

## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Fundamentals of Biochemistry	indamentals of Biochemistry											
Course Code	BSBT101[T]												
Course Outcomes & Bloom's Level	CO1- To remember the structure of amino acids, etc(BL1-Remember CO2- To comprehend the biologic elaborate the structure and functio CO3- To understand the importan Apply) CO4- To provide experimental bas biomolecules in food samples.(BL CO5- To evaluate the applications and industries(BL5-Evaluate)	hino acids, etc( <b>BL1-Remember</b> ) <b>)2-</b> To comprehend the biological material; and its relation to living matter and iborate the structure and functions of different biomolecules( <b>BL2-Understand</b> ) <b>)3-</b> To understand the importance of biophysical chemistry and its applications.( <b>BL3-</b> <b>)9)</b> <b>)4-</b> To provide experimental basis, and to enable students to analyze the various biomolecules in food samples.( <b>BL4-Analyze</b> ) <b>)5-</b> To evaluate the applications of biomolecules in various fields such as research d industries( <b>BL5-Evaluate</b> )											
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics X Gender X Human Values X Environment X	SDG (Goals)	SDG4(Quality education)										

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	-	-	-	2	2	-	-	-	2	-	-	1	-	1
CO2	2	3	2	2	2	2	-	-	-	2	-	-	1	-	3
CO3	3	1	1	-	1	-	-	-	-	-	-	-	3	2	3
CO4	3	2	-	2	1	-	-	-	-	-	-	-	2	3	3
CO5	3	1	-	2	1	-	-	-	-	-	-	-	2	2	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	General Microbiology	eneral Microbiology												
Course Code	BSBT102[T]													
Course Outcomes & Bloom's Level	CO1- To identify the basic concept communication approaches for mi CO2- To understand the gene transmutations and their analysis (BL2- CO3- To describe comprehensive preparation pipelines (BL3-Apply) CO4- To provide experimental base concepts of microbial evolution, pl microbial genetics(BL4-Analyze) CO5- To apply Appraise the current frameworksthat impact biotechnology productive interactions in diverse to Evaluate)	essional and scientific ( <b>BL1-Remember</b> ) and a detailed insight into terilization processes and media tudents to analyse the basic al aspects, and elements of y control, and legal naviours that foster positive and iotechnology settings.( <b>BL5-</b>												
Course Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X Environment X	SDG (Goals)	SDG4(Quality education)											

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	3	3	1	3	-	-	-	-	-	-	1	2	3
CO2	2	3	3	2	1	3	1	-	-	-	-	-	2	3	3
CO3	3	3	1	1	3	3	-	-	-	-	-	-	3	3	3
CO4	1	3	1	3	1	3	-	-	-	-	-	-	1	3	3
CO5	2	1	3	3	3	2	2	-	-	-	-	-	2	1	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



# Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Cell Structure and Dynamics	Il Structure and Dynamics												
Course Code	BSBT103[T]													
Course Outcomes & Bloom's Level	CO1- Students should develop the components of prokaryotic and eu membranes, and organelles (BL1 CO2- Students will understand ho and utilize energy in cells(BL2-Un CO3- Students will recognize the division(BL3-Apply) CO4- Students will apply their kno changes or losses in cell function( CO5- Students will create a mode	<ul> <li>a provide the development of the object of the ob</li></ul>												
Course Elements	Skill Development X Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X Environment X	SDG (Goals)	SDG4(Quality education)											

COs	P01	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3	3	3	2	3	-	-	-	-	-	-	-	3	2
CO2	1	2	3	1	2	1	1	-	-	-	-	-	3	2	2
CO3	1	1	1	1	-	1	-	-	-	-	-	-	3	2	1
CO4	3	1	1	3	-	-	1	-	-	-	-	-	2	1	1
CO5	1	1	2	3	1	2	-	-	-	-	-	-	2	1	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	NCC		
Course Code	BSBT104[T]		
Course Outcomes & Bloom's Level	<b>CO1-</b> To Remember about the for their career prospects and t <b>(BL1-Remember)</b> <b>CO2-</b> To Understand the conce awareness and emotional intel <b>CO3-</b> To Acquire knowledge of <b>CO4-</b> To analyze the concept of <b>CO5-</b> To Evaluate the process	history of NCC, i the concept of na ept of critical & cr ligence. <b>(BL2-Un</b> duties and cond of team and its fu of decision maki	ts organization, and incentives of NCC itional integration and its importance. eative thinking and the concept of self- <b>derstand)</b> uct of NCC cadets.( <b>BL3-Apply</b> ) nctioning.( <b>BL4-Analyze</b> ) ng & problem solving.( <b>BL5-Evaluate</b> )
Course Elements	Skill Development ✓ Entrepreneurship X Employability X Professional Ethics X Gender X Human Values √ Environment √	SDG (Goals)	SDG1(No poverty) SDG6(Clean water and sanitation) SDG13(Climate action) SDG14(Life below water) SDG15(Life on land)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Bioinstrumentation	Jioinstrumentation												
Course Code	SEC   [T]													
Course Outcomes & Bloom's Level	CO1- The course prepares the stu does it interacts with living and no and function.(BL2-Understand) CO2- The subject Fundamental of students of biotechnology for unde of Bio-Instrumentation and their ty CO3- The course aims to provide acquire a specialized knowledge a CO4- The course aims to provide Instrumentation in various fields su CO5- To apply the understanding Biological Samples and to evaluat fields such as research and indust	d the Bio-Instrumentation; and how and how it predicts their structure on is designed to under graduate concepts of each and every part <b>tand)</b> s, and to enable students to <b>(BL4-Analyze)</b> the applications of Bio- ind industries. <b>(BL4-Analyze)</b> tion in evaluation in various of Bio-Instrumentation in various												
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics × Gender × Human Values × Environment ×	SDG (Goals)	SDG4(Quality education)											

COs	P01	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	3	2	2	3	1	2	3	1	1	3	1	2	2
CO2	1	2	1	2	2	3	2	1	2	1	2	2	3	2	1
CO3	1	3	2	1	3	3	2	1	2	2	1	3	2	1	2
CO4	2	3	3	3	1	2	2	3	1	2	2	2	3	3	2
CO5	1	2	2	1	3	2	1	3	1	3	2	1	2	1	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Environmental Science		
Course Code	VACI[T]		
Course Outcomes & Bloom's Level	CO1- To remember the con limitations.(BL1-Remembe CO2- To Understand the co Understand) CO3- To develop positive at disaster management by ac (BL3-Apply) CO4- Acquire expertise and and techniques of monitorin environment instrumentatio implementation, and mainte CO5- Students acquire skill environmental managemen	cept of differen <b>r)</b> incepts of ecose ttitude towards dopting advance d skills needed ng, Environmen n and control se enance. <b>(BL4-A</b> is for to communit t plan in any p	nt types of resources available and their systems, biodiversity and conservation ( <b>BL2</b> - s practical response to different stages of ce technology and sustainable development. for the Environmental Management Systems int audit, Environmental Impact Analysis, systems and for the projects development, <b>Analyze</b> ) unicate, prepare, plan and implement the rojects. ( <b>BL5-Evaluate</b> )
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics X Gender X Human Values X Environment ✓	SDG (Goals)	SDG1(No poverty) SDG3(Good health and well-being) SDG4(Quality education) SDG5(Gender equality) SDG6(Clean water and sanitation) SDG7(Affordable and clean energy) SDG8(Decent work and economic growth) SDG10(Reduced inequalities) SDG11(Sustainable cities and economies) SDG12(Responsible consuption and production) SDG13(Climate action) SDG14(Life below water) SDG15(Life on land) SDG17(Partnerships for the goals)

COs	P01	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	3	3	1	3	3	3	1	2	3	1	3	2	3
CO2	1	1	2	3	1	3	3	3	2	1	3	2	1	1	2
CO3	3	3	2	1	3	3	3	2	1	1	3	2	2	3	2
CO4	3	3	3	3	2	2	3	3	1	1	3	2	3	3	2
CO5	3	3	2	2	1	3	3	3	1	1	3	2	3	3	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	English		
Course Code	AECI[T]		
Course Outcomes & Bloom's Level	CO1- Determine interpersonal sk (BL1-Remember) CO2- Elaborate creativity and lat CO3- to evaluate themselves by their performances.(BL3-Apply) CO4- Paraphrase text(s) and use CO5- Design and present/publish	tills and be an effect eral thinking. <b>(BL2-</b> giving oral present e appropriate referen n technical docume	ctive goal-oriented team player. Understand) ations and will receive feedback on encing styles(BL4-Analyze) ents(BL5-Evaluate)
Course Elements	Skill Development X Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X Environment X	SDG (Goals)	SDG4(Quality education) SDG5(Gender equality)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	-	-	-	2	2	-	-	-	2	-	-	1	-	1
CO2	2	2	1	2	2	2	-	-	-	2	-	-	1	-	3
CO3	2	1	1	-	1	-	-	-	-	2	-	-	3	2	3
CO4	3	2	-	2	1	-	-	-	-	2	-	-	2	3	3
CO5	3	2	-	2	1	-	-	-	-	2	-	-	2	2	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Animal Diversity	nimal Diversity												
Course Code	GEI[T]													
Course Outcomes & Bloom's Level	CO1- To describe general taxonol CO2- To understand the taxonom affinities and their association with CO3- To understand the importan Apply) CO4- To provide experimental bas classification and animal identifica CO5- To evaluate the applications development.(BL5-Evaluate) CO6- To apply the understanding their phylogeny in organic evolution	mic rules on anima y of invertebrates a n evolution and phy ce of kingdom Anin sis, and to enable s ation <b>(BL4-Analyze</b> ) s of taxonomy in va of animal diversity on <b>(BL6-Create)</b>	l classification <b>(BL1-Remember)</b> and vertebrates animals, their vlogeny. <b>(BL1-Remember)</b> nalia and its applications <b>(BL3-</b> students to basic concept of ) rious fields such as research and in identification of animals and											
Course Elements	Skill Development X Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X Environment X	SDG (Goals)	SDG4(Quality education) SDG15(Life on land)											

