



**CHAITANYA BHARATHI
INSTITUTE OF TECHNOLOGY (A)**

Kokapet(Village), Gandipet, Hyderabad, Telangana-500075. www.cbit.ac.in



COMMITTED TO
RESEARCH,
INNOVATION AND
EDUCATION

44
years

Department of Biotechnology **CO-PO/PSO Target Values 2019-23 Batch**

Course code	Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO11	PO12	PSO1	PSO2
18MT C06	Engineering Mathematics-III	1.4	1.4	0.98	0.28	0.14	0	0	0	0.14	0.14	0	0.7	0.7	0.14
18BT C03	Cell and Molecular Biology	0.98	0.98	1.12	1.12	0.98	0.98	1.12	1.12	0.7	0.7	0.7	0.98	1.82	1.26
18BT C04	Biochemistry	2.1	2.1	2.1	2.1	0	0	0	0	0	0	0	0	0	0
18BT C05	Microbiology and Industrial Biotechnology	1.82	0.84	0.70	0.84	0.70	0.88	1.17	0.98	0.70	1.40	0.70	1.05	2.10	2.10
18BT C06	Process Principles and Reaction Engineering	1.68	1.4	1.26	1.4	0.7	0	0	0	0.7	0.7	0	1.4	1.4	1.4
18BT C07	Genetics	1.54	1.82	1.26	1.40	0.70	1.54	1.68	0.42	0.14	0.28	1.40	1.40	1.26	1.68
16BT C08	Biochemistry Lab	1.96	1.96	1.26	1.26	0.84	1.26	1.26	0.7	0.7	2.1	2.1	2.1	2.1	2.1
16BT C09	Microbiology Lab	0.7	1.4	0.8	1.4	0.8	1.4	0.8	0.8	1.4	0.7	1.4	1.4	2.1	2.1
18BT C10	Immunology	1.96	1.96	1.26	1.26	0.84	1.26	1.26	0.7	0.7	2.1	0.7	2.1	2.1	2.1
18BT C11	Instrumental Methods in Biotechnology	1.54	1.26	1.4	0.84	1.26	0.93	0.7	0.7	0.7	0.7	0.7	1.54	2.1	2.1

