(Established by H.P. State Legislature vide Act No. 14 of 2002)

Date:

Department of Biotechnology and Bioinformatics

A meeting of Board of Studies (BoS) of the **Department of Biotechnology and Bioinformatics** was held as per the following schedule :

Meeting Name:	Board of Studies –Department of	f Biotechnology and Bioinformatics	
Date of Meeting:	17.06.2024	Time:9:15-10 AM	
Chairman:	Prof. (Dr.) Sudhir Kumar	Location: Board Room and Online	

1. Meeting Objective: BoS meeting of Deptt of Biotechnology and Bioinformatics

2(a). Meeting Attendees: The following members were	e present
Prof. Sudhir Kumar, HOD, Department of Biotechnology and Bioinformatics	Chairman
Dr. Anil Kant, Associate Prof, Department of Biotechnology and Bioinformatics	Member Secretary/Coordinator
Prof. T.C. Bhalla Ex-Professor Emeritus Department of Biotechnology HPU Shimla	External Member (Academic)
Prof. G.P.S. Raghava, Prof and Head, Deptt of Computational Biology, IIIT-Dehli	External Member (Academic)
Prof. Sunil Kumar Khah, Incharge IQAC, JUIT	Member
Dr Tiratha Raj Singh, Professor, Department of Biotechnology and Bioinformatics	Member
Dr Jata Shankar, Professor, Department of Biotechnology and Bioinformatics	Member
Dr Rahul Shrivastava, Associate Prof, Department of Biotechnology and Bioinformatics	Member
Dr Udaybanu M, Associate Prof, Department of Biotechnology and Bioinformatics	Member
Dr Poonam Sharma, Associate Prof, Department of Biotechnology and Bioinformatics	Member
Dr Jitendraa Vashistt, Associate Prof, Department of Biotechnology and Bioinformatics	Member
Dr Hemant Sood, Associate Prof, Department of Biotechnology and Bioinformatics	Member

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Dr Saurabh Bansal,Associate Prof, Department of Biotechnology and Bioinformatics	Member
Dr Gopal Bisht,Associate Prof, Department of Biotechnology and Bioinformatics	Member
Dr V. Garlapati Vijay Kumar, Associate Prof, Department of Biotechnology and Bioinformatics	Member
Dr Ashok Kumar Nadda, Assistant Prof., Department of Biotechnology and Bioinformatics	Member
Mr. Aditya Sahni, JUIT Alumni, Founder of ELEM, India (Industry Expert)	External Member (JUIT Alumni)
HOD, Department of Electronics & Communication Engineering	Member
	Member
HOD, Department of Physics and Material Science	
	Member
HOD, Department of Civil Engineering	
2 (b). Leave of Absence: The following members we	re granted leave of absence by the Chairman, BOS
HOD, Department of Computer Science & Engineering	Member
HOD, Department of Humanities and Social Sciences	Member
HOD, Department of Mathematics	Member
Dr. Shruti Jain	Member

Dr Anil Kant offered a welcome note to the members, Prof. Sudhir Kumar addressed the house and welcomed all the members of BoS. Dr. Anil Kant invited Dr Udayabanu, B.Tech. Program coordinator, Dr Rahul Shrivstava M.Sc. Microbiology Program coordinator to present the agenda pertaining to their respective program. Dr Anil Kant presented agenda details regarding the M.Sc Biotechnology program. Dr. Udayabanu M. presented details regarding B.Tech. Biotechnology & B.Tech. Bioinformatics course structure.

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3. Action Items / Instructions: Following decisions were taken/approved by the members of BoS.

Agenda Item 3(a) To consider and approve modification and restructuring of the course curriculum of B.Tech Biotechnology.

Existing Courses in B.Tech Biotechnology Semester I

			SEMESTER - 1					
S. No.	Course Category	Subject Code	Name of the Subjects	Cou	rse Hou	ſS	Credits	Total Hours
				L	Т	Р		
1	Humanities & Social Sciences	21B11HS111	English	2	0	0	2	2
		21B17HS171	English Lab	0	0	2	1	2
2	Basic Science		Basic Mathematics I (3-1-0) - 4 Credits/ Fundamental Biology & Fundamental Biology Lab				4	4 or 5
3	Basic Sciences	18B11PH112	Basic Engineering Physics-I	3	1	0	4	4
4	Engg Science	19B11CI111	Programming for Problem Solving-2	2	0	0	2	2
5	Engg Science	18B17GE173	Engineering Graphics	0	0	3	1.5	3
6	Basic Sciences	18B17PH172	Basic Engineering Physics Lab-I	0	0	2	1	2
7	Engg Science	19B17CI171	Programming for Problem Solving Lab-2	0	0	4	2	4
			TOTAL				17.5	23 or 24

Existing Courses in B.Tech Biotechnology Semester 1

Modified & Approved by BoS D Teach Biotechnology Semeste

S. No.	Course Category	New / Revised	Subject Code	Name of the Subjects	Co	irse]	Hours		Credits	Total Hours
					L	Т	Р	S		
1	Humanities & Social Sciences			English	2	0	0		2	2
2	Humanities & Social Sciences			English Lab	0	0	2		1	2
3	Basic Sciences	New		Mathematics for Life Sciences I OR	3	1	0		4	4
4	Basic Sciences			Fundamental Biology	3	0	0		3	3
5	Basic Sciences			Fundamental Biology Lab	0	0	2		1	2
6	Basic Sciences			Basic Engineering Physics	3	1	0		4	4
7	Engg Science	Revised		Problem Solving and Programming	3	0	0		3	3
8	Engg Science			Engineering Graphics	0	0	3		1.5	3
9	Basic Sciences			Basic Engineering Physics Lab	0	0	2		1	2
10	Engg Science	Revised		Problem Solving and Programming Lab	0	0	2		1	2
11	Project			Project	0	0	2	2	1	2
12	Mandatory Course			Mandatory Induction Program (including UHV-1)						2 Week
				TOTAL					18.5	24/25

(Established by H.P. State Legislature vide Act No. 14 of 2002)

S. No.	Course Category	Subject Code	Name of the Subjects	Cou	rse Hou	rs	Credits	Total Hours
				L	Т	Р		
1	Humanities & Social Sciences	23B11HS211	Universal Human Values II: Understanding Harmony	2	1	0	3	3
2	Humanities & Social Sciences	23B11HS212	Professional Communication Practice	0	0	2	Audit	2
3	Basic Science	18B11MA212	Basic Mathematics II	3	1	0	4	4
4	Basic Sciences	18B11PH212	Bioinstrumentation Techniques	3	1	0	4	4
5	Engg Science	18B11EC212	Basic Electrical Sciences	3	1	0	4	4
6	Engg Science	18B17EC272	Basic Electrical Sciences lab	0	0	2	1	2
7	Engg Science	18B11CI211	Data Structure & Algorithms	3	1	0	4	4
8	Engg Science	18B17CI271	Data Structure & Algorithms Lab	0	0	4	2	4
9	Engg Science	18BI7GE171	Workshop Practices	0	0	3	1.5	3
			TOTAL				23.5	30

Modified & Approved by BoS B.Tech Biotechnology Semester II

S. No.	Course Category	New / Revised	Subject Code	Name of the Subjects	Соі	irse H	lours		Credits	Total Hours
					L	Т	Р	S		
1	Humanities & Social Sciences			UHV II: Understanding Harmony	2	1	0		3	3
2	Humanities & Social Sciences			Professional Communication Practice (AUDIT)	0	1	0		0	1
3	Basic Sciences	New		Mathematics for Life Sciences II	3	1	0		4	4
4	Basic Sciences			Bioinstrumentation Techniques	3	1	0		4	4
5	Engg Science			Basic Electrical Sciences	3	1	0		4	4
6	Engg Science			Basic Electrical Sciences lab	0	0	2		1	2
7	Engg Science			Data Structure & Algorithms	3	0	0		3	3
8	Engg Science			Data Structure & Algorithms Lab	0	0	4		2	4
9	Engg Science			Workshop Practices	0	0	3		1.5	3
10	Project			Project	0	0	2	2	1	2
				TOTAL					23.5	30