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COs	P01	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	3	1	2	2	-	-	-	-	-	-	-	1	2	3
CO2	2	3	1	2	2	-	-	-	-	-	-	-	2	2	3
CO3	1	2	2	1	1	-	-	-	-	-	-	-	2	1	3
CO4	1	2	2	3	1	-	-	-	-	-	-	-	1	1	2
CO5	1	2	3	1	3	-	-	-	-	-	-	-	1	1	2
CO6	1	2	-	-	2	-	-	-	-	-	-	-	-	2	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Molecular Biology		
Course Code	BSBT 201(T)		
Course Outcomes & Bloom's Level	CO1- To understand the basic ter interactions(BL2-Understand) CO2- To identify and isolate the g CO3- To compare and analyze the samples(BL4-Analyze) CO4- To evaluate the different fra molecular techniques(BL5-Evalu CO5- To apply the understanding development (BL1-Remember)	rms in contrast to g genomic DNA from ne different DNA pre agments of DNA us a <b>te)</b> g of biomolecules in	enes, genome and their the different samples. <b>(BL3-Apply)</b> esent among the various ing restriction enzymes and various fields in research and
Course Elements	Skill Development X Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X Environment X	SDG (Goals)	SDG4(Quality education)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	-	-	-	2	2	-	-	-	2	-	-	1	1	1
CO2	3	3	2	2	2	2	-	-	-	2	-	-	1	1	3
CO3	3	1	1	-	1	-	-	-	-	-	-	-	3	2	3
CO4	3	2	-	2	1	-	-	-	-	-	-	-	2	3	2
CO5	3	1	-	1	1	-	-	-	-	-	-	-	2	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Analytical Chemistry	alytical Chemistry											
Course Code	BSBT 203 (T)												
Course Outcomes & Bloom's Level	CO1- To remember basic concep Remember) CO2- To understand the difference Understand) CO3- To use/apply the basic stati correct result and analytical meth CO4- To Analyse Qualitative and CO5- To Evaluate the data obtain	at and principle of a between the ana istical treatment of t ods <b>(BL3-Apply)</b> Quantitative aspect and from the analys	nalytical techniques <b>(BL1-</b> lytical techniques <b>(BL2-</b> the analytical data for getting a ts <b>(BL4-Analyze)</b> is <b>(BL5-Evaluate)</b>										
Course Elements	CO5- To Evaluate the data obtained from the analysis(BL5-Evaluate)         Skill Development ✓         Entrepreneurship ✓         Employability ✓         Professional Ethics ×         Gender ×         Human Values ×         Environment ×												

COs	P01	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	1	1	-	-	-	-	-	-	-	-	-	3	3	2
CO2	3	3	1	-	-	-	-	-	-	-	-	-	3	2	1
CO3	3	1	-	2	-	-	-	-	-	-	-	-	1	1	2
CO4	2	3	-	-	-	-	-	-	-	-	-	-	1	1	2
CO5	2	2	-	-	-	-	-	-	-	-	-	-	2	2	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Immunology	munology											
Course Code	BSBT202(T)												
Course Outcomes & Bloom's Level	CO1- To remember the struct Remember) CO2- To understand the Diffe Understand) CO3- To understand the con Understand) CO4- To apply the use of Pro CO5- To evaluate the applicat Research(BL3-Apply)	ture of various In erent cells & prote nection of immun oteins & receptors ations of Antigens	nmunological Barriers of the body( <b>BL1</b> - eins involved in Immune system( <b>BL2</b> - e system failure & disorders.( <b>BL2</b> - s in antibody formation( <b>BL3-Apply</b> ) s & Antibodies in Diagnostic & Medical										
Course Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X Environment X	SDG (Goals)	SDG3(Good health and well-being) SDG4(Quality education)										

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	-	2	2	-	1	-	-	-	-	-	1	2	2
CO2	1	2	2	3	1	3	1	-	-	-	-	-	1	2	2
CO3	1	2	1	2	1	2	2	-	-	-	-	-	1	2	2
CO4	1	2	1	2	1	2	2	-	-	-	-	-	3	3	3
CO5	1	2	2	1	2	-	2	-	-	-	-	-	3	2	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	NCC*	C*											
Course Code	BSBT 204 (T)												
Course Outcomes & Bloom's Level	CO1- Define thinking, rea Remember) CO2- To think critically al CO3- Think divergently a CO4- Creatively in their r	asoning, critical bout different lif and will try to bra real-life problem	thinking and creative thinking.(BL1- e related issues.(BL2-Understand) eak functional fixedness.(BL3-Apply) ns.(BL4-Analyze)										
Course Elements	Skill Development ✓ Entrepreneurship × Employability ✓ Professional Ethics × Gender × Human Values √ Environment ×	SDG (Goals)	SDG3(Good health and well-being) SDG4(Quality education) SDG5(Gender equality) SDG8(Decent work and economic growth)										

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Basics of Forensic Science	asics of Forensic Science											
Course Code	SEC II (T)												
Course Outcomes & Bloom's Level	CO1- To remember the structure of crime in forensic science.(BL1- CO2- To comprehend the human Understand) CO3- To understand the importar in forensic science.(BL2-Underst CO4- To provide experimental ba seminal fluids.(BL4-Analyze) CO5- To apply the understanding various samples in forensic scien	of various branches <b>-Remember)</b> genetics, mutation tand) sis, of detection an of various identific ce.( <b>BL5-Evaluate</b> )	s, tools and techniques and causes and DNA typing techniques. <b>(BL2-</b> matographic methods and their role d identification of blood and other ation methods in evaluation in										
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability X Professional Ethics X Gender X Human Values X Environment X	SDG (Goals)	SDG4(Quality education)										

COs	P01	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	-	-	-	2	2	-	-	-	2	-	-	1	-	1
CO2	2	3	2	2	2	2	-	-	-	2	-	-	1	-	3
CO3	3	1	1	-	-	-	-	-	-	-	-	-	3	2	3
CO4	3	2	1	1	-	-	-	-	-	2	-	-	2	3	2
CO5	2	2	1	1	-	-	-	-	-	2	-	-	2	2	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	India in 21st Century	dia in 21st Century											
Course Code	VAC II (T)												
Course Outcomes & Bloom's Level	CO1- It will help students t good and concerned India CO2- The students will ha Understand) CO3- The students will ha CO4- At the end of this co have a sense of modern Ir	<ul> <li>It will help students to remember their personality and thinking honzon for being a and concerned Indian citizen(BL1-Remember)</li> <li>The students will have an understanding of making of India as a nation .(BL2-erstand)</li> <li>The students will have an analyse salient features of modern India .(BL3-Apply)</li> <li>At the end of this course, students would analyze intellectually well equipped to a sense of modern Indian history and culture .(BL4-Analyze)</li> </ul>											
Course Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values ✓ Environment X	SDG (Goals)	SDG1(No poverty) SDG3(Good health and well-being) SDG4(Quality education) SDG5(Gender equality) SDG10(Reduced inequalities) SDG12(Responsible consuption and production) SDG13(Climate action)										

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	2	1	-	-	1	-	-	-	-	1
CO2	-	-	-	-	-	1	1	-	1	-	-	1	-	-	1
CO3	-	-	-	-	-	1	3	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	2	-	-	-	1	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	HINDI I										
Course Code	AEC II (T)										
Course Outcomes & Bloom's Level	CO1- संपर्क भाषा के रूप में हिंदी व माध्यम से संम्भव है। पाठ्यक्रम में व्य CO2- ज्ञान को अर्थपूर्णता देने में भा CO3- छात्र , भाषा को सुन कर अर्थ समझकर भावानुभूति कर सकें। (BL CO4- हिंदी भाषा एवं नैतिक मूल्यों व	- संपर्क भाषा के रूप में हिंदी की समझना। सांस्कृतिक, एव राष्ट्रिय एकती बनीय रखनी भाषा क म से संम्भव है। पाठ्यक्रम में व्याकरण ,एवं लेखन परम्परा का बोध करना (BL1-Remember) - ज्ञान को अर्थपूर्णता देने में भाषा एक सशक्त आधार है।(BL2-Understand) - छात्र , भाषा को सुन कर अर्थ ग्रहण कर सकें ,शुद्ध -स्पष्ट लिख सकें एवं वक्ता के मनोभावों को कर भावानुभूति कर सकें। (BL3-Apply) - हिंदी भाषा एवं नैतिक मूल्यों को समझना।(BL4-Analyze)									
Course Elements	Skill Development ✓ Entrepreneurship × Employability ✓ Professional Ethics × Gender × Human Values √ Environment ×	SDG (Goals)	SDG3(Good health and well-being) SDG4(Quality education)								

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3	1	2	2	-	-	-	-	-	-	-	-	2	-
CO2	2	3	1	2	2	-	-	-	-	-	-	-	-	2	-
CO3	2	2	1	1	1	-	-	-	-	-	-	-	-	2	-
CO4	1	2	-	-	-	-	-	-	-	-	-	-	-	1	-
CO5	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	General and comparitive anomtor	ny of vertebrates											
Course Code	BSBT GEII (T)												
Course Outcomes & Bloom's Level	CO1- To describe basic concepts of animals.(BL1-Remember) CO2- To understand the Anatomy, vertebrates(BL2-Understand) CO3- To understand the importance CO4- To provide experimental bas knowledge and understanding in a Analyze) CO5- To evaluate the applications development, medical science ger CO6- To apply the understanding of histology in various fields such as	<ul> <li>D1- To describe basic concepts of anatomy and anatomical structure of the organs of nimals. (BL1-Remember)</li> <li>D2- To understand the Anatomy, histology, and comparative anatomy in different ertebrates (BL2-Understand)</li> <li>D3- To understand the importance of Anatomy and its applications (BL3-Apply)</li> <li>D4- To provide experimental basis, and to enable students to acquire a specialized nowledge and understanding in advanced the field of Anatomy and histology (BL4-nalyze)</li> <li>D5- To evaluate the applications of genetics in various fields such as research and evelopment, medical science genetic engineering etc(BL5-Evaluate)</li> <li>D6- To apply the understanding of analysing the applications of Anatomy and stology in various fields such as research and industries (BL6-Create)</li> </ul>											
Course Elements	Skill Development X Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X Environment X	SDG (Goals)	SDG5(Gender equality)										

