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Deemed to be University
Accredited by NAAC with Grade A
NBA Accredited Programs in ECE, CSE & ME
Approved by AICTE, Ministry of HRD, Govt. of India

Bell Road, Clement Town
Dehradun-248002 Uttarakhand
Ph. : 0135-2644183, 2642799,
Fax : 0135-2644025
www.geu.ac.in

B.Sc. (Hons.) Biotechnology

BOARD OF STUDIES MEETING

DEPARTMENT OF LIFE SCIENCES

FEBRUARY 17, 2022

Dr. Asheesh Gupta

Dr. Ramkrishna Gupta

Dr. Pankaj Gautam

Dr. Manu Pant



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Vision of the Department

Department of Life Sciences aspires to be a foremost center for learning nationally and internationally through the pursuit of excellent research in biological sciences; by promoting innovation and entrepreneurial skills, critical thinking and scientific temper; by creating awareness for natural resources and sustainable development.

Mission of the Department

- 1) Department of Life Sciences provides optimum learning environment for students to realize their true potential, to develop their intellectual, academic and entrepreneurial skills through rigorous and hands on training.
- 2) The department strives to develop academic competency for leadership in knowledge dissemination, in research and development, and various other professions.
- 3) The department aims to create awareness for biodiversity, natural resources and sustainable development for future generations.

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PROGRAM OUTCOMES (POs)

PO1	Students will acquire basic knowledge of principles and processes underlying Life Sciences
PO2	Students will develop essential research skills to conduct independent work in Life Sciences area such as Biochemistry, Microbiology and Biotechnology
PO3	Students will understand problems related to society, health, environment, food security and sustainable development
PO4	Students will be able to understand regulatory norms, and will adopt ethical practices in the pursuit of science.
PO5	Students will acquire eligibility for higher studies.
PO6	Students will acquire oral and communication skills.
PO7	Students will acquire the ability to engage in independent and life-long learning in the broadest context.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1	To provide basic knowledge of principles and processes involved in growth, evolution and classification of various microorganisms.
PSO2	To provide basic knowledge of principles and processes involved in growth, evolution and classification of various microorganisms.
PSO3	To inculcate ability to solve problems related to society, health, environment, agriculture and food.
PSO4	To develop scientific temper, communication skill and ethical practices and biosafety guidelines in the pursuit of sciences.

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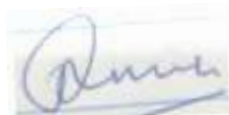
Dr. Manu Pant

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO1	Understand and apply the concepts of biotechnology, microbiology and food technology, including related aspects of science and technology for pursuing higher studies, successful careers in industry and as successful entrepreneur.
PEO2	Apply the acquired practical skills and broad biotechnological training in product, process and techniques development to meet the societal demands
PEO3	Participate in individual and team based multidisciplinary project, demonstrate professional and ethical attitude with awareness on health, environment and sustainable development.



Dr. Asheesh Gupta



Dr. Ramkrishna Gupta



Dr. Pankaj Gautam



Dr. Manu Pant



B.Sc.(Hons) Biotechnology





COURSE COMPONENTS OF ACADEMIC PROGRAMME

Minimum Duration	:	6 Semesters (3 Years)
Maximum Duration	:	8 Semesters (4 Years)
Total Number of Credits	:	147 Credits

<u>Course Components</u>	<u>Credits</u>
1. <u>Compulsory Course</u>	
I. Foundation Course(FC)	00
II. Core Course(CC)	84
2. <u>Elective Course</u>	
I. Departmental Electives- General electives/ Discipline Specific Electives (GE,DSE)	34
II. Interdepartmental Electives(IE)	04
3. <u>Discipline- Centric Ability Enhancement Course</u>	
I. Seminar(SM)	05
II. Project(PJ)	06
III. Dissertation(DS)	00
IV. Skill(AEC,SEC)	08
V. Comprehensive(CM)	00
4. <u>General Course</u>	
I. Human Values, Health Care and Professional Ethics(HP)	00
II. Healthy Living and Fitness(HF)	00
III. Disaster Management (DM)	00
IV. General Proficiency(GP)	06

Requirement of Awards of Degree:

- Total Credits: 147-; CGPA \geq 4.5 and any

Dr. Asheesh Gupta Dr. Ramkrishna Gupta Dr. Pankaj Gautam Dr. Manu Pant

other conditions as per regulation and ordinances.