	ESTER-III											
S.	No. Cours	e Category	Subj	ect Code	Name of the Subjects			Cou	rse Hou	ırs	Credit	s Total Hou
								L	Т	Р		
1	Human	nities & Soc es	ial 23B	11HS311	Life Skills and Interperson	al Dynan	nics	2	1	0	3	3
2	Basic	Sciences	18B1	11MA312	Probability & Statistical Te	chniques		3	1	0	4	4
3	Profes	sional Core			Genetics			3	1	0	4	4
4		sional Core		1BT312	Biochemistry			3	0	0	3	3
5	Engg S	Science	18B1	1BT313	Thermodynamics & Chemi	cal Proce	sses	3	1	0	4	4
6	Basic	Sciences		1BT314	General Chemistry			3	0	0	3	3
7	Profes	sional Core	18B1	7BT371	Genetics Lab.			0	0	2	1	2
8		sional Core		7BT372	Biochemistry Lab			0	0	2	1	2
9		Science		7BT373	Thermodynamics & Chemi	cal Proce	sses lab	0	0	2	1	2
10	Basic	Sciences	18B1	7BT374	General Chemistry Lab			0	0	2	1	2
					TOTAL						25	29
NO	Category	New / Revised	Subject Code	Name o	f the Subjects	Cour	se Hour	'S		Cre		otal Iours
NO	Category			Name o	f the Subjects	Cour	se Hour	'S		Cre		
						L	Т	Р	S		H	lours
1	Humanities & Social Sciences	Revised		Life Ski Dynami	lls and Interpersonal cs	L 2	T	P 0	S	3	H	lours
1	Humanities & Social			Life Ski Dynami	lls and Interpersonal	L	Т	Р	S		H	lours
1	Humanities & Social Sciences Basic	Revised		Life Ski Dynami Probabi	lls and Interpersonal cs	L 2	T	P 0	<u> </u>	3	H	lours
1 2 3	Humanities & Social Sciences Basic Sciences Basic Sciences Professional	Revised		Life Ski Dynami Probabi Probabi	lls and Interpersonal cs lity & Statistical Methods lity & Statistical Methods	L 2 2	T 1 0	P 0	<u> </u>	3	H 3 2	lours
1 2 3 4	Humanities & Social Sciences Basic Sciences Basic Sciences Professional Core Course Professional	Revised		Life Ski Dynami Probabi Probabi Lab	lls and Interpersonal cs lity & Statistical Methods lity & Statistical Methods s	L 2 2 0	T 1 0 0	P 0 0 2	<u> </u>	3 2 1	H 3 2 2	lours
No 1 2 3 4 5 6	Humanities & Social Sciences Basic Sciences Basic Sciences Professional Core Course	Revised New New		Life Ski Dynami Probabi Lab Genetic Biocher Thermo	lls and Interpersonal cs lity & Statistical Methods lity & Statistical Methods s nistry dynamics & Chemical	L 2 2 0 3	T 1 0 0 0 0	P 0 0 2 0 0	S	3 2 1 3	H 3 2 2 3	
1 2 3 4 5 6	Humanities & Social Sciences Basic Sciences Basic Sciences Professional Core Course Professional Core Course Engg Science	Revised New New Revised		Life Ski Dynami Probabi Lab Genetic Biocher Thermo Processo	lls and Interpersonal cs lity & Statistical Methods lity & Statistical Methods s nistry dynamics & Chemical	L 2 2 0 3 3	T 1 0 0 0 0 0	P 0 0 2 0 0 0 0	S	3 2 1 3 3	H 3 2 2 3 3 3	
1 2 3 4 5 6 7	Humanities & Social Sciences Basic Sciences Basic Sciences Professional Core Course Professional Core Course Engg Science Professional Core Course Professional Core Course Professional	Revised New New Revised Revised		Life Ski Dynami Probabi Lab Genetic Biocher Thermo Processo	Ils and Interpersonal cs lity & Statistical Methods lity & Statistical Methods s nistry dynamics & Chemical es try for Life Sciences	L 2 2 0 3 3 3	T 1 0 0 0 0 0 0 0 0 0	P 0 2 0 0 0	S	3 2 1 3 3 3 3	H 3 2 2 3 3 3 3	
1 2 3 3 4 5 5 6 7 8	Humanities & Social Sciences Basic Sciences Basic Sciences Professional Core Course Professional Core Course Engg Science Professional Core Course Professional Core Course Professional Core Course Professional Core Course	Revised New New Revised Revised		Life Ski Dynami Probabi Lab Genetic Biocher Thermo Process Chemis	Ils and Interpersonal cs lity & Statistical Methods lity & Statistical Methods s nistry dynamics & Chemical es try for Life Sciences	L 2 2 0 3 3 3 3 3	T 1 0 0 0 0 0 0 0 0 0 0 0 0 0	P 0 2 0 0 0 0 0 0 0 0		3 2 1 3 3 3 3 3	H 3 2 2 3 3 3 3 3	
1 2 3 4 5 5 6 7 7 8 8 9	Humanities & Social Sciences Basic Sciences Basic Sciences Professional Core Course Professional Core Course Engg Science Professional Core Course Professional Core Course	Revised New Revised Revised New		Life Ski Dynami Probabi Lab Genetic Biocher Thermo Process Chemis Genetic Biocher	Ils and Interpersonal cs lity & Statistical Methods lity & Statistical Methods s nistry dynamics & Chemical es try for Life Sciences s Lab. nistry Lab dynamics & Chemical	L 2 2 0 3 3 3 3 0	T 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	P 0 2 0 0 0 2 0 0 2 2 0 2 2 2		3 2 1 3 3 3 3 1	H 3 2 2 3 3 3 3 2 2	
1 2 3 4 5 5 6 7 8 8 9 10	Humanities & Social Sciences Basic Sciences Basic Sciences Professional Core Course Professional Core Course Professional	Revised Revised New New Revised Revised New Revised New		Life Ski Dynami Probabi Lab Genetic Biocher Thermo Process Chemis Genetic Biocher	Ils and Interpersonal cs lity & Statistical Methods lity & Statistical Methods s nistry dynamics & Chemical es try for Life Sciences s Lab. nistry Lab dynamics & Chemical	L 2 2 0 3 3 3 3 0 0	T 1 0	P 0 2 0 0 2 0 0 2 2 2 0 2 2 2 2 2 2 2		3 2 1 3 3 3 3 1 1	H 3 2 2 2 3 3 3 3 2 2 2 2	
1 2 3 4 5	Humanities & Social Sciences Basic Sciences Basic Sciences Professional Core Course Professional Core Course	Revised Revised New New Revised Revised New Revised Revised Revised		Life Ski Dynami Probabi Lab Genetic Biocher Thermo Process Chemis Genetic Biocher	Ils and Interpersonal cs lity & Statistical Methods lity & Statistical Methods s nistry dynamics & Chemical es try for Life Sciences s Lab. nistry Lab dynamics & Chemical es lab	L 2 0 3 3 3 3 0 0 0 0	T 1 0	P 0 0 0 2 0 0 0 0 2 2 2 2 2 2 2	S	3 2 1 3 3 3 1 1	H 3 2 2 3 3 3 3 3 2 2 2 2 2	

