Diploma in Entrepreneurship Development through Biotechnology (DEDBT)

Programme Structure
Duration: One Semester
Number of Papers: 4
Units per Paper: 5 Units
Programme Type: Skill / Entrepreneurship Oriented Diploma

KRISHNA UNIVERSITY: MACHILIPATNAM

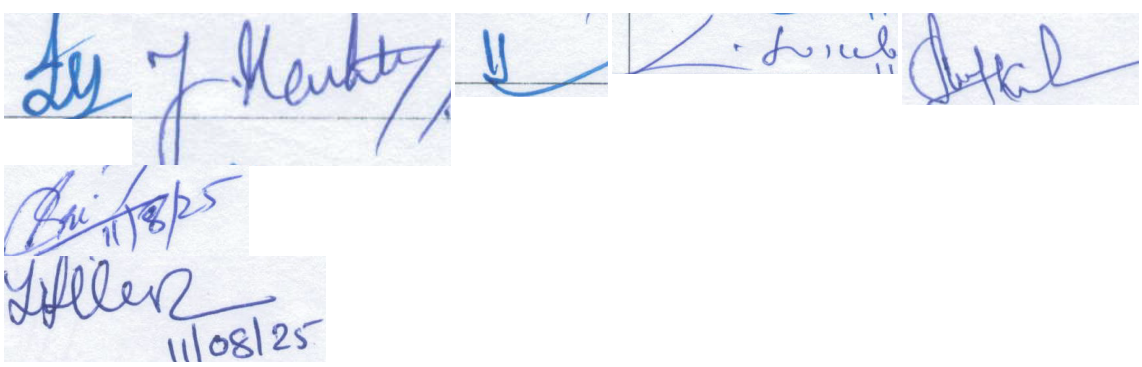
COURSE STRUCTURE FOR

Diploma in Entrepreneurship Development through Biotechnology

W.E.F 2026-27 (R26 Regulations)

SEMESTER

Course Code	Course Name	Teaching Hours/ week			CORE	Internal Marks	External Marks	No. of Credits
		Lecture (L)	Practical (P)	Tutorial (T)				
26 DEDBT 101	Fundamentals of Biotechnology	3	0	0	Core	30	70	3
26 DEDBT 102	Entrepreneurship Development in Biotechnology	3	0	0	Core	30	70	3
26 DEDBT 103	Paper III: Bioinformatics, ICT, and Innovation Management	3	0	0	Core	30	70	3
26 DEDBT 04	Paper IV: Practical Training, Internship, and Project Work	3	0	0	Core	30	70	3
26 DEDBT L101	Entrepreneurship Development in Biotechnology	0	6	0	Core	30	70	3
TOTAL FOR SEMESTER						150	350	15



26DEDBT101 Paper I: Fundamentals of Biotechnology

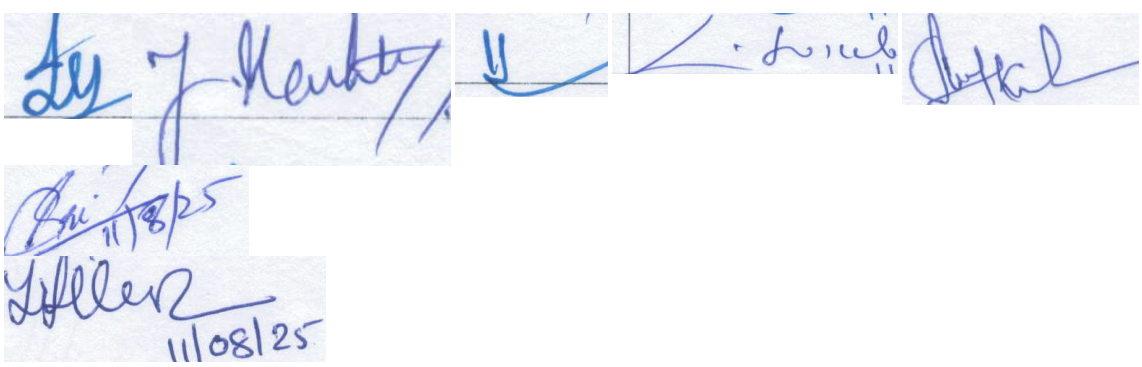
Unit I: Introduction to Biotechnology, Definition, scope, and history of biotechnology. Branches of biotechnology, Applications in agriculture, medicine, industry, and environment. Biotechnology in everyday life Emerging trends in biotechnology

