

COURSE STRUCTURE

For

BIO-TECHNOLOGY

(Applicable for batches admitted from 2016-2017)



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY: KAKINADA
KAKINADA - 533 003, Andhra Pradesh, India

I Year - I Semester

S.No.	Subjects	L	T	P	Credits
1-HS	English – I	4	--	--	3
2-BS	Mathematics - I	4	--	--	3
3-ES	Engineering Chemistry	4	--	--	3
4-BS	Engineering Mechanics	4	--	--	3
5-BS	Computer Programming	4	--	--	3
6-ES	Environmental Studies	4	--	--	3
7-HS	Engineering/Applied Chemistry Laboratory	--	--	3	2
8-BS	English - Communication Skills Lab - I	--	--	3	2
9-ES	C Programming Lab	--	--	3	2
Total Credits					24

I Year - II Semester

S.No.	Subjects	L	T	P	Credits
1-HS	English – II	4	--	--	3
2-BS	Mathematics – II (Mathematical Methods)	4	--	--	3
3-BS	Fundamentals of Biology	4	--	--	3
4-ES	Engineering Physics	4	--	--	3
5-HS	Process Engineering Principles	4	--	--	3
6-ES	Engineering Drawing	4	--	--	3
7-BS	English - Communication Skills Lab - II	--	--	3	2
8-HS	Engineering/Applied Physics Lab	--	--	3	2
9-ES	Engineering / Applied Physics – Virtual Labs - Assignments	--	--	2	--
10	Engg.Workshop & IT Workshop	--	--	3	2
Total Credits					24

II Year - I Semester

S. No	Subjects	L	T	P	Credits
1	Biochemistry	4	--	--	3
2	Biochemical Thermodynamics	4	--	--	3
3	Cell Biology	4	--	--	3
4	Microbiology	4	--	--	3
5	Mathematics – III	4	--	--	3
6	Managerial Economics & Financial Analysis	4	--	--	3
7	Biochemistry Lab	--	--	3	2
8	Cell biology and Microbiology Lab	--	--	3	2
Total Credits					22

II Year - II Semester

S.No.	Subjects	L	T	P	Credits
1	Molecular Biology	4	--	--	3
2	Heat Transfer in Bioprocess	4	--	--	3
3	Instrumental methods of Analysis	4	--	--	3
4	Developmental Biology	4	--	--	3
5	Genetics	4	--	--	3
6	Industrial Biotech products	4	--	--	3
7	Instrumental methods of Analysis Lab	--	--	3	2
8	Molecular biotechnology Laboratory	--	--	3	2
Total Credits					22

III Year - I Semester

S.No.	Subjects	L	T	P	Credits
1	Mass transfer operations	4	--	--	3
2	Bioprocess Engineering	4	--	--	3
3	Immunology	4	--	--	3
4	Biochemical Reaction Engineering	4	--	--	3
5	Biosensors & Bioelectronics	4	--	--	3
6	Bioprocess Engineering Laboratory	--	--	3	2
7	Mass transfer Laboratory	--	--	3	2
8	Immunology laboratory	--	--	3	2
9	IPR & Patents	--	2	--	--
Total Credits					21

III Year - II Semester

S.No	Subjects	L	T	P	Credits
1	Plant and Animal Biotechnology	4	--	--	3
2	Bioethics, Biosafety, Clinical & regulatory affairs	4	--	--	3
3	Genetic Engineering and rDNA Technology	4	--	--	3
4	Bioinformatics	4	--	--	3
5	OPEN ELECTIVE	4	--	--	3
	1. Principles of Communication Engineering				
	2. Principles of food processing				
	3. Cyber and Information Security				
	4. Renewable energy Technologies				
	5. Medical Biotechnology				
6. Fundamentals of Neurobiology and Cognitive Sciences					
6	Genetic Engineering Laboratory	--	--	3	2
7	Plant tissue culture laboratory	--	--	3	2
8	Bioinformatics Laboratory	--	--	3	2
MC	Professional Ethics & Human Values	--	3	--	--
Total Credits					21

IV Year - I Semester

S.No	Subjects	L	T	P	Credits
1	Cancer Biology	4	--	--	3
2	Environmental Biotechnology	4	--	--	3
3	Molecular modelling and Drug design	4	--	--	3
4	Protein Engineering	4	--	--	3
5	Elective I	4	--	--	3
	1. Environmental Toxicology and Health				
	2. Tissue Engineering				
6	Elective II	4	--	--	3
	1. Molecular Pathogenesis of Infections Disease				
	2. Food Microbiology				
7	3. Bioreactor Design	--	--	2	2
8	Molecular Modelling and Drug Design Laboratory	--	--	2	2
	Downstream processing laboratory	--	--	2	2
Total Credits					22

IV Year - II Semester

S.No	Subjects	L	T	P	Credits
1	Fermentation Technology	4	--	--	3
2	Nanotechnology for Biomedical applications	4	--	--	3
3	Pharmaceutical Biotechnology	4	--	--	3
4	Elective – III	4	--	--	3
	1. Animal Cell Science and Technology				
	2. Regulatory Affairs and Clinical Trials				
5	3. Metabolic Engineering	--	3	--	2
6	Seminar	--	--	--	10
	Project	--	--	--	10
Total Credits					24

Total Course Credits = 48+44 + 42 + 46 = 180