Sr. N	Course Category		Su	bject Code	Name of the Subjects			Соц	irse H	ours	Credit s	Total Hours
								L	Т	Р		
	1 Humanities & Soc Sciences	al	18	B11HS411	Finance and Accounts			3	0	0	3	3
	2 Professional Core		18	B11BT411	Cell Biology and Culture Techn	nologie	s	3	1	0	4	4
	3 Professional Core		18	B11BT412	Molecular Biology			3	0	0	3	3
	4 Professional Core		18	B11BT413	Introduction to Bioinformatics			3	1	0	4	4
	5 Professional Core		18	B11BT414	Microbiology			3	1	0	4	4
	6 Professional Core		18	B17BT471	Cell Biology and Culture Techn lab	nologie	s	0	0	2	1	2
	7 Professional Core		18	B17BT472	Molecular Biology Lab			0	0	2	1	2
	8 Professional Core		18	B17BT473	Introduction to Bioinformatics	lab		0	0	2	1	2
	9 Professional Core		18	B17BT474	Microbiology Lab			0	0	2	1	2
1	0 Mandatory Course		18	B11GE411	Environmental Studies			2	0	0	2	2
					TOTAL						24	28
B.T	dified & Approved by Bo ech Biotechnology Semes MESTER - IV							-			• 	
B.T SEN	ech Biotechnology Semes			Subject Code	Name of the Subjects	Соц	ırse H	lours		Credi	ts Total Hour	5
<u>B.T.</u> SEN S.	ech Biotechnology Semes MESTER - IV	er IV New			Name of the Subjects	Cou L	ırse H	lours	S	Credi		5
B.T. SEN S.	ech Biotechnology Semes MESTER - IV	er IV New			Name of the Subjects Finance and Accounts			_	S	Credi 3		5
B.T. SEN S. No	ech Biotechnology Semes MESTER - IV Course Category Humanities & Social	er IV New Revis	sed			L	Т	Р	S		Hour	5
B.T. SEN S. No	ech Biotechnology Semes MESTER - IV Course Category Humanities & Social Sciences	er IV New Revis	sed		Finance and Accounts Cell Biology and Culture	L 3	Т 0	P 0	S	3	Hours 3	5
B.T. SEN S. No 1 2	ech Biotechnology Semes MESTER - IV Course Category Humanities & Social Sciences Professional Core Cours	e Revis	sed		Finance and Accounts Cell Biology and Culture Technologies	L 3 3	T 0 0 0	P 0	S	3 3 3 4	Hour 3 3	
B.T. SEN S. No 1 2 3	ech Biotechnology Semes MESTER - IV Course Category Humanities & Social Sciences Professional Core Cours Professional Core Cours	e Revis	sed sed		Finance and Accounts Cell Biology and Culture Technologies Molecular Biology Introduction to	L 3 3 3	T 0 0 0	P 0 0 0 0 0	S	3 3 3	Hour 3 3 3	<u>-</u>
B.T SEN S. No 1 2 3 4	ech Biotechnology Semes MESTER - IV Course Category Humanities & Social Sciences Professional Core Cours Professional Core Cours Professional Core Cours	e Revis e Revis e Revis	sed sed sed		Finance and Accounts Cell Biology and Culture Technologies Molecular Biology Introduction to Bioinformatics Microbiology Cell Biology and Culture Technologies lab	L 3 3 3 3 3	T 0 0 1	P 0 0 0 0	S	3 3 3 4	Hour 3 3 3 4	5
B.T SEN S. No 1 2 3 4 5	ech Biotechnology Semes MESTER - IV Course Category Humanities & Social Sciences Professional Core Cours Professional Core Cours Professional Core Cours Professional Core Cours	e Revis e Revis e Revis e Revis e Revis	sed sed sed		Finance and Accounts Cell Biology and Culture Technologies Molecular Biology Introduction to Bioinformatics Microbiology Cell Biology and Culture	L 3 3 3 3 3 3 3	T 0 0 1 0	P 0 0 0 0 0 0 0	S	3 3 3 4 3	Hour 3 3 3 4 3	
B.T SEN S. No 1 2 3 4 5 6 7	ech Biotechnology Semes MESTER - IV Course Category Humanities & Social Sciences Professional Core Cours Professional Core Cours	e Revis e Revis e Revis e Revis e Revis e Revis e Revis	sed sed sed		Finance and Accounts Cell Biology and Culture Technologies Molecular Biology Introduction to Bioinformatics Microbiology Cell Biology and Culture Technologies lab Molecular Biology Lab Introduction to Bioinformatics lab	L 3 3 3 3 3 3 0	T 0 0 1 0 0	P 0 0 0 0 0 2 2 2 2		3 3 3 4 3 1	Hour 3 3 3 4 3 2	
B.T. SEN S. No 1 2 3 4 5 6	ech Biotechnology Semes AESTER - IV Course Category Humanities & Social Sciences Professional Core Cours Professional Core Cours	e Revis e Revis e Revis e Revis e Revis e Revis e Revis	sed sed sed		Finance and Accounts Cell Biology and Culture Technologies Molecular Biology Introduction to Bioinformatics Microbiology Cell Biology and Culture Technologies lab Molecular Biology Lab Introduction to Bioinformatics lab Microbiology Lab	L 3 3 3 3 3 0 0 0 0 0 0	T 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	P 0 0 0 0 0 2 2	S	3 3 4 3 1 1 1 1	Hour 3 3 3 4 3 2 2	
B.T. SEN S. No	ech Biotechnology Semes MESTER - IV Course Category Humanities & Social Sciences Professional Core Cours Professional Core Cours	e Revis e Revis e Revis e Revis e Revis e Revis e Revis	sed sed sed		Finance and Accounts Cell Biology and Culture Technologies Molecular Biology Introduction to Bioinformatics Microbiology Cell Biology and Culture Technologies lab Molecular Biology Lab Introduction to Bioinformatics lab	L 3 3 3 3 3 0 0 0 0 0	T 0 0 1 0 0 0 0 0 0 0 0 0 0	P 0 0 0 0 0 2 2 2 2	S	3 3 3 4 3 1 1 1	Hour 3 3 3 4 3 2 2 2	
B.T. SEN S. No 1 2 3 4 5 6 7 8 9	ech Biotechnology Semes AESTER - IV Course Category Humanities & Social Sciences Professional Core Cours Professional Core Cours	e Revis e Revis e Revis e Revis e Revis e Revis e Revis	sed sed sed		Finance and Accounts Cell Biology and Culture Technologies Molecular Biology Introduction to Bioinformatics Microbiology Cell Biology and Culture Technologies lab Molecular Biology Lab Introduction to Bioinformatics lab Microbiology Lab	L 3 3 3 3 3 0 0 0 0 0 0	T 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	P 0 0 0 0 2 2 2 2 2	S	3 3 4 3 1 1 1 1	Hour 3 3 3 4 3 2 2 2 2 2 2	

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Existing Courses in B.Tech Biotechnology Semester V

. Nn	o Course Category	7	Subj	ect Code	Name of the Subjects		Cour	se Hou	rs	Credits	Total Hour
							L	Т	Р	1	littui
	1 Humanities & Soc Sciences	cial	18B	11HS511	Project Management and Entrepreneurship		3	0	0	3	3
	2 Professional Core		18B1	1BT511	Bioprocess Engineering		3	1	0	4	4
	3 Professional Core			1BT512	Genetic Engineering		3	1	0	4	4
	4 Professional Core			1BT513	Immunology		3	1	0	4	4
	5 Professional Core			7BT571	Bioprocess Engineering Lab		0	0	2	1	2
	6 Professional Core			7BT572	Genetic Engineering Lab		0	0	2	1	2
	7 Professional Core			7BT573	Immunology Lab		0	0	2	1	2
	8 Professional Elect				Departmental Elective-I		3	0	0	3	3
	9 Project		18B	19BT591	Minor Project Part-I		0	0	2	1	2
					TOTAL					22	26
S.	Course Category	New	/	Subject	Name of the Subjects	Cours	e Hour	s		Credits	Total
S. No	Course Category	New Revi		Subject Code	Name of the Subjects	Cours	e Hour	8		Credits	Total Hours
	Course Category				Name of the Subjects	Cours L	e Hour	s P	S	Credits	
	Course Category Humanities & Social Sciences				Name of the Subjects Project Management and Entrepreneurship		_	_	S	Credits 3	
No	Humanities & Social		ised		Project Management and	L	Т	Р	S		Hours
No 1 2	Humanities & Social Sciences Professional Core	Revi	sed		Project Management and Entrepreneurship	L 3	T 0	P 0	S	3	Hours
No	Humanities & Social Sciences Professional Core Course Professional Core	Revi	sed		Project Management and Entrepreneurship Bioprocess Engineering	L 3 3	T 0 1	P 0 0	S	3 4	Hours 3 4
No 1 2 3 4	Humanities & Social Sciences Professional Core Course Professional Core Course Professional Core	Revi Revi Revi	sed sed sed		Project Management and Entrepreneurship Bioprocess Engineering Genetic Engineering	L 3 3 3	T 0 1 1	P 0 0 0 0 0	S	3 4 4	Hours 3 4 4
No 1 2 3	Humanities & Social Sciences Professional Core Course Professional Core Course Professional Core Course Professional Core Professional Core	Revi Revi Revi Revi	sed sed sed		Project Management and Entrepreneurship Bioprocess Engineering Genetic Engineering Immunology	L 3 3 3 3 3	T 0 1 1 1	P 0 0 0 0 0 0 0	S	3 4 4 4	Hours 3 4 4 4 4
No 1 2 3 4 5 5	Humanities & Social Sciences Professional Core Course Professional Core Course Professional Core Course Professional Core Course Professional Core Course Professional Core	Revi Revi Revi Revi	sed sed sed sed		Project Management and Entrepreneurship Bioprocess Engineering Genetic Engineering Immunology Bioprocess Engineering Lab	L 3 3 3 3 0	T 0 1 1 0	P 0 0 0 0 0 2 2	S	3 4 4 4 1	Hours 3 4 4 4 2
No 1 2 3 4 5 7	Humanities & Social Sciences Professional Core Course Professional Core Course Professional Core Course Professional Core Course Professional Core Course Professional Core Course Professional Core	Revi Revi Revi Revi	sed sed sed sed		Project Management and Entrepreneurship Bioprocess Engineering Genetic Engineering Immunology Bioprocess Engineering Lab Genetic Engineering Lab	L 3 3 3 3 0 0	T 0 1 1 0 0 0 0 0 0	P 0 0 0 0 0 2 2	S	3 4 4 4 1 1	Hours 3 4 4 2 2
No 1 2 3 4	Humanities & Social Sciences Professional Core Course Professional Core Course Professional Core Course Professional Core Course Professional Core Course Professional Core Course Professional Core Course	Revi Revi Revi Revi	sed sed sed sed		Project Management and Entrepreneurship Bioprocess Engineering Genetic Engineering Immunology Bioprocess Engineering Lab Genetic Engineering Lab Immunology Lab	L 3 3 3 3 0 0 0 0	T 0 1 1 0 0 0 0 0 0 0 0 0 0 0	P 0 0 0 0 2 2 2 2 2	S	3 4 4 4 1 1 1	Hours 3 4 4 2 2 2