5. Audit Course



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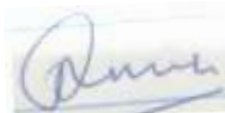
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CORE COURSES
(Total courses- 14, Total credits- 84)

S.No.	Course Code	Course Name	Credits (L+P)
1	BSCBT 101	Cell Biology	4+2
2	BSCBT 102	Inorganic and Physical chemistry	4+2
3	BSCBT 201	Organic and Analytical Chemistry	4+2
4	BSCBT 202	Biochemistry	4+2
5	BSCBT 301	Genetics	4+2
6	BSCBT 302	Microbiology	4+2
7	BSCBT 303	Plant Biology	4+2
8	BSCBT 401	Molecular Biology	4+2
9	BSCBT 402	Immunology	4+2
10	BSCBT 403	Animal Biology	4+2
11	BSCBT 501	Bioprocess Technology	4+2
12	BSCBT 502	Recombinant DNA Technology	4+2
13	BSCBT 503	Bioanalytical Tools	4+2
14	BSCBT 602	Genomics and Proteomics	4+2



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ELECTIVE COURSES

General electives (GE), Discipline specific electives (DSE), Inter departmental electives (IE)
(Total courses-7, Total credits- 38)

S.No.	Course Code	Elective	Course Name	Credits (L+P)
1	BSCBT 103	GE	Biotechnology and Human Welfare	4+2
2	BSCBT 203	GE	Ecology and Environment Management	4+2
3	BSCBT 306	GE	Biostatistics and Biomathematics	4+0
4	BSCBT 405	IE	IPR, Bioethics and Biosafety	4+0
5	BSCBT 504	DSE	Plant Biotechnology	4+2
6	BSCBT 601	DSE	Animal Biotechnology	4+2
7	BSCBT 603	DSE	Bioinformatics	4+2

DISCIPLINE- CENTRIC ABILITY ENHANCEMENT COURSES

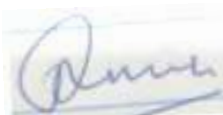
Seminar (SM), Skill Enhancement Courses (AEC, SEC), Project (PJ)

(Total courses-10, Total credits- 19)

S.No.	Course Code	Course	Course Name	Credits (L+P)
1	BSCBT 104	SM	Seminar	1+0
2	BSCBT 204	SM	Seminar	1+0
3	BSCBT 306	SM	Seminar	1+0
4	BSCBT 406	SM	Seminar	1+0
5	BSCBT 505	SM	Seminar	1+0
6	PC 101	AEC	Professional Communication	2+0
7	BSCBT 204	AEC	Career Skills	2+0
8	BSCBT 304	SEC	Enzymology	2+0
9	BSCBT 404	SEC	Molecular Diagnostics	2+0
10	BSCBT 604	PJ	Project	6+0



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GENERAL COURSES
General Proficiency (GP)
(Total courses-6, Total credits- 06)

S.No.	Course Code	Course Name	Credits
1	GP 101	General Proficiency	1
2	GP 201	General Proficiency	1
3	GP 301	General Proficiency	1
4	GP 401	General Proficiency	1
5	GP 501	General Proficiency	1
6	GP 601	General Proficiency	1



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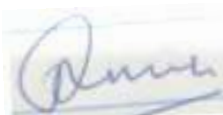
CURRICULAR STRUCTURE AND EVALUATION SCHEME

SEMESTER: I

COURSE MODULE				TEACHING PERIODS			WEIGHTAGE : EVALUATION			
COURSE			Credits	L	T	P	CWA	MSE	ES E	Total
Code	Title	Component								
BSCBT 101	Cell Biology	CC	4	3	1	-	25	25	50	100
BSCBT 102	Inorganic&Physical Chemistry	CC	4	3	1	-	25	25	50	100
PC 101	Professional communication	AEC	2	2	-	-	25	25	50	100
BSCBT 103	Biotechnology and Human Welfare	GE	4	3	1	-	25	25	50	100
BSCBTL 101	Cell Biology Lab	CC	2	-	1	2	25	25	50	100
BSCBTL1 02	Chemistry Lab - I	CC	2	-	1	2	25	25	50	100
BSCBTL 103	Biotechnology and Human Welfare Seminar	GE	2	-	-	-	25	25	50	100
BSCBT 104	Seminar	SM	1	-	-	-	-	-	-	100
GP 101	General Proficiency	GP	1	-	-	-	-	-	-	100
Total			22	11	5	4	-	-	-	900

SEMESTER: II

COURSE MODULE				TEACHING PERIODS			WEIGHTAGE : EVALUATION			
COURSE			Credits	L	T	P	CWA	MSE	ES E	Total
Code	Title	Component								
BSCBT201	Organic and Analytical Chemistry	CC	4	3	1	-	25	25	50	100
BSCBT202	Biochemistry	CC	4	3	1	-	25	25	50	100
BSCBT 203	Ecology and Environment Management	GE	4	3	1	-	25	25	50	100
BSCBT 204	Career Skills	AEC	2	2	-	-	25	25	50	100
BSCBTL201	Chemistry Lab II	CC	2	-	1	2	25	25	50	100
BSCBTL202	Biochemistry Lab	CC	2	-	1	2	25	25	50	100

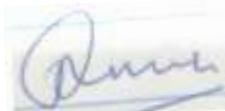


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BSCBTL 203	Ecology and Environment Management Seminar	GE	2	-	-	-	25	25	50	100
BSCBT 204	Seminar	SM	1	-	-	-	-	-	-	100
GP 201	General Proficiency	GP	1	-	-	-	-	-	-	100
Total			22	11	5	4	-	-	-	900

