



KONGU ARTS AND SCIENCE COLLEGE

(An Autonomous Institution, Affiliated to Bharathiar University, Coimbatore)

ERODE – 638 107

DEPARTMENT OF BIOTECHNOLOGY

VALUE ADDED COURSE – SYLLABUS

17VBTBB –BASICS IN BIOTECHNOLOGY


PAPER I- ELEMENTAL BIOTECHNOLOGY

Course Objective:

- ❖ obtain an adequate knowledge about Biotechnology
- ❖ To enhance the skills in day to day development with basic concepts.

UNIT I	History of Biotechnology:	5 Hours
Traditional Biotechnology, Modern Biotechnology – emergence of modern Biotechnology, Types of Biotechnology – Blue, Green, Red, White.		
UNIT II	Inception of Biotechnology	5 Hours
: Development of Biotechnology from home. Fermented products in day to day life – Yoghurt and dairy products, Alcohol and beverages, Vinegar, Fish Sauce, Dough, Batter, Pickles and Bread. Flavors and Sweetening agents.		
UNIT III	Biotechnology in Agriculture	6 Hours
Introduction to Plant Tissue culture, Transgenic plants – Pesticide and Stress Resistance, Nutrient Supplementation. Plant Products – Plantibodies and Antibiotics. Manufacturing power fibers. Biotechnology in Environment: Agroecology, Climate change mitigation, Climate change adaption, Biodegradation, Bioaugmentation, Biosensor tools in Biomonitoring of environment and treatment processes		
UNIT IV	Biotechnology in Animals:	9 Hours
Introduction to Animal tissue culture, Cloning and transgenic animals. Human applications – Gene therapy, DNA fingerprinting, Forensic studies, Archeology. Biotechnology in Industry: Antibiotics, Textile, Cosmetics, Personal health care, Detergents, Papers, Biofuels, Bioplastics.		
UNIT V	Biotechnology in Marine:	9 Hours
Aquaculture, Aquatic animal health and sea food safety, Therapeutics and Medicine, Algal cultivation. Marine derived food additives, Nutraceuticals. Marine source and its applications. Development in Marine Bioprospecting. Biotechnology in Medicine: Pharmacogenomics, Pharmaceutical Drug Discoveries and Production, Genetic Testing or Screening, Molecular Diagnosis, Regenerative therapy.		
		Theory 34 Hours
Total Hours (Theory + Lab)		40 Hours




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References:

1. U.Sathyanarayana, Biotechnology, Books and Allied Pvt Ltd., Kolkata 2005
2. R.C.Dubey. A Text Book of Biotechnology, S.Chand and Company Ltd., 2006

On Completion of this course the students will be able to

- ❖ CO1 Strengthen their knowledge in types of Biotechnology
- ❖ CO2 Know about initiation and development of Biotechnological products
- ❖ CO3 Understand the role of Biotechnology in agriculture and environment
- ❖ CO4 Have an overview in animal cell culture and industrial sectors
- ❖ CO5 Will understand the applications of Biotechnology in Marine and Medicinal field



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PAPER II- LAB IN BASIC BIOTECHNOLOGY

Experiments

(6 Hours)

1. ABO Blood Grouping
2. Total Leukocyte Count
3. Glucose Test – Urine Analysis
4. Preparation of plant extracts using different solvents
5. Qualitative Analysis of Phytochemicals
6. Estimation of Vitamin C from Fruits Boiled food sample.



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