S.	IESTER-VI No Course Ca	tegory	Subject Co	ode	Name of the Subjects			Cour	se Ho	urs	Credits	s Total Hours
								L	Т	Р		nours
	1 Professiona	l Core	18B11BT6	11	Downstream Processing			3	1	0	4	4
	2 Professiona		18B11BT6		Food and Agricultural Biotechnol	logy		3	0	0	3	3
	3 Professiona	l Core	18B17BT6	71	Downstream Processing Lab.			0	0	2	1	2
	4 Professiona		18B17BT6	72	Food and Agricultural Biotechnol	logy La	.b	0	0	2	1	2
	5 Professiona	l Elective			Departmental Elective- II			3	0	0	3	3
	6 Professiona				Departmental Elective-III			3	0	0	3	3
	7 Open Elect				Open Elective-I (HSS)			3	0	0	3	3
	8 Open Elect	ive			Open Elective-II			3	0	0	3	3
	9 Project		18B19BT6	91	Minor Project Part-II			0	0	4	2	4
	10 Mandatory	Course			Industrial Training						Audit	_
					TOTAL						23	27
0	Category	Revised	Code					1				Hours
						L	Т	Р	S			
	Professional Core Course	Revised		Dov	vnstream Processing	3	0	0			3	3
	Professional Core Course	New		Foo	d Technology	3	0	0			3	3
	Professional Core Course	Revised		Dov	vnstream Processing Lab.	0	0	2			1	2
	Professional Core Course	New		Foo	d Technology Lab	0	0	2			1	2
	C · 1			PE-	II	3	0	0			3	3
	professional Elective										3	3
				PE-	III	3	0	0				
-	Elective professional				III I (HSS)	3	0	0			3	3
	Elective professional Elective Open Elective Open Elective			OE- OE-	I (HSS) II		Ľ.	Ľ			3 3	3 3
	Elective professional Elective Open Elective Open Elective Project			OE- OE- Proj	I (HSS) II ect	3 3 0	0 0 0	0 0 4	2		3 2	3 4
5 5 0	Elective professional Elective Open Elective Open Elective Project Mandatory Course			OE- OE- Proj Soft	I (HSS) II ect Skills for Professionals (Audit)	3	0	0	2		3 2 0	3
	Elective professional Elective Open Elective Open Elective Project Mandatory			OE- OE- Proj Soft	I (HSS) II ect	3 3 0	0 0 0	0 0 4	2		3 2	3 4

Sr. N	No. Cours	e Category	Subject Code	Name of the Subjects		Cour	se Hour	8	Cre	edits	Total Hours
						L	Т	Р			
1	Profess Electiv			Departmental Elective-I	V	3	0	0	3		3
2	Open l	Elective		Open Elective - III		3	0	0	3		3
3	Open I	Elective		Open Elective - IV		3	0	0	3		3
4	Project	į	18B19BT791	Major Project Part I		0	0	10	5		10
5	HSS			Indian Constitution		1	0	0	Auc	lit	1
				TOTAL					14		20
B.Te SEN	oroved by BoS ech Biotechnology IESTER - VII	-		Nome of the Subjects		urso Ho			Crodits		
<u>B.Te</u> SEN S.	ech Biotechnology	Semester V New / Revised	II Subject Code	Name of the Subjects	Cou	urse Ho	urs		Credits		otal
<u>B.Te</u> SEN S.	ech Biotechnology 1ESTER - VII Course	New /		Name of the Subjects	Cou	rse Ho	urs P	S	Credits		
B.Te SEN S. No	ech Biotechnology 1ESTER - VII Course	New /		Name of the Subjects PE-IV				S	Credits 3		
B.Te SEN S. No ·	ech Biotechnology IESTER - VII Course Category professional Elective professional Elective	New /		PE-IV PE-V	L	T 0 0	Р	S		H 3 3	lours
B.T. SEN S. No	ch Biotechnology IESTER - VII Course Category professional Elective professional	New /		PE-IV PE-V OE-III	L 3	T 0	P 0	S	3 3 3	H 3 3 3 3	lours
B.T. SEN S. No 1 2 3	ech Biotechnology IESTER - VII Course Category professional Elective professional Elective	New /		PE-IV PE-V	L 3 3	T 0 0	P 0 0	S	3	H 3 3	lours
B.T. SEN S. No 1 2 3 4	ch Biotechnology IESTER - VII Course Category professional Elective professional Elective Open Elective	New /		PE-IV PE-V OE-III	L 3 3 3	T 0 0 0 0	P 0 0 0	S	3 3 3	H 3 3 3 3	lours
B.Te	ch Biotechnology IESTER - VII Course Category professional Elective professional Elective Open Elective Open Elective	New /		PE-IV PE-V OE-III OE-IV	L 3 3 3 3 3	T 0 0 0 0 0	P 0 0 0 0 0	S	3 3 3 3 3	H 3 3 3 3 3	lours

(Established by H.P. State Legislature vide Act No. 14 of 2002)

EMEST	ER-VIII							
Sr.No.	Course Category	Subject Code	Name of the Subjects	Cour	se Hours		Credits	Total Hours
				L	Т	Р		
1	Professional Elective		Departmental Elective- V	3	0	0	3	3
2	Professional Elective		Departmental Elective- VI	3	0	0	3	3
3	Open Elective		Open Elective-V	3	0	0	3	3
4	Project	18B19BT891	Major Project Part II	0	0	14	7	14
			TOTAL				16	23

Modified & Approved by BoS B.Tech Biotechnology Semester VIII

SEN	1ESTER - VIII									
S. No	Course Category	New / Revised	Subject Code	Name of the Subjects	Co	urse H	ours		Credits	Total Hours
•					L	Т	Р	S		
1	Professional Elective			PE-VI	3	0	0		3	3
2	Open Elective			OE-V	3	0	0		3	3
3	Open Elective			OE-VI	3	0	0		3	3
4	Project			Project	0	0	8		4	8
				TOTAL					13	17
				OR						
				Industrial Internship					13	

Item 1a.

Two New Electives were proposed and approved by the BoS 1. Omics Technologies & Data Analysis (3-0-0)

- 2. Biopharmaceutical Technology (3-0-0)

	sting Courses in 1 MESTER - 1	B. Tech Bioi	informatic	s Semester I						
S. No	Course	Subje	ct Code	Name of the Subjects		Cours	se Hour	S	Credits	Total Hours
						L	Т	Р		
1	Humanities Social Sciences	& 21B1	1HS111	English		2	0	0	2	2
		21B17	7HS171	English Lab		0	0	2	1	2
2	Basic Scien	ce		Basic Mathematics I (3-1-0) - 4 Credits/ Fundamental Biology & Fundamental Biology Lab	Ż				4	4 or 5
3	Basic Sciences	18B11	PH112	Basic Engineering Physics-I		3	1	0	4	4
4	Engg Science	e 19B11	CI111	Programming for Problem Solvi	ng-2	2	0	0	2	2
5	Engg Science	ce 18B17	7GE173	Engineering Graphics		0	0	3	1.5	3
6	Basic Sciences	18B17	7PH172	Basic Engineering Physics Lab-	I	0	0	2	1	2
7	Engg Science	e 19B17	7CI171	Programming for Problem Solvi Lab-2	ng	0	0	4	2	4
	sting Courses in 1			TOTAL					17.5	23 or 24
i. No	Course Category	New / Revised	Subject Code	Name of the Subjects		ourse Ho			Cred its	Total Hours
					L	Т	Р	S		
	Humanities & Social Sciences			English	2	0	0		2	2
	Humanities & Social Sciences			English Lab	0	0	2		1	2
	Basic Sciences	New		Mathematics for Life Sciences I OR	3	1	0		4	4
1	Basic Sciences			Fundamental Biology	3	0	0		3	3
	Basic Sciences			Fundamental Biology Lab	0	0	2		1	2
)	Basic Sciences			Basic Engineering Physics	3	1	0		4	4
	Engg Science	Revised		Problem Solving and Programming	3	0	0		3	3
				Engineering Graphics	0	0	3		1.5	3
	Engg Science		1	Basic Engineering Physics Lab	0	0	2		1	2
	Engg Science Basic Sciences			Lau		0	2		1	2
	Basic	Revised		Problem Solving and Programming Lab	0	0	2			2
0	Basic Sciences	Revised		Problem Solving and	0	0	2	2	1	2
5 7 8 0 1 2	Basic Sciences Engg Science	Revised		Problem Solving and Programming Lab	0			2		

(Established by H.P. State Legislature vide Act No. 14 of 2002)

