, chemicals, foods and waste treatments) *C.W. Gambell and C.Vezina*
- *Advances in Biotechnology Vol-III* *Muray Moo-Young*
(Fermentation Products)
- *VIIth International Biotechnology Symposium (Feb 19-25 1984) held at New Delhi-Part-I*
- *VIIth International Biotechnology Symposium (Feb. 19-25 1984) Held at New Delhi Part-II*
- *Microbial Technology-Vol-I* *Peppler and Perlman*
(Microbial Process)
- *Microbial Technology-Vol-II* *Peppler and Perlman*
(Fermentation Technology)