SEMESTER: III

COURSE MODULE				TEACHING PERIODS			WEIGHTAGE : EVALUATION			
COURSE			Credits	L	T	P	CWA	MSE	ES E	Total
Code	Title	Component								
BSCBT 301	Genetics	CC	4	3	1	-	25	25	50	100
BSCBT 302	Microbiology	CC	4	3	1	-	25	25	50	100
BSCBT 303	Plant Biology	CC	4	3	1	-	25	25	50	100
BSCBT 304	Enzymology	SEC	2	2	-	-	25	25	50	100
BSCBT306	Biostatistics and Biomathematics	GE	4	3	1	-	25	25	50	100
BSCBTL 301	Genetics Lab	CC	2	-	1	2	25	25	50	100
BSCBTL 302	Microbiology Lab	CC	2	-	1	2	25	25	50	100
BSCBT L 303	Plant Biology Lab	CC	2	-	1	2	25	25	50	100
BSCBT 306	Seminar	SM	1	-	-	-	-	-	-	100
GP301	General Proficiency	GP	1	-	-	-	-	-	-	100
Total			26	14	7	6	-	-	-	100



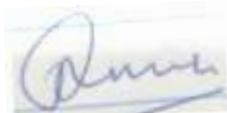
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SEMESTER: IV

COURSE MODULE				TEACHING PERIODS			WEIGHTAGE : EVALUATION			
COURSE			Credits	L	T	P	CWA	MSE	ESE	Total
Code	Title	Component								
BSCBT 401	Molecular Biology	CC	4	3	1	-	25	25	50	100
BSC BT 402	Immunology	CC	4	3	1	-	25	25	50	100
BSC BT 403	Animal Biology	CC	4	3	1	-	25	25	50	100
BSCBT 404	Molecular Diagnostics	SEC	2	2	-	-	25	25	50	100
BSCBT 405	IPR, Bioethics and Biosafety	IE	4	3	1	-	25	25	50	100
BSCBTL 401	Molecular Biology Lab	CC	2	-	1	2	25	25	50	100
BSC BTL 402	Immunology Lab	CC	2	-	1	2	25	25	50	100
BSC BTL 403	Animal Biology Lab	CC	2	-	1	2	25	25	50	100
BSCBT 406	Seminar	SM	1	-	-	-	-	-	-	100
GP 401	General Proficiency	GP	1	-	-	-	-	-	-	100
Total			26	14	7	6	-	-	-	1000



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SEMESTER: V

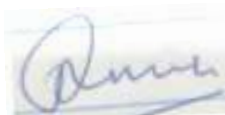
COURSE MODULE				TEACHING PERIODS			WEIGHTAGE : EVALUATION			
COURSE			Credits	L	T	P	CWA	MSE	ES E	Total
Code	Title	Component								
BSCBT 501	Bioprocess Technology	CC	4	3	1	-	25	25	50	100
BSCBT 502	Recombinant DNA Technology	CC	4	3	1	-	25	25	50	100
BSCBT 503	Bioanalytical Tools	CC	4	3	1	-				
BSCBT 504	Plant Biotechnology	DSE	4	3	1	-	25	25	50	100
BSCBTL 501	Bioprocess Technology Lab	CC	2	-	1	2	25	25	50	100
BSCBTL 502	Recombinant DNA Technology Lab	CC	2	-	1	2	25	25	50	100
BSCBTL 503	Bioanalytical Tools Lab	CC	2	-	1	2	25	25	50	100
BSCBTI 504	Plant Biotechnology Lab	DSE	2	-	1	2	25	25	50	100
BSCBT 505	Seminar	SM	1	-	-	-	-	-	-	100
GP501	General Proficiency	GP	1	-	-	-	-	-	-	100
Total			26	12	8	8	-	-	-	1000

SEMESTER: VI

COURSE MODULE				TEACHING PERIODS			WEIGHTAGE : EVALUATION			
COURSE			Credits	L	T	P	CWA	MSE	ES E	Total
Code	Title	Component								
BSCBT 601	Animal Biotechnology	DSE	4	3	1	-	25	25	50	100
BSCBT 602	Genomics and Proteomics	CC	4	3	1	-	25	25	50	100
BSCBT 603	Bioinformatics	DSE	4	3	1	-	25	25	50	100
BSCBTL 601	Animal Biotechnology Lab	DSE	2	-	1	2	25	25	50	100
BSCBTL 602	Genomics and Proteomics Lab	CC	2	-	1	2	25	25	50	100



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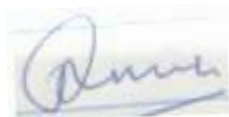


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BSCBTL 603	Bioinformatics lab	DSE	2	-	1	2	25	25	50	100
BSCBT 604	Project Dissertation	PJ	6	6	-	-	-	-	-	100
GP601	General Proficiency	GP	1	-	-	-	-	-	-	100
Total			25	15	6	6	-	-	-	800



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