COs	P01	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	3	1	2	2	-	-	-	-	-	-	-	1	2	3
CO2	2	3	1	2	2	-	-	-	-	-	-	-	2	2	3
CO3	2	2	2	1	1	-	-	-	-	-	-	-	2	1	3
CO4	1	2	2	1	1	-	-	-	-	-	-	-	1	1	2
CO5	1	2	1	1	2	-	-	-	-	-	-	-	1	1	2
CO6	1	2	2	-	-	-	-	-	-	-	-	-	-	-	2



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Plant Ecology	nt Ecology											
Course Code	BSBT GE II (T)												
Course Outcomes & Bloom's Level	CO1- Understand plant commur Remember) CO2- Learn about biodiversity a CO3- Study botanical regions of CO4- Understand bioremediatio CO5- The interactions among pl Apply)	<b>(BL1-</b> <b>(BL1-</b> <b>(BL1-</b> <b>(BL2-Understand)</b> Study botanical regions of India and different vegetation types. (BL3-Apply) Understand bioremediation, global warming and climate change(BL4-Analyze) The interactions among plants and between plants and other organisms. (BL3- ()											
Course Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X Environment √	SDG (Goals)	SDG4(Quality education) SDG5(Gender equality)										

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	2	2	2	1	-	-	-	-	-	-	2	2	3
CO2	2	1	2	1	2	3	-	-	-	-	-	-	2	1	1
CO3	1	2	1	1	2	1	3	-	-	-	-	-	3	2	1
CO4	1	1	1	1	1	3	-	-	-	-	-	-	3	1	1
CO5	2	2	2	2	1	3	3	-	-	-	-	-	2	2	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Molecular Biology II	lolecular Biology II											
Course Code	BSBT 301 (T)												
Course Outcomes & Bloom's Level	CO1- To remember the structure Remember) CO2- To understand DNA & RNA Understand) CO3- To understand the importar Understand) CO4- To provide experimental ba nucleic acid from various samples CO5- To evaluate the applications industries(BL5-Evaluate)	of biomolecules DN and its relation to t ace of Molecular ed sis, and to enable s s <b>(BL3-Apply)</b> s of nucleic acid in	NA, RNA & Protein <b>(BL1-</b> the formation of Protein <b>(BL2-</b> iting tools in the cell <b>(BL2-</b> students to analyze the isolation of various fields such as research and										
Course Elements	Skill Development X Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X												

COs	P01	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	-	-	-	-	1	1	-	-	-	-	1	3	1
CO2	1	2	-	-	-	-	2	1	-	-	-	-	2	3	2
CO3	1	2	-	-	-	-	2	2	-	-	-	-	2	2	2
CO4	1	2	-	-	-	-	2	3	-	-	-	-	3	2	1
CO5	1	2	-	-	-	-	-3	3	-	-	-	-	3	2	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Plant tissue culture								
Course Code	BSBT 302 (T)								
Course Outcomes & Bloom's Level	CO1- To understand and recall th plant tissue culture(BL1-Rememi CO2- To prepare the plant tissue inoculation(BL2-Understand) CO3- To observe and differentiate different types of nutrient media.( CO4- To standardize the techniquidevelopment of in vitro cultures.(I CO5- To develop in vitro regenerate techniques of plant tissue culture.	e basic terms, tech ber) culture media using the behavior of va BL4-Analyze) ues and nutrient me BL3-Apply) ated and transgenio .(BL6-Create)	nniques, historical landmarks of g sterilization techniques for arious explants towards the edia for the growth and c plantlets using various tools and						
Course Elements	Skill Development ✓       Entrepreneurship ×       Employability ✓       S       Professional Ethics ×       Gender ×       Human Values ×       Environment ×								

COs	P01	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	1	2	-	2	2	-	-	-	2	-	-	1	1	1
CO2	3	3	2	2	2	2	-	-	-	2	-	-	1	-	3
CO3	3	1	1	-	1	1	-	-	-	-	-	-	3	2	3
CO4	2	2	-	2	1	1	-	-	-	-	-	-	2	3	3
CO5	3	2	-	2	1	-	-	-	-	-	-	-	2	2	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Genetics											
Course Code	BSBT303(T)											
Course Outcomes & Bloom's Level	CO1- To describe basic prin CO2- To understand the Me CO3- To understand the imp CO4- To provide experimen knowledge and understandi CO5- To evaluate the applic Evaluate) CO6- To apply the understa mutations and others in vari	<ul> <li>To understand the Mendalian and non Mendalian inheritance(BL2-Understand)</li> <li>To understand the importance of heredity and its applications(BL3-Apply)</li> <li>To provide experimental basis, and to enable students to acquire a specialized ledge and understanding in advanced the field of genetics(BL4-Analyze)</li> <li>To evaluate the applications of genetics in various fields such as research (BL5-uate)</li> <li>To apply the understanding of heredity and variation and genetic disorders and tions and others in various fields or industries(BL6-Create)</li> </ul>										
Course Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X Environment X	SDG (Goals)	SDG1(No poverty) SDG4(Quality education) SDG11(Sustainable cities and economies) SDG14(Life below water) SDG15(Life on land)									

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	3	1	2	-	-	-	-	-	-	-	-	1	2	3
CO2	2	3	1	2	-	-	-	-	-	-	-	-	2	2	3
CO3	2	2	2	1	-	-	-	-	-	-	-	-	2	1	3
CO4	1	2	2	1	-	-	-	-	-	-	-	-	1	1	2
CO5	1	2	1	1	-	-	-	-	-	-	-	-	1	1	2
CO6	-	1	-	2	-	-	-	-	-	-	-	-	-	1	1



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	NCC*									
Course Code	BSBT 304 (T)									
Course Outcomes & Bloom's Level	<b>CO1-</b> Define thinking, reaso <b>CO2-</b> To think critically abou <b>CO3-</b> Think divergently and <b>CO4-</b> Creatively in their real <b>CO5-</b> Understand the organ functioning.() <b>CO6-</b> Appreciate the role of	<ul> <li>2- To think critically about different life related issues.()</li> <li>3- Think divergently and will try to break functional fixedness.()</li> <li>4- Creatively in their real-life problems()</li> <li>5- Understand the organizations related to disaster management and Their ctioning.()</li> <li>6- Appreciate the role of NCC cadets in disaster management.()</li> </ul>								
Course Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values ✓ Environment ✓	SDG (Goals)	SDG4(Quality education) SDG6(Clean water and sanitation) SDG13(Climate action) SDG15(Life on land)							

COs	P01	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Biostatistics & Computer applicati	iostatistics & Computer applications												
Course Code	BSBT SEC III (T)													
Course Outcomes & Bloom's Level	CO1- The course prepares the stu Fundamentals of Biostatistics and prospects(BL1-Remember) CO2- The subject Fundamentals of designed for under graduate stude concepts of each and every division fields. (BL2-Understand) CO3- The course aims to provide acquire a specialized knowledge a CO4- The course aims to provide of Biostatistics and Computer App (BL3-Apply) CO5- The course aims to provide and use of statistical tools in resea	ident to understand Computer Applicat of Biostatistics and ents of biotechnolog on of the subject alo experimental basis and understanding basis of analyzing lications in various basis of experimental arch and industries.	I the basic concepts of tions, its applications and future Computer Applications is gy for understanding of basic ong with its applications in other , and to enable students to <b>BL2-Understand)</b> the applications of Fundamentals fields of research and industries. tal design, computer applications ( <b>BL3-Apply</b> )											
Course Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X Environment X	SDG (Goals)	SDG4(Quality education)											

	-				-	-	-	-							
COs	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	-	-	-	-	-	-	1	2	-	-	1	2	-
CO2	1	2	-	-	-	-	-	-	1	1	-	-	2	1	-
CO3	1	2	-	-	-	-	-	-	1	1	-	-	1	2	-
CO4	1	2	-	-	-	-	-	-	1	2	-	-	2	1	-
CO5	1	2	-	-	-	-	-	-	1	2	-	-	1	2	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Disaster Management											
Course Code	BSBT VAC III											
Course Outcomes & Bloom's Level	<b>CO1-</b> To learn types of disa <b>CO2-</b> To understand the ca case studies of Global and <b>CO3-</b> To learn about risk re mitigating industrial disaste <b>CO4-</b> To understand the co Measures( <b>BL4-Analyze</b> ) <b>CO5-</b> To apply the Nationa Police, Community, Corpor <b>Evaluate</b> )	<ul> <li>22- To understand the causes and impacts of disasters on environment and related se studies of Global and National disasters.(BL2-Understand)</li> <li>23- To learn about risk reduction approaches of disasters with safety issues in tigating industrial disasters.(BL3-Apply)</li> <li>24- To understand the concept of Disaster Management Cycle and its Risk Reduction easures(BL4-Analyze)</li> <li>25- To apply the National Acts and policies for mitigating disasters, Role of Army, blice, Community, Corporate, Media etc. for post Disaster Management.(BL5-raluate)</li> </ul>										
Course Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X Environment √	SDG (Goals)	SDG1(No poverty) SDG3(Good health and well-being) SDG4(Quality education) SDG6(Clean water and sanitation) SDG8(Decent work and economic growth) SDG10(Reduced inequalities) SDG11(Sustainable cities and economies) SDG12(Responsible consuption and production) SDG13(Climate action) SDG15(Life on land) SDG17(Partnerships for the goals)									

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	3	3	1	3	3	3	1	2	3	1	3	2	3
CO2	1	1	2	3	1	3	3	3	2	1	3	2	1	1	2
CO3	3	3	2	1	3	3	2	1	1	3	2	2	3	2	2
CO4	3	3	3	3	2	2	3	3	1	1	3	2	3	3	2
CO5	3	3	2	2	1	3	3	3	1	1	3	2	3	3	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	English II	
Course Code	BSBT AEC III	
Course Outcomes & Bloom's Level	CO1- Determine interpersonal skills and be an effectiv (BL1-Remember) CO2- They will be able to analyze and improve their sp terms of fluency and comprehensibility.(BL2-Understa CO3- They will be able to evaluate themselves by givin receive feedback on their performances.(BL3-Apply) CO4- They will be able to develop their reading speed articles.(BL4-Analyze) CO5- They will be able to compare their reading fluence	e goal-oriented team player. beaking ability in English both in and) ng oral presentations and will and comprehension of academic cy skills. <b>(BL5-Evaluate)</b>
Course Elements	Skill Development ✓ Entrepreneurship × Employability × Professional Ethics × Gender × Human Values × Environment ×	SDG (Goals)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	-	1	2	3	-	-	3	2	-	2	3	2	2	-
CO2	-	2	2	3	-	2	-	2	3	-	-	-	-	-	-
CO3	2	-	3	-	2	2	2	3	2	-	-	-	-	2	1
CO4	2	-	3	-	2	-	3	-	2	-	3	2	-	2	3
CO5	2	-	2	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Organic Chemistry	janic Chemistry											
Course Code	BSBT GE III (T)												
Course Outcomes & Bloom's Level	CO1- To remember the Stereoche compounds(BL1-Remember) CO2- To understand the basic prir CO3- To apply the basic chemical CO4- To analyze the presence of Analyze) CO5- To evaluate the applications various industrial products like pha Evaluate)	mistry and reaction nciples of Chemistr test on natural org functional groups in of organic reaction armaceutical agent	n mechanism of organic y <b>(BL2-Understand)</b> anic compounds <b>(BL3-Apply)</b> n an organic compounds <b>(BL4-</b> ns mechanisms in preparation of is, Paints , Synthetic dyes etc <b>(BL5-</b>										
Course Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X Environment X	SDG (Goals)	SDG4(Quality education)										