Existing Semester II

S. No.	Course Category	Subject Code	Name of the Subjects	Cou	rse Hou	rs	Credits	Total Hours
				L	Т	Р		
1	Humanities & Social Sciences	23B11HS211	Universal Human Values II: Understanding Harmony	2	1	0	3	3
2	Humanities & Social Sciences	23B11HS212	Professional Communication Practice	0	0	2	Audit	2
3	Basic Science	18B11MA212	Basic Mathematics II	3	1	0	4	4
4	Basic Sciences	18B11PH212	Bioinstrumentation Techniques	3	1	0	4	4
5	Engg Science	18B11EC212	Basic Electrical Sciences	3	1	0	4	4
6	Engg Science	18B17EC272	Basic Electrical Sciences lab	0	0	2	1	2
7	Engg Science	18B11CI211	Data Structure & Algorithms	3	1	0	4	4
8	Engg Science	18B17CI271	Data Structure & Algorithms Lab	0	0	4	2	4
9	Engg Science	18BI7GE171	Workshop Practices	0	0	3	1.5	3
			TOTAL	_			23.5	30

Approved & Modified by Bos Semester II SEMESTER - II

S. No	Course Category	New / Revised	Subject Code	Name of the Subjects	Co	ırse I	Iours		Credits	Total Hours
•					L	Т	Р	S		
1	Humanities & Social Sciences			UHV II: Understanding Harmony	2	1	0		3	3
2	Humanities & Social Sciences			Professional Communication Practice (AUDIT)	0	1	0		0	1
3	Basic Sciences	New		Mathematics for Life Sciences II	3	1	0		4	4
4	Basic Sciences			Bioinstrumentation Techniques	3	1	0		4	4
5	Engg Science			Basic Electrical Sciences	3	1	0		4	4
6	Engg Science			Basic Electrical Sciences lab	0	0	2		1	2
7	Engg Science			Data Structure & Algorithms	3	0	0		3	3
8	Engg Science			Data Structure & Algorithms Lab	0	0	4		2	4
9	Engg Science			Workshop Practices	0	0	3		1.5	3
10	Project			Project	0	0	2	2	1	2
				TOTAL					23.5	30

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(Established by H.P. State Legislature vide Act No. 14 of 2002)

Existing Semester III

5. Г	No.	Course	Category	Subject C	ode	Name of the Subjects		Cour	rse Hou	rs	Credits	Total Hour
								L	Т	Р		
	1	Humani Social S		23B11H5	5311	Life Skills and Interpersonal Dy	namics	2	1	0	3	3
	2	Basic Sc	ciences	18B11BI	311	Cell and Molecular Biology		3	0	0	3	3
	3	Engg Sc		20B11B		Bioinformatics Data Managemen	nt	3	1	0	4	4
	4		onal Core	18B11BI		Microbiology & Immune System	n	3	1	0	4	4
	5		onal Core	18B11BI		Biological Computation		3	1	0	4	4
	6	Engg Sc	ience	20B17B	1371	Bioinformatics Data Managemen	nt Lab	0	0	2	1	2
	7	Basic Sc		18B17BI	371	Cell and Molecular Biology Lab		0	0	2	1	2
	8	Professi	onal Core	18B17BI	372	Microbiology & Immune System	n Lab	0	0	2	1	2
	9	Professi	onal Core	18B17BI	373	Biological Computation Lab		0	0	2	1	2
	10	Professi	onal Core	18B17BI	374	Linux Lab		0	0	2	1	2
						TOTAL					23	28
							L	Т	Р	S		
		nities & Sciences				Skills and Interpersonal amics	2	1	0		3	3
		Sciences	New			ability & Statistical Methods	2	0	0		2	2
	Basic S		New New		Prob		2 0	0 0	0 2		2 1	2 2
	Basic S Basic S Profess	Sciences Sciences sional			Prob Prob	ability & Statistical Methods		÷				
	Basic S Basic S Profess Core C	Sciences Sciences sional	New		Prob Prob Struc Obje	ability & Statistical Methods ability & Statistical Methods Lab ctural Bioinformatics cct Oriented Systems and	0	0	2		1	2
	Basic S Basic S Profess Core C Engg S Profess	Sciences Sciences sional Sourse Science	New		Prob Prob Struc Obje Prog	ability & Statistical Methods ability & Statistical Methods Lab ctural Bioinformatics	03	0 0	2 0		1 3	2 3
	Basic S Basic S Profess Core C Engg S Profess Core C	Sciences Sciences Sional Course Science Science Sional	New		Prob Prob Struc Obje Prog Micr	ability & Statistical Methods ability & Statistical Methods Lab ctural Bioinformatics ect Oriented Systems and ramming robiology & Immune System	0 3 3 3	0 0 0 0	2 0 0 0		1 3 3 3	2 3 3 3
	Basic S Basic S Profess Core C Engg S Profess Core C Profess Core C	Sciences Sciences Sional Sourse Science Sional Sourse Sional	New		Prob Prob Struc Obje Prog Micr Biole	ability & Statistical Methods ability & Statistical Methods Lab ctural Bioinformatics ect Oriented Systems and ramming robiology & Immune System ogical Computation	0 3 3 3 3	0 0 0 0 0	2 0 0 0 0		1 3 3 3 3 3	2 3 3 3 3 3
	Basic S Basic S Profess Core C Engg S Profess Core C Profess Core C	Sciences Sciences Sional Course Science Science Sional Sourse Sional	New		Prob Prob Struc Obje Prog Micr Biolo	ability & Statistical Methods ability & Statistical Methods Lab ctural Bioinformatics ect Oriented Systems and ramming robiology & Immune System	0 3 3 3	0 0 0 0	2 0 0 0		1 3 3 3	2 3 3 3
	Basic S Basic S Profess Core C Engg S Profess Core C Engg S Profess Core C Engg S	Sciences Sciences Science Science Science Science Science Science Science Science	New		Prob Prob Struc Obje Prog Biolo Obje Prog Struc	ability & Statistical Methods ability & Statistical Methods Lab ctural Bioinformatics ect Oriented Systems and ramming robiology & Immune System ogical Computation ect Oriented Systems and ramming Lab ctural Bioinformatics Lab	0 3 3 3 3	0 0 0 0 0	2 0 0 0 0 2 2		1 3 3 3 3 3	2 3 3 3 3 2 2
0	Basic S Basic S Profess Core C Profess Core C Profess Core C Engg S Profess Core C Engg S Profess Core C Engg S	Sciences Sciences Science Science Science Science Science Science Science Science Science Science Science Science Science	New New		Prob Prob Struc Obje Prog Biolo Obje Prog Struc Biolo	ability & Statistical Methods ability & Statistical Methods Lab ctural Bioinformatics ect Oriented Systems and ramming robiology & Immune System ogical Computation ect Oriented Systems and ramming Lab ctural Bioinformatics Lab ogical Computation Lab	0 3 3 3 3 0 0 0	0 0 0 0 0 0 0 0 0	2 0 0 0 0 2 2 2		1 3 3 3 3 1 1 1	2 3 3 3 3 2 2 2 2
	Basic S Basic S Profess Core C Profess Core C Profess Core C Engg S Profess Core C Engg S Profess Core C	Sciences Sciences Science Science Science Sional Science Scien	New New		Prob Prob Struc Obje Prog Biolo Obje Prog Struc Biolo	ability & Statistical Methods ability & Statistical Methods Lab ctural Bioinformatics ect Oriented Systems and ramming robiology & Immune System ogical Computation ect Oriented Systems and ramming Lab ctural Bioinformatics Lab	0 3 3 3 3 0 0	0 0 0 0 0 0 0 0	2 0 0 0 0 2 2		1 3 3 3 3 1 1	2 3 3 3 3 2 2
0	Basic S Basic S Profess Core C Profess Core C Profess Core C Engg S Profess Core C Profess Core C Profess Core C Engg S	Sciences Sciences Science Science Science Sional Sourse Science Science Science Science Science Science Science Science Science Science Science	New New		Prob Prob Struc Obje Prog Biolo Obje Prog Struc Biolo	ability & Statistical Methods ability & Statistical Methods Lab ctural Bioinformatics ect Oriented Systems and ramming obiology & Immune System ogical Computation ect Oriented Systems and ramming Lab ctural Bioinformatics Lab ogical Computation Lab x Lab	0 3 3 3 3 0 0 0	0 0 0 0 0 0 0 0 0	2 0 0 0 0 2 2 2	2	1 3 3 3 3 1 1 1	2 3 3 3 3 2 2 2 2

(Established by H.P. State Legislature vide Act No. 14 of 2002)