18BT C12	Chemical and Biochemical Thermodynamics	2.1	2.1	1.58	1.54	1.17	1.4	1.54	0.7	1.4	1.05	0	1.4	1.68	1.54
18BT C13	Immunology Lab	1.68	1.68	2.1	1.54	1.68	1.68	1.68	1.82	1.12	1.4	1.54	1.82	1.96	1.68
18BT C14	Instrumentation Lab	1.40	2.10	1.40	1.54	1.96	1.12	0.70	0.70	2.10	0.70	2.10	2.10	2.10	2.10
18BT C15	Fluid Mechanics and Heat Transfer	2.1	2.1	1.58	1.54	1.17	1.4	1.54	0.7	1.4	1.05	0	1.4	1.68	1.54
18BT C16	Enzyme Technology	2.10	2.10	1.40	1.40	1.40	2.10	1.40	0.70	0.70	0.70	0.70	2.10	2.10	2.10
18BT C17	Genetic Engineering and rDNA Technology	1.96	1.4	1.54	1.54	1.4	1.26	0.98	0.7	0.7	0.7	0	0.7	1.4	0.98
18BT E01	Elective – I Virology	1.68	1.68	2.1	1.54	1.68	1.68	1.68	1.82	1.12	1.4	0.98	1.82	1.96	1.68
18BT E03	IAPH	1.12	1.12	1.12	1.12		1.23	1.23	0.7		1.17		1.54	1.68	1.82
18BT E04	Elect- II Environmental Biotechnology	1.12	1.4	1.54	1.5	1.12	1.5	1.96	0.8	1.12	1.5	0.7	1.8	1.68	1.5
18BT E05	Elective – II Developmental Biology	0.7	1.1	1.3	1.2	0.9	1.4	0.9	1.4	1.1	0.84	0.88	1.54	0.98	1.4
18BT C18	Fluid Mechanics & Heat Transfer Lab	2.10	2.10	1.58	1.54	1.17	1.40	1.54	0.70	1.40	1.05	0.00	1.40	1.68	1.54
18BT C19	Enzyme Technology Lab	0.84	1.26	1.54	1.68	1.12	1.12	1.4	0.7	1.26	0.875	1.12	1.4	2.1	2.1
18BT C20	Genetic Engineering Lab	1.4	0.7	1.4	1.4	0.88	1.4	0	1.4	0.7	0.7	0.7	1.4	0.7	1.4
18BT C21	Fermentation Technology	2.1	1.63	1.52	1.05	1.4	1.4	1.28	0	0.88	0	0.93	1.75	2.1	1.52
18BT C22	Bioinformatics	1.75	1.75	1.83	1.83	1.87	1.75	1.75	1.75	1.83	1.75	1.75	1.75	1.75	1.75
18BT C23	Mass Transfer Operation	2.1	2.1	1.6	1.5	1.2	1.4	1.5	0.7	1.4	1.1		1.4	1.7	1.5
18BT E07	Medical Biotechnology	1.96	1.96	1.26	1.26	0.84	1.26	1.26	0.7	0.7	2.1	0.7	2.1	2.1	2.1
18BT E08	Food Biotechnology	1.68	1.54	1.96	1.4	1.4	1.68	1.225	0.84	1.05	0.7	1.225	1.4	1.26	1.26
18BT E11	Pharmaceutical Biotechnology	1.26	1.4	1.12	1.68	1.54	1.4	0.7	0	0.7	0.7	0.7	1.68	2.1	1.54
18BT E13	Nanobiotechnology	1.96	1.5	1.4	1.3	1.68	1.4	1.4	1.1	1.4	0.8	0.7	1.7	1.26	0.8
18EC O02	Biomedical Instrumentation	1.82	2.1	2.1	1.82	1.12	1.82	1.82	1.68	0.84	1.54	1.82	2.1	1.82	1.54

18ME O03	Research Methodologies	1.05	1.4	1.4	1.4	1.4	0.7	0	0.7	0.7	1.4	1.167	1.26	1.4	1.4
18BT C24	Fermentation Lab	2.1	1.63	1.52	1.05	1.4	1.4	1.28	0	0.88	0	0.93	1.75	2.1	1.52
18BT C25	Bioinformatics Lab	0.84	1.26	1.26	1.26	1.12	1.23	1.26	1.26	1.12	0.84	1.26	1.4	1.12	1.4
18BT C26	Downstream Processing	2.46	2.46	2.45	2.45	2.46	2.47	2.45	2.44	2.38	2.46	2.44	2.45	2.46	2.46
18BT C27	Plant Biotechnology	1.40	1.54	1.54	1.26	1.26	1.12	1.54	1.40	0.70	0.70	0.84	1.54	1.40	1.40
18MT C08	Biostatistics	1.40	1.40	0.98	0.28	0.14	0.00	0.00	0.00	0.14	0.14	0.00	0.70	0.70	0.14
18BT E14	Animal Biotechnology	0.84	0.70	0.70	1.68	0.70	1.82	0.84	1.54	0.70	1.40	0.70	2.10	1.82	1.96
18BT E15	Elective V: Cancer Biology	1.96	1.96	1.26	1.26	0.84	1.26	1.26	0.70	0.70	2.10	0.70	2.10	2.10	2.10
18BT C28	Downstream Processing Lab	1.69	1.55	1.55	1.55	1.55	1.86	1.55	0	1.55	0	0	3.02	3.02	3.02
18BT C29	Tissue Culture Lab	1.54	1.82	1.26	1.4	0.7	1.54	1.68	0.42	0.14	0.28	1.4	1.4	1.26	1.68
18BT C30	Project Part 1	1.28	1.4	1.4	1.28	1.17	1.28	1.05	0.93	1.52	1.28	0.82	1.52	1.17	1.28
18BT E18	Tissue Engineering	1.96	1.68	1.68	1.925	1.54	1.4	1.4	1.68	1.05	0.7	1.4	1.82	1.96	1.82
18BT E19	Immunodiagnosics	0.7	1.96	1.4	1.4	1.4	1.4	0.84	0.7	0.84	0.98	0.84	0.7	1.26	1.26
18ME O04	Entrepreneurship	1.7	1.4	1.5	1.3	1.4	1.3	1.2	0.7	0.7	0.7	0.7	1.5	1.7	2.0
18BT C31	Technical Seminar	1.4	1.6	0.9	1.6	0.7	1.9	0.7	0.9	0.7	2.1	1.2	2.1	1.4	1.4
18BT C32	Project Part II	1.28	1.4	1.4	1.28	1.17	1.28	1.05	1.17	1.52	1.28	1.17	1.52	1.17	1.28
	Average	1.5493	1.5988	1.4493	1.4021	1.1548	1.3097	1.1476	0.8531	0.9720	0.9523	0.8670	1.5548	1.6296	1.5635