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	2	3	3	-	-	-	-	-	-	-	1	2	2
CO2	2	2	1	3	2	-	-	-	-	-	-	-	1	1	1
CO3	1	2	3	2	2	-	-	-	-	-	-	-	1	2	2
CO4	2	2	2	3	3	-	-	-	-	-	-	-	1	2	3
CO5	2	1	3	3	2	-	-	-	-	-	-	-	1	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Inorganic Chemistry	organic Chemistry											
Course Code	BSBT GE III (T)												
Course Outcomes & Bloom's Level	CO1- To remember Knowledge of reduction, Complexes , Lanthanid CO2- To understand Properties ar compounds, Acids and Bases , No Understand) CO3- To Apply the Transition elem different application(BL3-Apply) CO4- To Analyze the Structure , B Complexes(BL4-Analyze) CO5- To Evaluate the results anal	<ul> <li>duction, Complexes, Lanthanides, Actinides(BL1-Remember)</li> <li>O2- To understand Properties and uses of Transition elements, Coordination ompounds, Acids and Bases, Non aqueous solvents Lanthanides, Actinides(BL2-nderstand)</li> <li>O3- To Apply the Transition elements, Complexes, Lanthanides, Actinides in the fferent application(BL3-Apply)</li> <li>O4- To Analyze the Structure, Bonding, Magnetic Properties of Transition elements, omplexes(BL4-Analyze)</li> <li>O5- To Evaluate the results analyzed(BL5-Evaluate)</li> </ul>											
Course Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X Environment X	SDG (Goals)	SDG4(Quality education)										

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	-	-	-	-	-	-	-	-	3	3	2	-
CO2	3	2	1	-	-	-	-	-	-	-	-	3	3	2	-
CO3	2	2	1	-	-	-	-	-	-	-	-	2	2	1	-
CO4	2	3	1	-	-	-	-	-	-	-	-	1	1	2	-
CO5	2	2	2	-	-	-	-	-	-	-	-	1	1	2	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Genetic Engineering	enetic Engineering											
Course Code	BSBT 401 (T)												
Course Outcomes & Bloom's Level	CO1- To remember the role of all Remember) CO2- To understand the method Understand) CO3- To understand the importar CO4- To evaluate the application Pharmaceutical industries(BL5-E CO5- To apply the understanding different Fields.(BL3-Apply)	the enzymes used of creating new mo nce Nucleic acid ed s of in various fields valuate) of creation of new	in the DNA editing <b>(BL1-</b> lecules such as DNA & RNA <b>(BL2-</b> iting tools <b>(BL2-Understand)</b> s such as research, Agriculture, DNA , RNA & Protein and its use in										
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✓ Gender Ⅹ Human Values ✓ Environment ✓	SDG (Goals)	SDG4(Quality education)										

		-					-								
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	3	-	-	2	-	-	-	-	-	-	1	-	3
CO2	1	2	3	-	-	1	-	-	-	-	-	-	1	-	2
CO3	1	2	3	-	-	-	3	-	-	-	-	-	3	1	-
CO4	1	2	3	-	-	-	-	-	-	-	-	-	2	-	-
CO5	1	2	3	-	-	2	-	-	-	-	-	-	-	-	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Bioprocess Engineering	oprocess Engineering												
Course Code	BSBT 402(T)													
Course Outcomes & Bloom's Level	Engineering, its applications and future prospects.( <b>BL1-Remember</b> ) <b>CO2-</b> The subject Bioprocess Engineering is designed for under graduate studen biotechnology for understanding of basic concepts of each and every division of t subject along with its applications in other fields. ( <b>BL2-Understand</b> ) <b>CO3-</b> The course aims to provide experimental basis, and to enable students to acquire a specialized knowledge and understanding.( <b>BL2-Understand</b> ) <b>CO4-</b> The course aims to provide basis of analyzing the applications of Bioproce Engineering in various fields of research and industries.( <b>BL3-Apply</b> ) <b>CO5-</b> The course aims to provide basis of design, production and purification of bioproducts produced through research and in industries.( <b>BL3-Apply</b> )													
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics × Gender × Human Values × Environment ×	SDG (Goals)	SDG4(Quality education)											

	-									-	-	-	-	-	-
COs	P01	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	-	-	-	-	-	-	1	1	-	-	1	2	-
CO2	2	1	-	-	-	-	-	-	1	1	-	-	1	2	-
CO3	1	1	-	-	-	-	-	-	1	1	-	-	2	1	-
CO4	1	2	-	-	-	-	-	-	1	2	-	-	1	2	-
CO5	1	2	-	-	-	-	-	-	1	2	-	-	1	2	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Enzymology								
Course Code	BSBT 403 (T)								
Course Outcomes & Bloom's Level	CO1- Student will be able to learn the major classes of enzyme and their function the cell(BL1-Remember) CO2- Student will understand the role of co-enzyme cofactor in enzyme catalyze reaction(BL2-Understand) CO3- Differentiate between equilibrium and steady state kinetics and analyzed kinetic data and estimate important parameter (Km. Vmax, Kcat etc); (BL2- Understand) CO4- To define and describe the properties of enzymes in and regulates biocher pathways (inhibition, allosterism)(BL3-Apply) CO5- To analyze options for applying enzymes and their inhibitors in medicine various industries(BL4-Analyze)								
Course Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X Environment X	SDG (Goals)	SDG4(Quality education)						

COs	P01	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	-	1	2	2	2	-	-	-	-	-	-	2	-	1
CO2	3	1	1	2	2	2	-	-	-	-	-	-	1	2	2
CO3	2	1	1	2	1	1	-	-	-	-	-	-	2	3	1
CO4	3	-	-	1	1	1	1	-	-	-	-	-	1	2	2
CO5	-	-	-	-	1	-	1	-	-	-	-	-	2	-	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



# Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	oprocess Engineering												
Course Code	BSBT 402 (P)												
Course Outcomes & Bloom's Level	Engineering, its applications and future prospects.( <b>BL1-Remember</b> ) <b>CO2-</b> The subject Bioprocess Engineering is designed for under graduate students biotechnology for understanding of basic concepts of each and every division of th subject along with its applications in other fields. ( <b>BL2-Understand</b> ) <b>CO3-</b> The course aims to provide experimental basis, and to enable students to acquire a specialized knowledge and understanding.( <b>BL2-Understand</b> ) <b>CO4-</b> The course aims to provide basis of analyzing the applications of Bioprocess Engineering in various fields of research and industries.( <b>BL3-Apply</b> ) <b>CO5-</b> The course aims to provide basis of design, production and purification of bioproducts produced through research and in industries.( <b>BL3-Apply</b> )												
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics × Gender × Human Values × Environment ×	SDG (Goals)	SDG4(Quality education)										

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COs	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	-	-	-	-	-	-	1	1	-	-	-	-	-
CO2	2	1	-	-	-	-	-	-	1	1	-	-	-	-	-
CO3	1	1	-	-	-	-	-	-	1	1	-	-	-	-	-
CO4	1	2	-	-	-	-	-	-	1	2	-	-	-	-	-
CO5	1	2	-	-	-	-	-	-	1	2	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	1	2	-	-	-	-	-



# Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	NCC*/MOOC*	C*/MOOC*										
Course Code	BSBT 404 (T)											
Course Outcomes & Bloom's Level	<b>CO1-</b> Develop the qualities <b>CO2-</b> Imbibe leadership qu <b>CO3-</b> Be motivated to serve <b>CO4-</b> Contribute in environ <b>CO5-</b> Keep abreast of curre <b>CO6-</b> Effectively contribute	of social skills.() alities. () e the nation by jo mental awarenes ent affairs & gene in managing dis	bining Armed forces. () ss and conservation activities() eral awareness.() aster relief tasks()									
Course Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values ✓ Environment ✓	SDG (Goals)	SDG3(Good health and well-being) SDG4(Quality education) SDG6(Clean water and sanitation) SDG13(Climate action) SDG15(Life on land)									