Existing Semester IV

	r.No.	Course	Category	Subject	Code	Name of the Subjects			Cours	e Hours		Credits	Tota Hou
									L	Т	Р		
	1	HSS		18B11H	[S411	Finance and Accounts			3	0	0	3	3
	2	Basic Sc	ciences	18B11N	1A411	Bio-Statistics			3	0	0	3	3
	3	Professi	onal Core	18B11B	I412	Genetic Engineering and G	enom	ics	3	0	0	3	3
	4	Engg Sc	ience	18B110	CI415	Object Oriented Programm	ing		3	1	0	4	4
	5	Professi	onal Core	18B11B	SI413	Structural Biology			3	0	0	3	3
	6	Professi	onal Core	18B11B	I414	Programming Languages for Bioinformatics	or		3	0	0	3	3
	7	Engg Sc	ience	18B110	CI474	Object Oriented Programm	ing La	ıb	0	0	2	1	2
	8	Basic Sc	ciences	18B11N	1A412	Bio-Statistics Lab			0	0	2	1	2
	9	Professi	onal Core	18B17B	SI472	Genetic Engineering and G Lab	lenom	ics	0	0	2	1	2
	10	Professi	onal Core	18B17B	1473	Structural Biology Lab			0	0	2	1	2
	11		onal Core	18B17B		Programming Languages for Bioinformatics Lab	or		0	0	2	1	
	12	Mandato	ory Course	23B11G	E411	Environmental Studies			2	0	0	Audit	
						TOTAL						26	31
	ESTER -	IV	Bos Semester				~						
S.			New / Revised	Subject Code	Nam	e of the Subjects	Cou	rse Ho	ours		Credits	5 Total Hours	
S.		IV	New /	Subject	Nam	e of the Subjects	Cou L	rse Ho	ours P	S	Credits		
S. No.	Course of the second se	IV Category ies &	New /	Subject		e of the Subjects			-	S	Credits		
S. No.	Course Humanit Social So	IV Category ies &	New /	Subject	Finan	-	L	Т	Р	S		Hours	
S. No. 1	Course of Humanit Social So Professio Course Professio	IV Category ies & ciences	New / Revised	Subject	Finan Pytho Web	ace and Accounts	L 3	Т 0	P 0	S	3	Hours 3	
S. No. 1 2 3	Course Humanit Social Sc Professio Course Professio Course	IV Category ies & ciences onal Core onal Core onal Core	New / Revised	Subject	Finan Pytho Bioin Desig Algor	nce and Accounts on for Bioinformatics development for formatics gn and Analysis of rithms	L 3 3 3 3	T 0 0 0	P 0 0 0 0 0	8	3 3 3 3	Hours 3 3 3 3 3 3 3	
S. No. 1 2 3 4 5	Course Humanit Social Sc Professio Course Professio Course Professio Course	IV Category ies & ciences onal Core onal Core onal Core onal Core	New / Revised	Subject	Finan Pytho Bioin Desig Algon Cell a	ace and Accounts on for Bioinformatics development for <u>formatics</u> on and Analysis of rithms and Molecular Biology	L 3 3 3 3 3	T 0 0 0 0 0 0 0	P 0 0 0 0 0 0 0 0 0	S	3 3 3 3 3	Hours 3 3 3 3 3 3 3	
S. No. 1 2 3 4 5	Course Humanit Social Se Professio Course Professio Course Professio Course Professio Course Professio	IV Category ies & ciences onal Core onal Core onal Core	New / Revised	Subject	Finan Pytho Bioin Desig Algor Cell a	ace and Accounts on for Bioinformatics development for formatics gn and Analysis of rithms and Molecular Biology Development for	L 3 3 3 3	T 0 0 0 0 0	P 0 0 0 0 0	S	3 3 3 3	Hours 3 3 3 3 3 3 3	
5. No. 1 2 3 5 5	Course Humanit Social So Professio Course Professio Course Professio Course Professio Course Professio Course Professio	IV Category ies & ciences onal Core onal Core onal Core onal Core	New / Revised	Subject	Finan Pytho Bioin Desig Algor Cell a Bioin Desig	ace and Accounts on for Bioinformatics development for formatics gn and Analysis of rithms and Molecular Biology Development for formatics Lab gn and Analysis of	L 3 3 3 3 3	T 0 0 0 0 0 0 0	P 0 0 0 0 0 0 0 0 0	S	3 3 3 3 3	Hours 3 3 3 3 3 3 3	
S. No. 1 2 3 4 5 5 6 7	Course Humanit Social So Professio Course Professio Course Professio Course Professio Course Professio Course Professio Course	Category Category ies & ciences onal Core onal Core onal Core onal Core	New / Revised	Subject	Finan Pytho Bioin Desig Algor Cell a Web Bioin Desig Algor Pytho	ace and Accounts on for Bioinformatics development for formatics gn and Analysis of rithms and Molecular Biology Development for formatics Lab gn and Analysis of rithms Lab on for Bioinformatics Lab	L 3 3 3 3 3 0	T 0 0 0 0 0 0 0 0	P 0 0 0 0 0 0 2	S	3 3 3 3 3 1 2 1	Hours 3 3 3 3 3 2 4 2	
S. No. 1 2 3 4 5 6 7 8 8 9	Course Humanit Social So Professio Course Professio Course Professio Course Professio Course Professio Course Professio Course Professio Course Professio Course Professio Course Professio Course Professio Course	IV Category ies & ciences onal Core onal Core onal Core onal Core onal Core onal Core onal Core	New / Revised	Subject	Finan Pytho Bioin Desig Algon Cell a Web Bioin Desig Algon Pytho	ace and Accounts on for Bioinformatics development for formatics gn and Analysis of rithms and Molecular Biology Development for formatics Lab gn and Analysis of rithms Lab on for Bioinformatics Lab and Molecular Biology Lab	L 3 3 3 3 3 0 0 0 0 0	T 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	P 0 0 0 0 0 0 2 4 2 2 2	S	3 3 3 3 3 1 2 1 1	Hours 3 3 3 3 3 2 4 2 2	
S. No. 1 2 3 4 5 6 6 7 8 9 9	Course Humanit Social Sc Professic Course Professic Course Professic Course Professic Course Professic Course Professic Course Professic Course Professic Course Professic	IV Category ies & ciences onal Core onal Core onal Core onal Core onal Core onal Core onal Core	New / Revised	Subject	Finan Pytho Bioin Desig Algon Cell a Web Bioin Desig Algon Pytho Cell a Envir	ace and Accounts on for Bioinformatics development for formatics and Analysis of rithms and Molecular Biology Development for formatics Lab gn and Analysis of rithms Lab on for Bioinformatics Lab and Molecular Biology Lab	L 3 3 3 3 3 0 0 0	T 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	P 0 0 0 0 0 0 2 4 2 2 0		3 3 3 3 3 1 2 1 1 2	Hours 3 3 3 3 3 3 2 4 2 2 2 2	
SEM S. No. 1 2 3 4 5 6 7 8 9 10 11	Course Humanit Social So Professio Course Professio Course Professio Course Professio Course Professio Course Professio Course Professio Course Professio Course Professio Course Professio Course Professio Course	IV Category ies & ciences onal Core onal Core onal Core onal Core onal Core onal Core onal Core	New / Revised	Subject	Finan Pytho Bioin Desig Algon Cell a Web Bioin Desig Algon Pytho	ace and Accounts on for Bioinformatics development for formatics gn and Analysis of rithms and Molecular Biology Development for formatics Lab gn and Analysis of rithms Lab on for Bioinformatics Lab on for Bioinformatics Lab and Molecular Biology Lab ronmental Studies ct	L 3 3 3 3 3 0 0 0 0 0	T 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	P 0 0 0 0 0 0 2 4 2 2 2	S	3 3 3 3 3 1 2 1 1	Hours 3 3 3 3 3 2 4 2 2	

