

SARDAR PATEL UNIVERSITY
Programme: M.Sc (Home Science)
Subject: Food Biotechnology
Semester: III
Syllabus with Effect from: June - 2013

Paper Code: PH03CFBT02	Total Credit: 4
Title Of Paper: Fundamentals of Industrial Microbial & Genetic Engineering	

Unit	Description in detail	Weightage (%)
I	Isolation and screening of industrially important microorganisms.	
II	Improvement of industrially important microorganisms.	
III	Elements of biochemical engineering Substrate for microbial processes, bio-reactor design, sterilization of reactor, sterilization of air, sterilization of medium, aeration and agitation, mass transfer, inoculum development, inoculum addition, sampling foam control, bio-reactor probe (biosensors), measurement and control process, gas compression, solid liquid handling, scale up of bioprocess, type of bio-reactors.	
IV	Batch, fed batch, continues bioprocess and their kinetics.	
V	Immobilization-enzymes, cells, subcellular organelles, cell-immobilization, applications and immobilized reactors.	
VI	Down stream processing Cell separation, foam separation, flocculation, filtration, ultrafiltration reverse osmosis, centrifugation, liquid -liquid extraction, chromatography, precipitation, drying, crystallization, cell disintegration.	
VII	Material balance (C and N), costing and energy, safety of products.	

Basic Text & Reference Books:-

- Crugers W and Crugers A. : Biotechnology : A textbook of Industrial Microbiology
- H. Patel : Industrial Microbiology, McMillian India Ltd. , New Delhi