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Bioethics and Biosafety		
Course Code	BSBT SEC IV		
Course Outcomes & Bloom's Level	CO1- To remember the basic conc communication approaches for Bio CO2- To understand the Introduction access-Case studies/experiences Ownership, monopoly and an envi biotechnology in international relat analysis.(BL2-Understand) CO3- To describe comprehensive Biotechnological research and inder paradigms of Bioethics – National CO4- To provide Theoretical basis concepts of the concept of contain and Good Manufacturing Practices Analyze) CO5- To apply Appraise the current frameworksthat impact biotechnolog productive interactions in diverse b Social and ethical implications of b	epts and view of protection of science, tech from developing ar ronmental sustainations, globalization understanding of C ustries Bioethics – & International. <b>(BL</b> ,and to enable stud ment level and Goo s (GMP). Cartagena to regulatory, quality ogy and ethical beh pioterrorism and co piological weapons	rofessional and scientific ety <b>(BL1-Remember)</b> nology and society, issues of nd developed countries. ability, public vs. private funding, and development and their challenges for the Indian Necessity of Bioethics, different <b>.3-Apply)</b> lents to analyze the basic od Laboratory Practices (GLP) a Protocol for biosafety <b>(BL4-</b> y control, and legal haviors that foster positive and nvention on biological weapons. settings <b>(BL5-Evaluate)</b>
Course Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values ✓ Environment X	SDG (Goals)	SDG4(Quality education)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	3	3	1	3	3	3	1	2	3	1	3	2	3
CO2	1	1	2	3	1	3	3	3	2	1	3	2	1	1	2
CO3	3	3	2	1	3	3	3	2	1	1	3	2	2	3	2
CO4	3	3	3	3	2	2	3	3	1	1	3	2	3	3	2
CO5	3	3	2	2	1	3	3	3	1	1	3	2	3	3	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Environemental Issues and	nvironemental Issues and Sustainable Development											
Course Code	BSBT VAC IV												
Course Outcomes & Bloom's Level	<b>CO1-</b> CO1. To develop sen challenges and concept of <b>CO2-</b> CO2. To acquire anal through a multidisciplinary a <b>CO3-</b> CO3. Ability to design community's sustainable de <b>CO4-</b> CO4. Acquire experti the pathways of processes sustainable development in <b>CO5-</b> CO5. Students acqui sustainable development p	Illenges and concept of sustainable development. (BL2-Understand) 2- CO2. To acquire analytical skills/methods in assessing environmental impacts bugh a multidisciplinary approach;(BL4-Analyze) 3- CO3. Ability to design sustainability performance metric to assess the impact on nmunity's sustainable development(BL5-Evaluate) 4- CO4. Acquire expertise and skills to evaluate feedback systems that can readjust pathways of processes and procedures to ensure success in implementing stainable development initiatives.(BL1-Remember) 5- CO5. Students acquire skills to communicate, prepare, plan and implement the stainable development project to achieve milestone of SDGs.(BL3-Apply) II Development √											
Course Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values ✓ Environment ✓	SDG (Goals)	SDG4(Quality education) SDG5(Gender equality) SDG12(Responsible consuption and production) SDG13(Climate action)										

	-		-		-		-			-	-	-	-	-	-
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3	1	2	2	-	-	-	-	-	-	-	-	2	3
CO2	2	3	1	2	2	-	-	-	-	-	-	-	-	2	3
CO3	2	2	1	1	1	-	-	-	-	-	-	-	-	1	3
CO4	1	2	-	-	-	-	-	-	-	-	-	-	-	1	2
CO5	-	1.6	1	-	-	-	-	-	-	-	-	-	-	-	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Hindi II		
Course Code	BSBT AEC IV		
Course Outcomes & Bloom's Level	CO1- हिंदी भाषा एवं नैतिक मूल्यों व CO2- सांस्कृतिक ,एवं राष्ट्रिय एकता CO3- छात्र जीविकोपार्जन के लक्ष्यों CO4- पाठ्यक्रम में व्याकरण ,सामा परम्परा का बोध करना एवं समग्र व्य	को समझना <b>(BL1-R</b> । बनाये रखना भाषा का सहज संधान क न्य तथा पारम्परिक ज क्तित्व का विकास व	emember) के माध्यम से संम्भव है।(BL2-Understand) र सके ।(BL3-Apply) साहित्य ,लोक कलाएं ,स्थापत्य एवं लेखन करना है।(BL2-Understand)
Course Elements	Skill Development ✓ Entrepreneurship × Employability × Professional Ethics × Gender × Human Values √ Environment ×	SDG (Goals)	SDG1(No poverty) SDG3(Good health and well-being) SDG4(Quality education)

<u> </u>					DOC							0040			
CUS	PUT	POZ	PU3	P04	PU5	PU6	PU/	PU8	PU9	POIU	POT	PO12	P501	P502	PS03
CO1	1	2	3	3	2	2	-	-	-	-	-	-	3	2	3
CO2	2	1	2	2	-	3	-	-	-	-	-	-	2	2	2
CO3	2	2	2	3	3	2	-	-	-	-	-	-	-	2	3
CO4	1	2	3	2	2	-	-	-	-	-	-	-	3	2	1
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Plant Physiology		
Course Code	BSBT GE IV (T)		
Course Outcomes & Bloom's Level	CO1- To remember the basic con Remember) CO2- To understand the mechani Light and dark reactions.(BL1-Re CO3- To describe the mechanism CO4- To provide experimental ba of plant respiration and different p CO5- To evaluate the growth and periods.(BL5-Evaluate) CO6- To apply the understanding plants(BL6-Create)	cepts and view of p sms of photosynthe <b>member)</b> o of active and pass sis, and to enable s bathways <b>(BL4-Ana</b> development of dif of growth and deve	ohysiology of plants <b>(BL1-</b> esis, photophosphorylation and sive adsorption <b>(BL3-Apply)</b> students to analyze the mechanism <b>lyze)</b> iferent plants across geological elopment and nutrition system in
Course Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X Environment √	SDG (Goals)	SDG4(Quality education)

				-			-		-	-				-	-
COs	P01	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	1	3	3	-	-	-	-	-	-	-	-	2	3	3
CO2	1	1	2	2	1	2	1	-	-	-	-	-	2	3	2
CO3	1	3	2	2	2	3	1	-	-	-	-	-	3	2	2
CO4	1	3	2	2	2	2	2	-	-	-	-	-	3	1	1
CO5	3	3	1	1	1	1	2	-	-	-	-	-	3	2	1
CO6	1	-	-	1	-	-	-	-	-	-	-	-	-	-	2



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Animal Physiology		
Course Code	BSBT GE IV (T)		
Course Outcomes & Bloom's Level	CO1- To describe fundamental kn CO2- To understand the detailed functioning of nerves and muscles CO3- To understand the importan CO4- To provide experimental bas physiology(BL4-Analyze) CO5- To evaluate the applications development as well as in various CO6- To apply the understanding Medical and clinical, Pathological	iowledge of animal concepts of digesti s Hormones and re ce of Physiology a sis, and to enable s of Physiology in v industries <b>(BL5-Ev</b> of Physiology in th , drug industries etc	physiology( <b>BL1-Remember</b> ) on respiration excretion the production( <b>BL2-Understand</b> ) nd its applications( <b>BL3-Apply</b> ) students to basic concept of arious fields such as research and valuate) eir future perspective fields i.e. c. ( <b>BL6-Create</b> )
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics X Gender X Human Values X Environment X	SDG (Goals)	SDG1(No poverty) SDG2(Zero hunger) SDG4(Quality education) SDG14(Life below water) SDG15(Life on land)

COs	P01	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	-	1	2	2	2	-	-	-	-	-	-	2	-	1
CO2	3	1	1	2	2	2	-	-	-	-	-	-	1	2	2
CO3	2	1	1	2	1	1	-	-	-	-	-	-	2	3	1
CO4	3	-	-	1	1	1	1	-	-	-	-	-	1	2	2
CO5	-	-	-	-	1	-	1	-	-	-	-	-	2	-	1
CO6	-	2	-	-	1	-	-	-	-	-	-	-	1	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Bioinformatics		
Course Code	BSBT 501 (T)		
Course Outcomes & Bloom's Level	<b>CO1-</b> The course prepares the stu Bioinformatics, its applications an <b>CO2-</b> The course aims to provide acquire a specialized knowledge <b>CO3-</b> The course aims to provide in various fields of research and in <b>CO4-</b> To evaluate the analytical e	udent to understand d future prospects. experimental basis and understanding basis of analyzing ndustries. <b>(BL3-Ap</b> fficiency of each alg	d the basic concepts of (BL1-Remember) s, and to enable students to (BL2-Understand) the applications of Bioinformatics ply) gorithm(BL3-Apply)
Course Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X Environment X	SDG (Goals)	SDG4(Quality education)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	-	-	-	-	-	-	1	1	-	-	1	2	-
CO2	1	2	-	-	-	-	-	-	1	2	-	-	1	2	-
CO3	1	2	-	-	-	-	-	-	1	2	-	-	2	1	-
CO4	1	2	-	-	-	-	3	-	1	2	-	-	1	2	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Cellular Metabolism		
Course Code	BSBT 502 (T)		
Course Outcomes & Bloom's Level	CO1- To impart knowledge on structure components.(BL1-Remember) CO2- To comprehend the underst major metabolic compounds:(BL2 CO3- To estimate the relation of k structure and functions of differen CO4- To analyze the various bion CO5- To evaluate the applications	uctural, functional a tanding of the meta 2-Understand) biological material to t biomolecules.(BL nolecules in biologics of biomolecules ir	and dynamic aspects of biological bolic pathways involving the four o living matter and elaborate the <b>3-Apply)</b> cal samples( <b>BL4-Analyze</b> ) o various fields ( <b>BL5-Evaluate</b> )
Course Elements	Skill Development X Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X Environment X	SDG (Goals)	SDG4(Quality education)

COs	P01	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	-	-	-	2	2	-	-	-	2	-	-	1	-	1
CO2	2	3	2	2	2	1	-	-	-	2	-	-	1	-	3
CO3	3	1	1	2	1	-	-	-	-	-	-	-	3	2	3
CO4	3	2	1	1	1	-	-	-	-	2	-	-	2	3	2
CO5	2	1	1	2	1	-	-	-	-	2	-	-	2	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Genomics & Proteomics	enomics & Proteomics												
Course Code	BSBT 503 (T)													
Course Outcomes & Bloom's Level	CO1- To understand the fundame their organization in the cell.(BL1- CO2- To utilize the knowledge abo Comparative genomics & Function (BL2-Understand) CO3- To analyze the various gene characteristics using various techn CO4- To amplify and detect the va development.(BL4-Analyze) CO5- To develop a genome datab product at the commercial level(B	ntals of genes, chro •Remember) out major genome of nal genomics for th es isolated from diff niques.(BL3-Apply arious genes in diffe base or purify the pr L6-Create)	omosomes and DNA along with databases, Genome analysis, e preparation of genomic libraries. Ferent samples for their specific () erent samples for research and rotein in order to develop a specific											
Course Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X Environment X	SDG (Goals)	SDG4(Quality education)											