Existing	Semester	V

Sr. No	0.	Course Categ	gory	Subject Code	Name of the Subjects		Co	ourse H	lours		Credits	Total Hour
							L		Т	Р		
	1	Humanities &	c Social	18B11HS511	Project Management and		3		0	0	3	3
	2	Sciences	7	10D11D1611	Entrepreneurship	:41	2		0	0	2	
	2	Professional C		18B11BI511 18B11BT511	Design and Analysis of Algor	ithms	3		0	0	3 4	3
	3 4	Professional C Professional C		18B11B1511 18B11BI512	Bioprocess Engineering		3		0	0	3	3
	4	Professional	Jore	1881181312	Scripting Languages for Bioinformatics		3		0	0	3	3
	5	Professional C	Core	18B17BI571	Design and Analysis of Algor Lab	ithms	0		0	2	1	2
	6	Professional C	ore	18B17BT571	Bioprocess Engineering Lab		0		0	2	1	2
	7	Professional C		18B17BI572	Scripting Languages for		0		0	2	1	2
	/	i ioiessionai e		1001/010/2	Bioinformatics Lab				v	-		
	8	Professional C	Core	18B17BI573	Structural Bioinformatics Lab		0		0	2	1	2
	9	Professional H			Departmental Elective-I		3		0	0	3	3
	10	Open Elective			Open Elective-I		3		0	0	3	3
	10	Project	-	18B19BI591	Minor Project Part-I		0		0	2	1	2
	11	110,000		1001/013/1	TOTAL				0	-	24	29
											<u>, 14</u>	T (1
SEM S. No.		rse Category	New / Revised	Subject Code	Name of the Subjects	Cours	e Hou	rs		C	Credits	Total Hours
S.					Name of the Subjects	Cours L	e Hou T	rs P	s		Credits	
S.	Cou Hum	rse Category			Project Management and				s			
S. No. 1	Cou Hum Socia	rse Category nanities & al Sciences			Project Management and Entrepreneurship	L 3	T 0	P 0	S	3		Hours 3
S. No.	Cou Hum Socia Profe	rse Category nanities & al Sciences essional Core			Project Management and Entrepreneurship Genetic Engineering and	L	Т	Р	S			Hours
S. No. 1 2	Cou Hum Socia Profe	rse Category nanities & al Sciences essional Core rse	Revised		Project Management and Entrepreneurship Genetic Engineering and Genomics	L 3 3	T 0 0	P 0 0	S	3		Hours 3 4
S. No. 1	Cou Hum Socia Profe Cou	rse Category nanities & al Sciences essional Core rse essional Core			Project Management and Entrepreneurship Genetic Engineering and	L 3	T 0	P 0	S	3		Hours 3
S. No. 1 2	Cou Hum Socia Profe Coun	rse Category nanities & al Sciences essional Core rse essional Core rse	Revised		Project Management and Entrepreneurship Genetic Engineering and Genomics Bioprocess Engineering	L 3 3 3	T 0 0	P 0 0 0	S	3		Hours 3 4
S. No. 1 2 3	Cou Hum Socia Profe Coun	rse Category nanities & al Sciences essional Core rse essional Core rse essional Core	Revised		Project Management and Entrepreneurship Genetic Engineering and Genomics Bioprocess Engineering Bioinformatics Data	L 3 3	T 0 1	P 0 0	S	3		Hours 3 4 4
S. No. 1 2 3	Cou Hum Soci Profe Cou Profe Cou	rse Category nanities & al Sciences essional Core rse essional Core rse essional Core	Revised		Project Management and Entrepreneurship Genetic Engineering and Genomics Bioprocess Engineering	L 3 3 3	T 0 1	P 0 0 0	S	3		Hours 3 4 4
S. No. 1 2 3 4	Cou Hum Soci Profe Cou Profe Cou	rse Category nanities & al Sciences essional Core rse essional Core rse essional Core rse essional Core	Revised		Project Management and Entrepreneurship Genetic Engineering and Genomics Bioprocess Engineering Bioinformatics Data Management Genetic Engineering and Genomics Lab	L 3 3 3 3	T 0 0 0 1 0	P 0 0 0 0 0 0 0	S	3 4 4 3		Hours 3 4 4 3
S. No. 1 2 3 4	Cou Hum Soci: Profe Cou Profe Cou Profe Cou Profe Cou	rse Category nanities & al Sciences essional Core rse essional Core rse essional Core rse essional Core rse essional Core rse essional Core	Revised		Project Management and Entrepreneurship Genetic Engineering and Genomics Bioprocess Engineering Bioinformatics Data Management Genetic Engineering and	L 3 3 3 3	T 0 0 0 1 0	P 0 0 0 0 0 0 0	s	3 4 4 3		Hours 3 4 4 3
S. No. 1 2 3 4 5 6	CouHumSocialProfitCoutProfitCoutProfitCoutProfitCoutProfitCoutProfitCout	rse Category nanities & al Sciences essional Core rse essional Core rse essional Core rse essional Core rse essional Core rse essional Core rse	Revised Revised		Project Management and Entrepreneurship Genetic Engineering and Genomics Bioprocess Engineering Bioinformatics Data Management Genetic Engineering and Genomics Lab Bioprocess Engineering Lab	L 3 3 3 3 0 0	T 0 0 1 0 0	P 0 0 0 0 2 2 2	S	3 4 4 3 1		Hours 3 4 4 3 2 2
S. No. 1 2 3 4 5	Cou Hum Socia Profe Cou Profe Cou Profe Cou Profe Cou Profe Cou	rse Category nanities & al Sciences essional Core rse essional Core rse essional Core rse essional Core rse essional Core rse essional Core rse essional Core rse essional Core rse essional Core	Revised Revised		Project Management and Entrepreneurship Genetic Engineering and Genomics Bioprocess Engineering Bioinformatics Data Management Genetic Engineering and Genomics Lab Bioprocess Engineering Lab Bioinformatics Data	L 3 3 3 3 0	T 0 0 1 0 0	P 0 0 0 0 0 2 2	S	3 4 4 3 1		Hours 3 4 4 3 2
S. No. 1 2 3 4 5 6 7	Cou Hum Soci: Profe Cou Profe Cou Profe Cou Profe Cou Profe Cou	rse Category nanities & al Sciences essional Core rse essional Core rse essional Core rse essional Core rse essional Core rse essional Core rse essional Core rse essional Core rse	Revised Revised		Project Management and Entrepreneurship Genetic Engineering and Genomics Bioprocess Engineering Bioinformatics Data Management Genetic Engineering and Genomics Lab Bioprocess Engineering Lab Bioinformatics Data Management Lab	L 3 3 3 3 0 0 0	T 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	P 0 0 0 0 2 2 2 2 2		3 4 4 3 1 1 1		Hours 3 4 4 3 2 2 2 2
S. No. 1 2 3 4 5 6	Cou Hum Soci: Profe Cou Profe Cou Profe Cou Profe Cou Profe Cou	rse Category nanities & al Sciences essional Core rse essional Core	Revised Revised		Project Management and Entrepreneurship Genetic Engineering and Genomics Bioprocess Engineering Bioinformatics Data Management Genetic Engineering and Genomics Lab Bioprocess Engineering Lab Bioinformatics Data	L 3 3 3 3 0 0	T 0 0 0 1 0 0 0 0 0	P 0 0 0 0 2 2 2		3 4 4 3 1 1		Hours 3 4 4 3 2 2
S. No. 1 2 3 4 5 6 7	Cour Hum Socia Profe Cour Profe Profe Cour Profe Prof	rse Category ananities & al Sciences essional Core rse	Revised Revised		Project Management and Entrepreneurship Genetic Engineering and Genomics Bioprocess Engineering Bioinformatics Data Management Genetic Engineering and Genomics Lab Bioprocess Engineering Lab Bioinformatics Data Management Lab	L 3 3 3 3 0 0 0	T 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	P 0 0 0 0 2 2 2 2 2		3 4 4 3 1 1 1		Hours 3 4 4 3 2 2 2 2
S. No. 1 2 3 4 5 6 7 8	Cou Hum Soci: Profe Cou Profe Cou Profe Cou Profe Cou Profe Cou	rse Category ananities & al Sciences essional Core rse essional Co	Revised Revised		Project Management and Entrepreneurship Genetic Engineering and Genomics Bioprocess Engineering Bioinformatics Data Management Genetic Engineering and Genomics Lab Bioprocess Engineering Lab Bioinformatics Data Management Lab R Language Lab	L 3 3 3 3 0 0 0 0	T 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	P 0 0 0 0 2 2 2 2 2 2 2	S	3 4 4 3 1 1 1 1 3		Hours 3 4 4 3 2 2 2 2 2