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18MT C06	Engineering Mathematics-III	1.8	1.8	1.8	1.8	1.8	0.0	0.0	0.0	1.8	1.8	0.0	1.8	1.8	1.8
18BT C03	Cell and Molecular Biology	2.6	2.6	2.4	2.6	2.6	2.6	2.6	2.6	2.9	2.1	9.1	2.5	2.4	2.4
18BT C04	Biochemistry	1.4	1.4	1.3	1.3	1.4	1.3	1.3	1.4	1.4	1.2	1.4	1.4	1.4	1.4
18BT C05	Microbiology and Industrial Biotechnology	2.6	2.7	2.7	2.7	2.5	2.5	2.3	2.4	2.7	1.8	3.0	2.1	2.7	2.7
18BT C06	Process Principles and Reaction Engineering	2.7	2.7	2.7	2.7	2.7	0.0	0.0	0.0	2.7	2.7	0.0	2.7	2.7	2.7
18BT C07	Genetics	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.8	3.0	1.6	2.4	2.4	2.0	2.4
16BT C08	Biochemistry Lab	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
16BT C09	Microbiology Lab	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
18BT C10	Immunology	2.4	2.4	2.3	2.3	2.4	2.3	2.3	2.4	2.4	2.2	2.4	2.4	2.4	2.4
18BT C11	Instrumental Methods in Biotechnology	2.0	2.5	2.1	2.3	1.8	1.4	1.6	2.9	1.9	0.7	1.9	1.8	2.1	2.1

18BT C12	Chemical and Biochemical Thermodynamics	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.3	1.8	0.0	1.7	1.7	1.7
18BT C13	Immunology Lab	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
18BT C14	Instrumentation Lab	1.6	1.6	1.6	1.2	1.5	1.0	1.6	1.9	1.6	2.5	1.6	1.6	1.6	1.6
18BT C15	Fluid Mechanics and Heat Transfer	2.3	2.3	2.6	2.5	2.5	2.2	2.1	3.0	2.8	3.0	0.0	2.2	2.3	2.5
18BT C16	Enzyme Technology	2.7	2.6	2.6	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.6	2.7	2.7	2.7
18BT C17	Genetic Engineering and rDNA Technology	1.8	1.9	1.9	1.9	1.9	1.8	1.9	1.9	1.9	1.9	0.0	1.9	1.9	2.1
18BT E01	Elective – I Virology	2.5	2.7	2.6	2.4	2.5	2.5	2.5	2.5	2.7	2.4	2.4	2.5	2.6	2.7
18BT E03	IAPH	2.6	2.6	2.6	2.6	0.0	2.6	2.6	3.0	0.0	2.4	0.0	2.6	2.5	2.5
18BT E04	Elective – II Environmental Biotechnology	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.7	2.6	2.7	2.6	2.6	2.6	2.6
18BT E05	Elective – II Developmental Biology	2.0	1.7	2.0	2.0	1.9	1.9	2.1	1.8	1.9	1.9	0.4	1.8	2.0	1.8
18MB C01	Engineering Economics and Accountancy	2.7	2.8	2.9	2.7	2.6	2.8	2.8	2.5	3.0	2.8	2.1	3.0	2.9	2.8
18BT C18	Fluid Mechanics and Heat Transfer Lab	1.8	1.8	1.8	1.8	1.8	1.8	1.8	0.0	0.0	1.8	0.0	1.8	1.8	1.8
18BT C19	Enzyme Technology Lab	2.7	2.8	2.7	2.7	2.8	2.7	2.6	2.6	2.7	2.6	2.7	2.7	2.7	2.7
18BT C20	Genetic Engineering Lab	2.2	2.2	2.2	2.2	2.0	2.2	0.0	2.2	2.2	2.2	2.4	2.2	2.2	2.2
18BT C21	Fermentation Technology	1.8	1.9	1.8	2.3	1.4	2.0	1.8	0.0	2.2	0.0	1.6	1.6	1.8	1.9
18BT C22	Bioinformatics	1.6	1.6	1.7	1.7	1.7	1.6	1.6	1.6	1.7	1.6	1.6	1.6	1.6	1.6
18BT C23	Mass Transfer Operation	2.5	2.5	2.4	2.5	2.6	2.4	2.5	3.0	2.7	2.3	0.0	2.4	2.5	2.6
18BT E07	Medical Biotechnology	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.2	2.0	2.2	2.2	2.2	2.2
18BT E08	Food Biotechnology	2.7	2.8	2.7	2.7	2.9	2.7	2.9	2.8	2.7	2.7	2.8	2.7	2.7	2.7
18BT E11	Pharmaceutical Biotechnology	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0.0	2.5	2.5	2.5	2.5	2.5	2.5