COs	P01	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	-	1	2	2	2	-	-	-	-	-	-	2	-	1
CO2	3	1	1	2	2	2	-	-	-	-	-	-	1	1	2
CO3	2	1	1	2	1	-	2	-	-	-	-	-	3	2	1
CO4	3	1	2	1	1	-	1	-	-	-	-	-	1	3	2
CO5	1	-	-	-	1	-	1	-	-	-	-	-	2	2	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Marine Microbiology	larine Microbiology											
Course Code	SEC V (T)												
Course Outcomes & Bloom's Level	CO1- To Understand the ma habitat of marine environme CO2- To comprehend water Understand) CO3- To understand variou biosensor, transgenic, biosu CO4- To realize marine poll bioremediation.(BL4-Analy	arine ecosyster ent.( <b>BL1-Reme</b> r borne disease s biotechnology urfactant etc.( <b>B</b> ution and contr <b>ze</b> )	m and familiarize the structure and various ember) es and water borne pathogen <b>(BL2-</b> y applications of marine microbiology such as E <b>L3-Apply)</b> rol measure, bio-corrosion and										
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics X Gender X Human Values X Environment ✓	SDG (Goals)	SDG2(Zero hunger) SDG3(Good health and well-being) SDG4(Quality education) SDG6(Clean water and sanitation) SDG7(Affordable and clean energy) SDG8(Decent work and economic growth) SDG11(Sustainable cities and economies) SDG13(Climate action) SDG15(Life on land)										

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	3	3	1	3	3	1	1	1	3	1	2	1	3
CO2	3	1	2	2	1	3	3	1	2	1	3	3	3	2	1
CO3	1	3	1	1	3	3	3	2	1	2	3	2	3	1	2
CO4	2	1	2	1	3	1	3	1	1	2	1	1	1	3	2
CO5	3	3	2	1	3	1	2	3	2	2	1	3	3	2	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Organic Farming	rganic Farming												
Course Code	SEC V (T)													
Course Outcomes & Bloom's Level	CO1- Students will understa farming including the import (BL2-Understand) CO2- To equip learners with agriculture and the productio CO3- Students will gain han exercises to apply their know CO4- learners will explore th methods to enhance soil fer CO5- Students will learn abo demand and the economic a	ind various prin ance of sustain the knowledge on of healthy, of ds on experien wledge in a real ne significance tility through co out marketing o aspect of Organ	ciples, need and prospect of organic ability, biodiversity and ecological balance. e and skills necessary to practice sustainable rganic food( <b>BL2-Understand</b> ) ce through field work, farm visits or practical l world setting( <b>BL3-Apply</b> ) of soil health in organic farming and various mposting and crop rotation. ( <b>BL4-Analyze</b> ) organic products, understanding consumer nic farming( <b>BL6-Create</b> )											
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics X Gender X Human Values X Environment ✓	SDG (Goals)	SDG2(Zero hunger) SDG3(Good health and well-being) SDG4(Quality education) SDG6(Clean water and sanitation) SDG7(Affordable and clean energy) SDG8(Decent work and economic growth) SDG11(Sustainable cities and economies) SDG13(Climate action) SDG15(Life on land)											

						-			-						
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	1	2	1	1	2	-	-	-	-	-	-	2	2	2
CO2	1	2	3	3	2	2	1	-	-	-	-	-	2	1	2
CO3	1	1	1	3	2	2	1	-	-	-	-	-	1	1	1
CO4	2	1	3	2	1	1	1	-	-	-	-	-	2	1	2
CO5	3	1	3	3	1	1	-	-	-	-	-	-	1	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Environemntal Microbiology	vironemntal Microbiology												
Course Code	DSE I (T)													
Course Outcomes & Bloom's Level	CO1- To define microbes and CO2- explain the distribution of water, sediments, soil and air. CO3- To describe the diversity Understand) CO4- To demonstrate how div associated with each techniqu CO5- To illustrate the ecologic ecosystems(BL4-Analyze)	environmental m of microbes in sev ( <b>BL2-Understan</b> of microbes in th ersity is assessed ie.( <b>BL3-Apply</b> ) cal importance of	icrobiology. <b>(BL1-Remember)</b> veral different environments, including d) ne different environments <b>(BL2-</b> d and identify methodological issues microbes and their function in natural											
Course Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X Environment √	SDG (Goals)	SDG4(Quality education) SDG6(Clean water and sanitation)											

COs	P01	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	2	2	3	-	-	-	-	-	-	1	3	-
CO2	1	1	1	2	-	3	3	-	-	-	-	-	1	3	3
CO3	2	1	-	1	2	3	3	-	-	-	-	-	2	-	2
CO4	3	3	3	3	3	2	3	-	-	-	-	-	3	1	3
CO5	1	2	1	1	2	3	-	-	-	-	-	-	1	2	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Environmental Biotechnolo	vironmental Biotechnology											
Course Code	DSE I (T)												
Course Outcomes & Bloom's Level	<b>CO1-</b> The student will be al pollutants, taking microbial chemical structure of the co <b>CO2-</b> Students will understa decontamination of soil and for vapor-phase wastes, an <b>CO3-</b> Students will learn at remediation of contaminate <b>CO4-</b> Students will learn at environmental engineering. <b>CO5-</b> To evaluate the use of purpose( <b>BL5-Evaluate</b> )	ble to Rememb and physical/c ompound itself, and the phenor d water, wetland d composting. out the environ d environment out the use of ( <b>BL4-Analyze</b> of environment	ber the potential of biodegradation of organic hemical environments, as well as the into consideration( <b>BL1-Remember</b> ) menon of phytoremediation for the ds as treatment processes, biofilms/biofilters ( <b>BL2-Understand</b> ) mmental quality evaluation, monitoring, and s( <b>BL3-Apply</b> ) biosensors in environmental analysis, ) al methods in Monitoring and social										
Course Elements	Skill Development X Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X Environment ✓	SDG (Goals)	SDG4(Quality education) SDG6(Clean water and sanitation) SDG7(Affordable and clean energy) SDG11(Sustainable cities and economies) SDG12(Responsible consuption and production) SDG13(Climate action)										

	-					-									
COs	P01	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	3	2	3	-	2	-	-	-	-	-	3	-	2
CO2	1	2	2	2	-	2	1	-	-	-	-	-	2	3	3
CO3	1	2	2	1	2	2	-	1	-	-	-	-	2	2	3
CO4	1	2	2	2	2	1	2	-	-	-	-	-	2	2	2
CO5	1	2	1	3	2	2	-	-	-	-	-	-	1	1	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Animal Tissue Culture											
Course Code	BSBT 601 (T)											
Course Outcomes & Bloom's Level	CO1- To understand the Anim non-living molecules(BL2-Un CO2- To Understand media c cell culture.(BL2-Understand CO3- Develop basic aseptic s (BL3-Apply) CO4- To Develop proficiency lines.(BL3-Apply) CO5- To Apply cell and molec	n-living molecules( <b>BL2-Understand</b> ) <b>)2-</b> To Understand media constituents and media formulation strategies for mamalian I culture.( <b>BL2-Understand</b> ) <b>)3-</b> Develop basic aseptic skills for mammalian cell culture and their applications. L <b>3-Apply</b> ) <b>)4-</b> To Develop proficiency in mammalian cell culture and the maintenance of cell es.( <b>BL3-Apply</b> ) <b>)5-</b> To Apply cell and molecular techniques to in vitro situations.( <b>BL3-Apply</b> )										
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics X Gender X Human Values ✓ Environment ✓	SDG (Goals)	SDG3(Good health and well-being) SDG4(Quality education)									

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	3	3	-	2	2	3	-	-	-	-	-	1	2	2
CO2	2	2	1	1	3	2	-	-	-	-	-	-	-	3	2
CO3	3	2	-	1	3	2	1	-	-	-	-	2	1	1	1
CO4	1	1	1	1	1	1	3	-	-	-	-	-	2	3	2
CO5	1	1	2	1	1	1	3	-	-	-	-	-	2	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Nanobiotechnology	anobiotechnology												
Course Code	BSBT 602 (T)													
Course Outcomes & Bloom's Level	CO1- To Remember the Basis an CO2- To understand and apply the Understand) CO3- To apply the uses of nanos Apply) CO4- To identify the application of CO5- To develop an biotechnolo environment(BL5-Evaluate)	<ul> <li>2- To understand and apply the working principles of nanostructures.(BL2- lerstand)</li> <li>3- To apply the uses of nanostructures in Biological cells and its product(BL3- oly)</li> <li>4- To identify the application of nanosystem(BL4-Analyze)</li> <li>5- To develop an biotechnological application in health, medicine &amp; ironment(BL5-Evaluate)</li> </ul>												
Course Elements	Skill Development ✓ Entrepreneurship × Employability ✓ Professional Ethics × Gender × Human Values × Environment √	SDG (Goals)	SDG4(Quality education)											

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	-	-	1	-	-	-	-	-	-	-	2	-	3
CO2	1	2	3	2	2	2	1	-	-	-	-	-	1	2	3
CO3	1	2	3	2	-	2	1	-	-	-	-	-	2	3	3
CO4	1	2	3	3	2	1	-	-	-	-	-	-	1	3	3
CO5	1	2	-	3-	2	1	-	-	-	-	-	-	1	3	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Entrepreneurship development	t	
Course Code	SEC VI (T)		
Course Outcomes & Bloom's Level	CO1- Communicate with requir clear and accurate.(BL1-Reme CO2- Comprehend and apply b uses internet services to get ac industry.(BL2-Understand) CO3- To demonstrate knowledg supporting the development of CO4- To illustrate procedures to occupational health, safety, env CO5- Comply time managemen	ed clarity ensurin mber) asic computer we customed & take ge of entrepreneu businesses/entre b achieve a safe w rironment regulation t technique in da	g that the information communicated is orking, basic operating system and benefit of IT developments in the rship and identify establishment for preneurship.( <b>BL3-Apply</b> ) working environment in line with ons.( <b>BL4-Analyze</b> ) y-to-day work.( <b>BL5-Evaluate</b> )
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics × Gender × Human Values × Environment ×	SDG (Goals)	SDG1(No poverty) SDG3(Good health and well-being)