Unit II: Cell Biology and Genetics
Structure and function of cells, DNA, RNA, and proteins, Principles of heredity, Gene expression and regulation, Genetic engineering basics

Unit III: Microbiology and Industrial Microorganisms
Introduction to microorganisms, Bacteria, fungi, algae, and viruses, Industrially important microorganisms, Culture techniques and sterilization, Fermentation basics

Unit IV: Bioprocess Technology
Principles of bioprocess engineering, Fermentation technology, Upstream and downstream processing, Bioreactors and their types, Quality control in biotech industries

Unit V: Applications of Biotechnology
Agricultural biotechnology, Medical biotechnology, Environmental biotechnology, Food biotechnology, Biofertilizers and biopesticides



26 DEDBT 102 Paper II: Entrepreneurship Development in Biotechnology

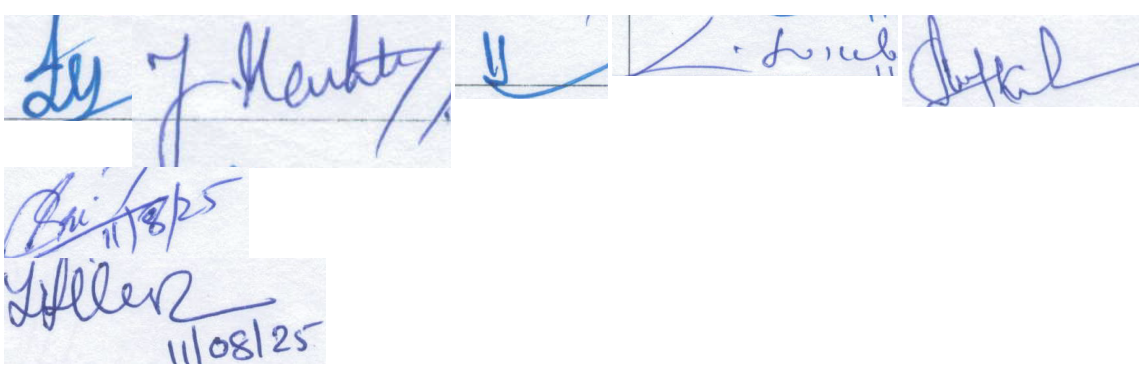
Unit I: Fundamentals of Entrepreneurship, Meaning and characteristics of entrepreneurship, Types of entrepreneurs, Entrepreneurial competencies, Role of entrepreneurship in economic development, Innovation and creativity

Unit II: Biotech Entrepreneurship Opportunities
Startup opportunities in biotechnology, Agri-biotech enterprises, Food processing and nutraceuticals, Healthcare and diagnostic startups, Environmental biotech ventures

Unit III: Business Planning and Project Formulation
Identification of business opportunities, Market survey techniques, Business plan preparation, Project report writing, Feasibility analysis

Unit IV: Financial and Legal Aspects
Sources of finance, Government schemes and subsidies, Intellectual Property Rights (IPR), Patents and licensing, Registration and legal formalities

Unit V: Startup Management
Marketing strategies for startups, Human resource management, Risk management
Digital entrepreneurship, Success stories in biotech entrepreneurship