18BT E13	Nano biotechnology	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
18ME O03	Research Methodologies	1.1	1.1	1.3	1.1	1.2	1.2	0.0	0.9	1.2	1.1	0.9	1.0	1.1	1.1
18BT C24	Fermentation Lab	1.8	1.8	1.8	1.8	1.8	1.8	1.8	0.0	1.8	1.8	1.8	1.8	1.8	1.8
18BT C25	Bioinformatics Lab	1.8	1.8	1.9	1.9	1.8	1.9	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9
18BT C26	Downstream Processing	2.4	2.4	2.4	2.4	2.4	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
18BT C27	Plant Biotechnology	2.9	2.9	2.9	2.8	2.8	2.8	2.8	2.8	2.8	2.9	2.9	2.9	2.9	2.9
18MT C08	Biostatistics	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	1.9
18BT E14	Animal Biotechnology	1.8	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.3	1.9	1.9	1.9	1.9	1.9
18BT E15	Elective V: Cancer Biology	2.4	2.4	2.4	2.4	2.3	2.4	2.4	2.5	2.5	2.3	2.5	2.5	2.5	2.5
18BT C28	Downstream Processing Lab	2.4	2.1	2.1	2.1	2.1	2.7	2.1	0.0	2.1	0.0	0.0	2.1	2.1	2.1
18BT C29	Tissue Culture Lab	2.7	2.7	2.7	2.6	2.6	2.7	2.7	3.0	3.0	3.0	2.6	2.6	2.5	2.6
18BT C30	Project Part 1	2.7	1.9	2.2	2.5	2.2	1.8	1.9	1.4	1.3	2.2	2.0	1.2	2.4	2.0
18BT E18	Tissue Engineering	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
18BT E19	Immunodiagnosics	1.6	1.6	1.6	1.6	1.6	1.6	1.9	1.6	1.9	1.7	0.7	1.6	1.7	1.7
18ME O04	Entrepreneurship	2.7	2.7	2.6	2.7	2.4	0.8	0.8	0.8	2.6	2.8	0.0	2.9	2.6	2.5
18BT C31	Technical Seminar	1.0	1.1	1.6	1.1	1.0	1.8	1.0	2.0	1.0	1.5	2.2	1.5	1.5	1.5
18BT C32	Project Part II	2.6	1.9	2.2	2.5	2.2	1.8	1.9	1.4	1.5	2.2	2.1	1.4	2.4	2.0
	Average values	2.3	2.3	2.3	2.3	2.2	2.1	2.0	1.9	2.2	2.2	1.9	2.3	2.3	2.3