COs	P01	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	-	-	-	-	1	1	-	3	1	3	3	1	1
CO2	3	3	2	1	1	-	-	-	-	2	-	2	3	1	1
CO3	1	1	3	3	2	2	1	-	-	-	1	1	3	1	1
CO4	3	1	-	-	-	2	2	1	-	-	2	-	3	3	3
CO5	1	2	-	-	-	-	1	1	-	3	1	3	3	3	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Introduction to Good Labo	troduction to Good Laboratory practices											
Course Code	SEC VI (T)												
Course Outcomes & Bloom's Level	CO1- to learn the regulatio SOPs and calibration proce CO2- to gain the knowledg followed in laboratory. (BL CO3- To provide the stude laboratory standard practic (BL3-Apply) CO4- To apply the subject laboratory accessories and CO5- To evaluate the theo implementation in food indu- foods(BL5-Evaluate)	ns and various edure of differe e of the variou <b>2-Understand)</b> nts a specialize es, their record knowledge in r l equipment's( <b>f</b> retical knowled ustry laboratori	guidelines on good laboratory practices and ent instruments.( <b>BL1-Remember</b> ) s hazards and safety procedures to be ed knowledge about implementation of ds and analyze laboratory data with accuracy. ninimization of errors related with handling of <b>BL4-Analyze</b> ) ge of good laboratory practices and its es to ensure the quality and safety of the										
Course Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X Environment X	SDG (Goals)	SDG1(No poverty) SDG2(Zero hunger) SDG3(Good health and well-being) SDG6(Clean water and sanitation) SDG12(Responsible consuption and production)										

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COs	P01	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	1	1	1	1	-	1	1	1	-	1	1	1
CO2	2	2	1	1	1	1	1	1	-	1	-	-	2	1	1
CO3	2	2	1	2	1	2	-	-	1	1	-	-	2	1	2
CO4	2	3	2	2	1	2	1	1	-	1	1	-	3	2	2
CO5	3	3	2	2	1	2	-	1	1	1	1	-	3	2	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



# Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Molecular Diagnostics		
Course Code	DSE IV (T)		
Course Outcomes & Bloom's Level	CO1- understanding of the b testing in the field of molecu CO2- Demonstrate an under Understand) CO3- Demonstrate an under fragments() CO4- Apply molecular diagn diseases(BL3-Apply) CO5- Understand the basics	basic principles a lar diagnostics.( rstanding of bas rstanding of elec lostic techniques in quality contr	and clinical significance of laboratory ( <b>BL1-Remember</b> ) Sic molecular diagnostic techniques( <b>BL2-</b> ctrophoresis in the separation of DNA is to the identification and diagnosis of fol and quality assurance( <b>BL2-Understand</b> )
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics × Gender × Human Values ✓ Environment ×	SDG (Goals)	SDG3(Good health and well-being) SDG4(Quality education) SDG8(Decent work and economic growth)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3	1	1	-	1	-	-	-	-	-	-	3	3	1
CO2	1	3	2	2	1	3	-	-	-	-	-	-	2	2	1
CO3	1	1	2	-	1	3	-	-	-	-	-	-	2	2	1
CO4	2	1	2	1	3	1	-	-	-	-	-	-	2	1	3
CO5	1	1	-	1	1	1	-	-	-	-	-	-	1	1	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Frontiers in Biotechnology & Micr	ontiers in Biotechnology & Microbiology											
Course Code	DSE IV (T)												
Course Outcomes & Bloom's Level	CO1- To understand the strategie (BL2-Understand) CO2- To understand and apply the bioinsecticides for crop improvem CO3- To analyze the gene behavi medicine.(BL4-Analyze) CO4- To identify the genetic and i tools.(BL1-Remember) CO5- To develop an improved & e based drug designing for the treat	<ul> <li>- Understand and apply the working principles of biofertilizers and secticides for crop improvement. (BL3-Apply)</li> <li>- To analyze the gene behavior and genetic modifications in the field of health and icine. (BL4-Analyze)</li> <li>- To identify the genetic and infectious diseases using various biotechnological (BL1-Remember)</li> <li>- To develop an improved &amp; efficient drug using homology modelling &amp; structure- ed drug designing for the treatment of various diseases(BL3-Apply)</li> </ul>											
Course Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics ✓ Gender X Human Values ✓ Environment X	SDG (Goals)	SDG4(Quality education)										

COs	P01	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	2	1	2	-	-	-	-	-	-	1	2	2
CO2	3	2	2	2	2	-	2	-	-	-	-	-	2	2	2
CO3	2	1	3	2	2	1	1	-	-	-	-	-	3	2	3
CO4	1	1	2	2	1	2	2	-	-	-	-	-	3	1	3
CO5	2	-	1	-	2	2	2	-	-	-	-	-	2	3	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Organic Mechanisms in Biology	ganic Mechanisms in Biology												
Course Code	DSE III (T)													
Course Outcomes & Bloom's Level	CO1- To describe the concept of Remember) CO2- Understandabout the metal Understand) CO3- To understandthe important sciences(BL3-Apply) CO4- To provideexperimentalbas and toxicology(BL4-Analyze) CO5- Toevaluatetheapplicationso invariousfieldssuchasresearch an CO6- Toapply theunderstanding of Create)	organic mechanism polism of biomolect ceofmetabolism in is andtoenablestud fbiological mechan ddevelopment. <b>(BL</b> of metabolism and t	ns (metabolism) in animals <b>(BL1-</b> ules and toxicology <b>(BL2-</b> lifeanditsapplications in other entstobasic concept of metabolism ism and toxicology <b>5-Evaluate)</b> toxicologyinvarious levels. <b>(BL6-</b>											
Course Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X Environment X	SDG (Goals)	SDG4(Quality education)											

COs	P01	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	3	1	2	2	-	-	-	-	-	-	-	1	2	3
CO2	2	3	1	2	2	-	-	-	-	-	-	-	2	2	3
CO3	2	2	2	1	1	-	-	-	-	-	-	-	2	1	3
CO4	1	2	2	1	1	-	-	-	-	-	-	-	1	1	2
CO5	1	2	1	1	2	-	-	-	-	-	-	-	1	1	2
CO6	2	1	-	1	1	-	-	-	-	-	-	-	-	1	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Waste Management	aste Management												
Course Code	DSE III (T)													
Course Outcomes & Bloom's Level	CO1- Learn basic concepts of wa to waste disposal.(BL2-Understa CO2- Develop understanding on waste and their disposals in vario CO3- Acquire knowledge on wast sustainable development.(BL3-A) CO4- Apply basic concepts in haz management for urban areas(BI CO5- Creating knowledge on was various cities of India(BL6-Create	<ul> <li>'aste disposal.(BL2-Understand)</li> <li>2- Develop understanding on various technological applications for processing of te and their disposals in various ways.(BL2-Understand)</li> <li>3- Acquire knowledge on waste to energy productions in the perspectives of tainable development.(BL3-Apply)</li> <li>4- Apply basic concepts in hazardous waste management and integrated waste nagement for urban areas(BL4-Analyze)</li> <li>5- Creating knowledge on waste characterization and its management practiced in ous cities of India(BL6-Create)</li> </ul>												
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics X Gender X Human Values X Environment ✓	SDG (Goals)	SDG4(Quality education)											

COs	P01	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	-	-	-	2	2	-	-	-	2	-	-	1	-	1
CO2	2	3	2	2	2	2	-	-	-	2	-	-	1	-	3
CO3	3	1	1	-	1	-	-	-	-	-	-	-	3	2	3
CO4	3	2	-	2	1	-	-	-	-	-	-	-	2	3	3
CO5	-	-	1	-	2	-	-	-	-	-	-	-	-	1	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



# Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	gricutlure Microbiology												
Course Code	DSE II (T)												
Course Outcomes & Bloom's Level	<ul> <li>CO1- TO Understand and accurately apply terminology used in the field of microbiology, and understand the fundamental differences between different types microorganisms including bacteria, viruses, fungi, prions and protozoa(BL2-Understand)</li> <li>CO2- Describe the structure and biology of bacterial cells, including the arrangem and replication of genetic material, and understand the concept of virulence and virulence factors(BL2-Understand)</li> <li>CO3- To analyse how microorganisms may be detected within various environme including how they may be cultivated within the laboratory setting, and molecular methods of detection(BL3-Apply)</li> <li>CO4- To identify specific microorganisms important to animals, plants and soil ecosystems, and explain why these microorganisms are significant(BL4-Analyze CO5- Review and evaluate readings relating to microbiology and agricultural production(BL6-Create)</li> </ul>												
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics × Gender × Human Values × Environment √	SDG (Goals)	SDG4(Quality education)										

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	2	-	-	2	-	-	-	2	2	-	2	2	3
CO2	2	1	2	-	-	3	-	-	-	2	1	-	1	2	2
CO3	2	2	2	-	-	1	-	-	-	1	1	-	1	1	2
CO4	1	2	1	-	-	2	-	-	-	1	2	-	3	1	1
CO5	2	2	1	-	-	1	-	-	-	1	-	-	3	2	1
CO6	2	2	3	-	-	3	-	-	-	-	2	-	2	1	1



# Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	griculture Biotechnology and Intellectual property rights												
Course Code	DSE II (T)												
Course Outcomes & Bloom's Level	CO1- To define and contrast th Understand) CO2- To understand the techni engineering practice in agricult CO3- To define the concept of of biofertilizers(BL3-Apply) CO4- To apply the knowledge of living entities for societal welfan CO5- The students will be able society and will be able to give for human use(BL6-Create)	<ul> <li>O1- To define and contrast the terms agriculture and agricultural biotechnology(BL2- nderstand)</li> <li>O2- To understand the techniques, skills, and modern engineering tools necessary for ngineering practice in agriculture biotechnology(BL2-Understand)</li> <li>O3- To define the concept of utilizing plants for production of vaccines and production biofertilizers(BL3-Apply)</li> <li>O4- To apply the knowledge of engineering principles of agriculture biotechnology to ring entities for societal welfare(BL4-Analyze)</li> <li>O5- The students will be able to develop the relationship between science and bociety and will be able to give justification for biotechnological manipulation of plants or human use(BL6-Create)</li> </ul>											
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics X Gender X Human Values ✓ Environment ✓	SDG (Goals)	SDG3(Good health and well-being) SDG4(Quality education)										

