

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 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	4	--	--	3
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 1. Environmental Toxicology and Health 2. Tissue Engineering 3. Genomics and Proteomics	4	--	--	3
6	Elective II 1. Molecular Pathogenesis of Infections Disease 2. Food Microbiology 3. Bioreactor Design	4	--	--	3
7	Molecular Modelling and Drug Design Laboratory	--	--	2	2
8	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 1. Animal Cell Science and Technology 2. Regulatory Affairs and Clinical Trials 3. Metabolic Engineering	4	--	--	3
5	Seminar	--	3	--	2
6	Project	--	--	--	10
Total Credits					24

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