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Name of the Department: Biotechnology

Academic year: 2022-23(Batch 2019-23 Passed out)

UG Program: B.Tech Biotechnology

Program Outcomes	Target Fixed	Target Achieved	Observation (Attained/Not Attained)	Actions taken		
				A1	A2	A3
PO1	1.55	2.3	Yes	Revision of the current syllabus periodically along with the introduction of basic concepts of interdisciplinary subjects in the curriculum.	Assignments of higher Bloom's level were given to improve creative thinking by integrating basic concepts of interdisciplinary subjects.	Encouraged students to take up mini-projects related to interdisciplinary subjects to acquire new abilities and Knowledge.
PO2	1.60	2.3	Yes	To meet the specific applications of mathematics and Engineering sciences, the course outcomes and topics in the current syllabus were amended.	To apply Biostatistics to the identified problems, Engineering exploration which was introduced in the first-year curriculum was designed appropriately.	To obtain solutions for complex problems, open-ended experiments were introduced in the laboratory courses.
PO3	1.45	2.3	Yes	To address the needs of health care, societal and environmental concerns, Students were motivated to do mini projects.	Students were encouraged to present their ideas for solving complex engineering problems through a technical fest platform.	To generate alternative solutions for complex engineering problems students were encouraged to perform some experiments in the labs.

PO4	1.40	2.3	Yes	To Introduce optimization methods for the synthesis of Biomolecules in the lab	To Facilitate more industrial Visits in order to enhance the networking to explore deeper interest in finding new things.	To motivate students to evaluate alternate tools (making videos to address a research problem) to find solutions to complex engineering problems.
PO5	1.16	2.2	Yes	For effective implementation of simulation and predictive studies, students were encouraged to use the latest bioinformatics tools available.	To Provide Hands-on training programs to equip the students with the practical aspects of computational biology and related fields.	To increase the number of open-ended experiments for increasing both wet and dry lab prospects.
PO6	1.31	2.1	Yes	To have a higher number of professional electives in the curriculum.	To Encourage students to acquire various professional societies memberships and actively participate in different club activities within and outside of college.	To impart knowledge on rural developments and community engagement in the curriculum.
PO7	1.15	2.0	Yes	To encourage student participation in the environmental club of CBIT Parivrita.	To have a better understanding of socio, technical, economic, and environmental sustainability, Students are encouraged to take up mini and major projects efficiently.	For the restoration and perpetuation of the environment and the sustainable utilization of resources, Environmental Biotechnology has been introduced.
PO8	0.85	1.9	Yes	Introduced a New course titled UHV I –Understanding the Harmony.	Emphasis is to be laid on the evaluation of student performance based on the rubrics assigned by giving proper weightage to the project and labs.	A plagiarism check was introduced to inculcate ethical practices while submitting the Projects and Assignments.
PO9	0.97	2.2	Yes	To develop a sense of unity and build teamwork among students, courses such as Community Engagement,	To promote a sense of advancing one, students were encouraged to participate in club activities that were carried	

				Engineering exploration, and mini-projects were introduced.	out by different clubs such as Engineers without borders, PARIVRITA etc..	
PO10	0.95	2.2	Yes	To provide training in communication skills for better placements to be secured by students.	To make students give effective presentations the rubrics of projects and seminars to be improved.	
PO11	0.87	1.9	Yes	To Introduce subjects /topics in addressing management principles as it enables the leadership of student efforts.	To encourage students to submit project proposals to different funding agencies.	
PO12	1.56	2.3	Yes	Honours and minors degree courses were offered with the aim of imparting extensive knowledge of Biotechnology	To gain the real-world experience, students were given the opportunity to do Internships	Industrial Visits and Workshops were arranged in order to improve the industry-institute interaction to ensure lifelong learning.
PSO1	1.63	2.3	Yes	The introduction of courses in medical, agricultural, and environmental was done in order to apply the knowledge in multidisciplinary fields.	To obtain solutions to Complex engineering problems students were encouraged to apply Bioinformatics simulations	
PSO2	1.56	2.3	Yes	A good manufacturing course was introduced to adopt standard operating protocols		

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