26 DEDBT 103 Paper III: Bioinformatics, ICT, and Innovation Management

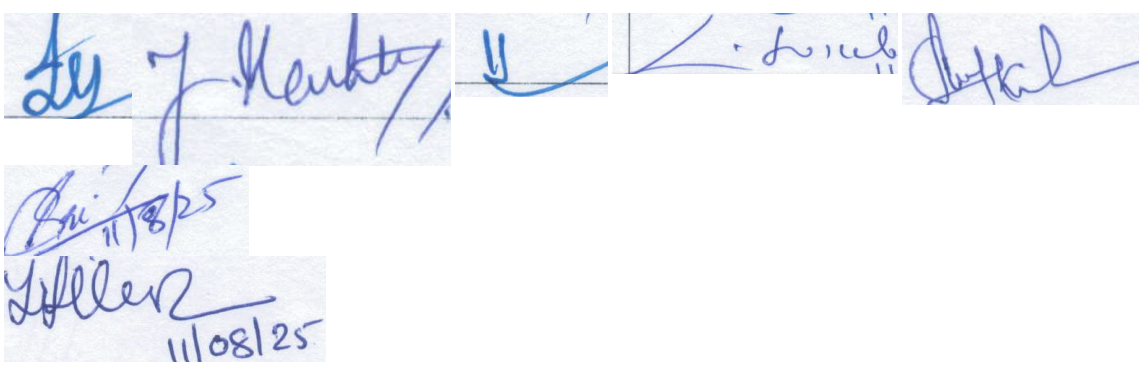
Unit I: Introduction to Bioinformatics, Basics of bioinformatics, Biological databases, Sequence alignment, Genomics and proteomics, Applications of bioinformatics

Unit II: ICT Tools in Biotechnology
Computer applications in biotechnology, Data management systems, Internet resources for biotech startups, Digital communication tools, Cloud computing basics

Unit III: Research and Innovation
Research methodology, Scientific documentation, Innovation management, Technology transfer, Commercialization of research

Unit IV: Quality Control and Regulatory Affairs
Quality assurance concepts, GMP and GLP, Biosafety and bioethics, Regulatory authorities in biotechnology, Environmental and safety regulations

Unit V: Emerging Technologies
Nanobiotechnology, Artificial intelligence in biotechnology, CRISPR and gene editing Synthetic biology, Future prospects in biotechnology



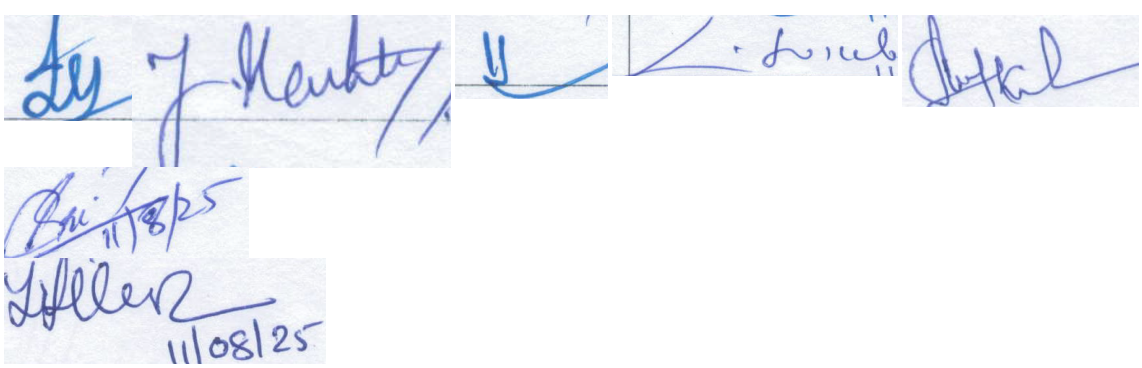
26 DEDBT 04 Paper IV: Practical Training, Internship, and Project Work

Unit I: Laboratory Skills
Basic laboratory techniques, Preparation of media and reagents, Sterilization methods
Handling laboratory equipment, Safety procedures in laboratories

Unit II: Industrial Exposure
Biotech industry visits, Case studies of biotech enterprises, Interaction with entrepreneurs, Industrial workflow understanding, Documentation and reporting

Unit III: Mini Project
Identification of project topic, Literature survey, Data collection and analysis,
Preparation of project report, Presentation techniques

Unit IV: Internship and Field Work



Internship in biotech industries/startups, Rural biotechnology applications, Entrepreneurial field survey, Market analysis, Report submission

Unit V: Seminar and Viva Voce
Seminar presentation
Viva voce examination

Practical Components
Fermentation demonstrations
Preparation of biofertilizers
Microbial culture techniques
Business plan preparation
Industrial visits and startup interaction

Programme Outcomes
After completion of the programme, students will be able to:
Understand basic biotechnology concepts
Identify biotechnology-based business opportunities
Develop entrepreneurial and startup skills
Apply biotechnology knowledge for self-employment
Understand legal, financial, and management aspects of biotech enterprises