_	-	-	-		-	-		-	-	-					-
COs	P01	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	2	2	1	2	-	-	-	-	-	1	2	3	2
CO2	1	-	2	3	-	3	2	-	-	-	-	-	1	2	2
CO3	1	3	1	3	1	1	1	1	-	-	-	-	-	1	2
CO4	2	1	2	2	1	-	2	-	-	-	-	-	2	2	1
CO5	2	3	1	2	2	2	1	-	-	-	-	-	3	2	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Drug designing	ug designing											
Course Code	BSBT 701 (T)												
Course Outcomes & Bloom's Level	CO1- The course prepares th Discovery(BL2-Understand) CO2- They understand the dir Understand) CO3- The course provides va molecules (BL3-Apply) CO4- They becom e aware al design new drug molecules (B	e student to unde fferent CADD tec rious strategies t pout the working <b>3L4-Analyze)</b>	erstand the basic concepts of Drug hniques and their applications <b>(BL2-</b> o design and develop new drug like with molecular modeling softwares to										
Course Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values ✓ Environment ✓	SDG (Goals)	SDG3(Good health and well-being) SDG4(Quality education)										

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	1	-	-	-	-	-	-	-	-	-	-	1	2
CO2	1	2	2	1	-	-	-	-	-	-	-	-	-	1	1
CO3	1	1	2	2	-	-	-	-	-	-	-	-	-	3	1
CO4	1	2	1	2	-	-	-	-	-	-	-	-	-	2	2
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Research Methodology		
Course Code	BSBT 702 (T)		
Course Outcomes & Bloom's Level	CO1- The course prepares the stu Methodology, its applications in ex Understand) CO2- The subject Research Methor Biotechnology for describing the b subject along with its applications CO3- The course aims to provide acquire a specialized knowledge a experimental verification(BL3-App CO4- The course aims to provide Methodology in various fields of re CO5- The course aims to provide and use of statistical tools in research	ident to understand perimental design asic concepts of ea in other fields. <b>(BL2</b> experimental basis and understanding basis of analyzing esearch and industries arch and industries	d the basic concepts of Research and future prospects. <b>(BL2-</b> d for post graduate students of ach and every division of the <b>2-Understand)</b> s, and to enable students to of data and its applications in the applications of Research ries. <b>(BL4-Analyze)</b> ntal design, computer applications . <b>(BL6-Create)</b>
Course Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X Environment X	SDG (Goals)	SDG4(Quality education)

		1	1	1	1	1	1								1
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	-	-	-	-	-	-	1	2	-	-	-	-	-
CO2	1	2	-	-	-	-	-	-	1	1	-	-	-	-	-
CO3	1	2	-	-	-	-	-	-	1	2	-	-	-	-	-
CO4	1	2	-	-	-	-	-	-	1	1	-	-	-	-	-
CO5	1	2	-	-	-	-	-	-	1	1	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Industrial Microbiology		
Course Code	DSE VI (T)		
Course Outcomes & Bloom's Level	CO1- To identify the different CO2- Explain the various fer microorganisms (BL2-Under CO3- Discuss the methods different microorganisms (B CO4- Describe the environn various metabolites(BL4-And CO5- Select the best condition products(BL6-Create)	nt types of ferme ermentation strate erstand) for the production BL3-Apply) mental and nutri nalyze) tions and optimi	enters <b>(BL2-Understand)</b> tegies and the growth kinetics of industrial on of certain products (metabolites) using tional factors affecting the production of zation protocol needed for various microbial
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics X Gender X Human Values ✓ Environment ✓	SDG (Goals)	SDG4(Quality education) SDG8(Decent work and economic growth)

COs	P01	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	-	1	1	3	1	-	-	-	-	-	1	2	1
CO2	1	1	1	3	3	2	-	-	-	-	-	-	2	3	-
CO3	3	2	3	-	3	-	1	-	-	-	-	-	3	1	3
CO4	3	2	3	2	2	3	2	-	-	-	-	-	1	2	3
CO5	3	3	3	2	3	2	2	-	-	-	-	-	2	3	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Industrial Biotechnology		
Course Code	DSE VI (T)		
Course Outcomes & Bloom's Level	CO1- This course provides learn microbiology and infectious dise CO2- It covers mechanisms of i practice, and the role of the hun CO3- It also provides opportunit including the use and interpreta diseases. (BL3-Apply) CO4- To understand the importa respect to infections of the resp soft tissue.(BL4-Analyze) CO5- Helps to understand the u of microorganisms control, e.g., context of this understanding. R relapse and the accompanying	ning opportunities ease. <b>(BL2-Under</b> nfectious disease nan body's norma ties to develop in tion of laboratory ance of pathogen iratory tract, gast se of lab animals chemotherapy & ecall the relations pathology. <b>(BL6-C</b>	is in the basic principles of medical (stand) e transmission, principles of aseptic al microflora. (BL2-Understand) formatics and diagnostic skills, tests in the diagnosis of infectious ic bacteria in human disease with rointestinal tract, urinary tract, skin and in medical field. Explain the methods vaccines. Solve problems in the ship of this infection to symptoms, Create)
Course Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values ✓ Environment ✓	SDG (Goals)	SDG3(Good health and well-being) SDG4(Quality education)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	1	2	2	1	3	-	-	-	-	-	-	1	3	2
CO2	1	2	1	-	1	3	-	-	-	-	-	-	2	2	1
CO3	3	3	3	3	3	-	3	-	-	-	-	-	3	1	3
CO4	1	2	1	1	1	3	3	-	-	-	-	-	3	2	1
CO5	3	2	2	2	3	3	-	-	-	-	-	-	1	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Medical Biotechnology		
Course Code	DSE V (T)		
Course Outcomes & Bloom's Level	CO1- The students are introdu Understand) CO2- To understand the role of Understand) CO3- To learn about biosenso nanotechnology and its applic CO4- The students will be abl various medical problems(BL	uced to the biolog of biotechnology ors, vaccine producations.( <b>BL3-App</b> e to demonstrate <b>4-Analyze)</b>	gical revolutions in this field. <b>(BL2-</b> in the world wide market <b>(BL2-</b> uction, monoclonal antibodies, <b>bly)</b> e the use of biotechnology in solving
Course Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values ✓ Environment X	SDG (Goals)	SDG3(Good health and well-being) SDG4(Quality education)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	2	1	1	-	-	-	-	-	-	-	1	2	1
CO2	2	2	2	2	3	1	2	-	-	-	-	-	2	1	2
CO3	3	1	1	2	2	-	2	-	-	-	-	-	2	1	2
CO4	2	1	1	2	1	3	1	-	-	-	-	-	1	1	1
CO5	1	2	2	1	1	-	1	-	-	-	-	-	1	3	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Proteomics and Proteir	oteomics and Protein Interaction											
Course Code	BSBT 801 (T)												
Course Outcomes & Bloom's Level													
Course Elements	Skill Development X Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X Environment X	SDG (Goals)	SDG3(Good health and well-being) SDG4(Quality education) SDG8(Decent work and economic growth) SDG9(Industry Innovation and Infrastructure)										

COs	P01	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Hydroponics Cultivation	droponics Cultivation											
Course Code	SEC VII (T)												
Course Outcomes & Bloom's Level	CO1- To remember the b Understand) CO2- Understand the col CO3- Acquire the knowle CO4- Prepare media for technique(BL4-Analyze) CO5- Learn the hydropol	pasic plant phy ncept of hydro edge on soilles hydroponics c nic cultivation f	siology, growth and devleopment <b>(BL2-</b> ponics <b>(BL2-Understand)</b> s cultivation system <b>(BL3-Apply)</b> ultivation 4. Learn the hydroponic cultivation echnique <b>(BL6-Create)</b>										
Course Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X Environment √	SDG (Goals)	SDG3(Good health and well-being) SDG4(Quality education) SDG8(Decent work and economic growth) SDG12(Responsible consuption and production)										

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	3	2	2	2	-	2	-	-	-	-	-	2	2	2
CO2	2	2	2	2	1	1	3	-	-	-	-	-	1	2	1
CO3	3	2	1	1	1	2	3	-	-	-	-	-	2	1	-
CO4	1	2	2	2	-	3	-	-	-	-	-	-	2	1	2
CO5	3	1	-	1	1	1	1	-	-	-	-	-	2	2	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Pharmaceutical Biotechnology								
Course Code	DSE VII (T)								
Course Outcomes & Bloom's Level	<ul> <li>CO1- To remember the basic concpet of enzymes, drug, gene and genome interaction (BL2-Understand)</li> <li>CO2- Understanding the importance of Immobilized enzymes in Pharmaceutical Industries(BL2-Understand)</li> <li>CO3- To apply Genetic engineering applications in relation to production of pharmaceuticals(BL3-Apply)</li> <li>CO4- To understand the Importance of Monoclonal antibodies in Industries(BL4-Analyze)</li> <li>CO5- To apply and anlayze the Appreciate the use of microorganisms in fermentation technology(BL6-Create)</li> </ul>								
Course Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values √ Environment √	SDG (Goals)	SDG3(Good health and well-being) SDG4(Quality education) SDG8(Decent work and economic growth)						

COs	P01	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	2	2	1	1	-	-	-	-	-	-	1	1	2
CO2	2	2	1	1	2	-	1	-	-	-	-	-	2	2	3
CO3	2	1	2	3	2	1	2	-	-	-	-	-	2	3	1
CO4	3	1	3	3	1	1	1	-	-	-	-	-	3	3	1
CO5	1	1	3	1	3	2	-	-	-	-	-	-	2	3	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Food and Dairy Microbiology									
Course Code	DSE VII (T)									
Course Outcomes & Bloom's Level	<ul> <li>CO1- Explain the interactions between microorganisms and the food environment, and factors influencing their growth and survival.(BL2-Understand)</li> <li>CO2- Explain the significance and activities of microorganisms in food.(BL2-Understand)</li> <li>CO3- Describe the characteristics of foodborne, waterborne and spoilage microorganisms, and methods for their isolation, detection and identification.(BL3-Apply)</li> <li>CO4- Explain why microbiological quality control programmes are necessary in food production.(BL4-Analyze)</li> <li>CO5- Explain the effects of fermentation in food production and how it influences the microbiological quality and status of the food product.(BL6-Create)</li> </ul>									
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics X Gender X Human Values ✓ Environment ✓	SDG (Goals)	SDG4(Quality education)							

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COs	P01	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	1	2	2	1	-	-	-	-	-	2	3	1	2
CO2	2	2	1	3	1	3	2	-	-	-	-	2	1	2	1
CO3	1	1	2	2	2	1	2	3	-	-	-	1	3	3	2
CO4	3	2	3	3	1	1	3	2	-	-	-	1	2	3	1
CO5	2	3	3	2	3	2	1	2	-	-	-	3	1	2	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-