. No.	STER-VI Course Catego	ory	Subject Code	Name of the Subjects		Course	Hours		Credits		
						L	Т	Р		Hou	Irs
	l Professional Co	re	18B11BI611	Machine Learning for Bioinformatics		3	0	0	3		3
	2 Professional Co		18B11BI612	Computer Aided Drug Design		3	0	0	3		3
	3 Professional Co		18B17BI671	Machine Learning for Bioinformatics	lab	0	0	2	1		2
2	4 Professional Co	ore	18B17BI672	Computer Aided Drug Design Lab		0	0	2	1		2
5	Professional Ele		18B17BI673	Advanced Algorithms for Bioinformat Lab	ics	0	0	2	1		2
6	Professional Ele	ective	18B17BI674	R Language Lab		0	0	2	1		2
7	Professional Ele	ective		Departmental Elective-II		3	0	0	3		3
8	Professional Ele	ective		Departmental Elective-III		3	0	0	3		3
9	Open Elective			Open Elective-II		3	0	0	3		3
10	Project		18B19BI691	Minor Project Part-II		0	0	4	2		4
11	Mandatory Cou	rse		Industrial Training			0		Audit		
11		130		TOTAL					21	27	
S. No.	Course Category	New / Revise	J	Name of the Subjects			se Ho			Credi ts	Tot Hot
					L	Т	P	•	S		
1	Professional Core Course	Revise		Machine Learning for	•					2	2
		1101150	a	Bioinformatics	2	0	0)		2	
2	Professional Core Course	Revise			2	0 0	0			2	2
2 3	Professional Core Course Professional Core Course		ed	Bioinformatics		-	-	,			2
	Professional Core Course Professional Core Course Professional Core Course	Revise	ed set	Bioinformatics Computer Aided Drug Design Machine Learning for	2	0	0)		2	2
3	Professional Core Course Professional Core Course Professional Core Course Professional Core Course	Revise Revise	ıd ıd ıd	Bioinformatics Computer Aided Drug Design Machine Learning for Bioinformatics lab	2	0	0			2	
3	Professional Core Course Professional Core Course Professional Core Course Professional Core Course Professional Core Course	Revise Revise Revise	ıd ıd ıd	BioinformaticsComputer Aided Drug DesignMachine Learning for Bioinformatics labComputer Aided Drug Design LabAdvanced Algorithms for	2 0 0	0 0 0 0	0 2 2			2 1 1	2 2 2
3 4 5	Professional Core Course Professional Core Course Professional Core Course Professional Core Course Professional Core Course professional Elective	Revise Revise Revise Revise	ıd ıd ıd	Bioinformatics Computer Aided Drug Design Machine Learning for Bioinformatics lab Computer Aided Drug Design Lab Advanced Algorithms for Bioinformatics Lab	2 0 0 0	0 0 0 0	0 2 2 2 2			2 1 1 1	2 2 2 2 2 2 2
3 4 5 6	Professional Core Course Professional Core Course Professional Core Course Professional Core Course Professional Core Course professional Core	Revise Revise Revise Revise	ıd ıd ıd	Bioinformatics Computer Aided Drug Design Machine Learning for Bioinformatics lab Computer Aided Drug Design Lab Advanced Algorithms for Bioinformatics Lab NGS Data Analysis Lab	2 0 0 0 0	0 0 0 0 0	0 2 2 2 2 2 2			2 1 1 1 1	2 2 2 2 2 2 3
3 4 5 6 7	Professional Core Course Professional Core Course Professional Core Course Professional Core Course Professional Core Course professional Elective professional	Revise Revise Revise Revise	ıd ıd ıd	Bioinformatics Computer Aided Drug Design Machine Learning for Bioinformatics lab Computer Aided Drug Design Lab Advanced Algorithms for Bioinformatics Lab NGS Data Analysis Lab PE-II	2 0 0 0 0 3	0 0 0 0 0 0	0 2 2 2 2 2 2 0			2 1 1 1 1 3	2 2 2 2 2
3 4 5 6 7 8 9	Professional Core Course Professional Core Course Professional Core Course Professional Core Course Professional Core Course professional Core Course professional Elective professional Elective	Revise Revise Revise Revise	ıd ıd ıd	BioinformaticsComputer Aided Drug DesignMachine Learning for Bioinformatics labComputer Aided Drug Design LabAdvanced Algorithms for Bioinformatics LabNGS Data Analysis LabPE-IIPE-III	2 0 0 0 0 3 3 3	0 0 0 0 0 0 0 0 0	0 2 2 2 2 2 2 2 2 2 2 0 0 0 0			2 1 1 1 1 3 3	2 2 2 2 2 2 2 3 3 3 3 3
3 4 5 6 7 8 9 10	Professional Core Course Professional Core Course Professional Core Course Professional Core Course Professional Core Course professional Elective professional Elective Open Elective	Revise Revise Revise Revise	ıd ıd ıd	BioinformaticsComputer Aided Drug DesignMachine Learning for Bioinformatics labComputer Aided Drug Design LabAdvanced Algorithms for Bioinformatics LabNGS Data Analysis LabPE-IIPE-IIIOE-I (HSS)	2 0 0 0 0 3 3 3 3	0 0 0 0 0 0 0 0 0 0	0 2 2 2 2 2 2 2 2 2 0 0 0 0 0 0 0 0		2	2 1 1 1 3 3 3	2 2 2 2 2 2 2 3 3 3 3 3 3 3
3 4 5 6 7 8	Professional Core Course Professional Core Course Professional Core Course Professional Core Course Professional Core Course professional Core Course professional Elective professional Elective Open Elective Open Elective	Revise Revise Revise Revise	ıd ıd ıd	BioinformaticsComputer Aided Drug DesignMachine Learning for Bioinformatics labComputer Aided Drug Design LabAdvanced Algorithms for Bioinformatics LabNGS Data Analysis LabPE-IIPE-IIIOE-I (HSS)OE-II	2 0 0 0 0 3 3 3 3 3	0 0 0 0 0 0 0 0 0 0 0 0	0 2 2 2 2 2 2 2 2 2 2 2 2 0 0 0 0 0 0 0		2	2 1 1 1 3 3 3 3 3	2 2 2 2 2 2 2 3 3 3
3 4 5 6 7 8 9 10 11	Professional Core Course Professional Core Course Professional Core Course Professional Core Course Professional Core Course professional Elective Professional Elective Open Elective Project	Revise Revise Revise Revise	ıd ıd ıd	BioinformaticsComputer Aided Drug DesignMachine Learning for Bioinformatics labComputer Aided Drug Design LabAdvanced Algorithms for Bioinformatics LabNGS Data Analysis LabPE-IIPE-IIIOE-I (HSS)OE-IIProject	2 0 0 0 3 3 3 3 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 0 0 0 0			2 1 1 1 3 3 3 3 2	2 2 2 2 2 2 2 3 3 3 3 3 3 4

	ESTER-VI No.	Course Ca	itegory	Subj	ect Code	Name of the Subjects	Cours	e Hour	5		Credits	Total Hours
							L	Т	Р			
		Professiona Elective	al			Departmental Elective-I V	3	0	0		3	3
4	2	Open Elect	ive			Open Elective - III	3	0	0		3	3
	3	Open Elect	ive			Open Elective - IV	3	0	0		3	3
4	ļ	Project		18B1	9BI791	Major Project Part I	0	0	10		5	10
:	5	HSS				Indian Constitution	1	0	0		Audit	1
						TOTAL					14	20
	lified & Ap IESTER -	pproved by Bos	Semeste	eVII		IUIAL					14	20
SEN S.		VII	Semeste New / Revise		Subject Code	Name of the Subjects	Co	urse Ho	urs		Credits	Total Hours
SEN S.	AESTER -	VII	New /			I	Co L	urse Ho	urs P	S		Total
SEN S. No	AESTER - Course (VII	New /			I				S		Total
SEN S. No 1	AESTER - Course C Professio	VII Category	New /			Name of the Subjects	L	Т	P	S	Credits	Total Hours
SEN S. No 1 2	AESTER - Course C Professio	VII Category nal Elective nal Elective	New /			Name of the Subjects PE-IV	L 3	T 0	P 0	S	Credits 3	Total Hours 3
SEN S. No 1 2 3	AESTER - Course C Professio Professio	VII Category nal Elective nal Elective ective	New /			Name of the Subjects PE-IV PE-V	L 3 3	T 0 0	P 0 0	S	Credits 3 3	Total Hours 3 3
SEN S. No 1 2 3 4	IESTER - Course C Professio Professio Open Ele	VII Category nal Elective nal Elective ective	New /			Name of the Subjects PE-IV PE-V OE-III	L 3 3 3	T 0 0 0 0 0	P 0 0 0	S	Credits 3 3 3 3	Total Hours 3 3 3
	IESTER - Course C Professio Professio Open Ele Project	VII Category nal Elective nal Elective ective	New /			Name of the Subjects PE-IV PE-V OE-III OE-IV	L 3 3 3 3 3	T 0 0 0 0 0 0 0	P 0 0 0 0 0 0	S	Credits 3 3 3 3 3 3 3 3 3	Total Hours 3 3 3 3

(Established by H.P. State Legislature vide Act No. 14 of 2002)

S.]	No.	Course Categor	·у	Subje	ct Code	Name of the Subjects	Cour	se Hou	irs		(Credits	Total Hours
							L	Т		Р			
	1	Professi Elective				Departmental Elective- V	3	0		0	3		3
	2	Professi Elective	onal			Departmental Elective- VI	3	0		0	3		3
	3	Open El	ective			Open Elective-V	3	0		0	3		3
	4	Project		18B19	BI891	Major Project Part II	0	0		14	7	,	14
						TOTAL					1	6	23
SEN	1ESTER												
SEN S.		R - VIII	New / F		II Subject Code	Name of the Subjects	1	Cour	rse H	ours		Credits	Total Hours
SEN 5.	1ESTER Course	R - VIII			Subject			Cour	rse H	ours	s	Credits	
SEN S. No	1ESTER Course	R - VIII e ory			Subject						S	Credits 3	
SEN S. No	IESTER Course Catego Profess Electiv	R - VIII e ory			Subject	Name of the Subjects		L	Т	Р	S		Hours
SEN S. No	IESTER Course Catego Profess Electiv Open E	e ory sional			Subject	Name of the Subjects PE-VI	· · · · · · · · · · · · · · · · · · ·	L 3	T 0	P 0	S	3	Hours 3
SEN S. No 1 2 3	IESTER Course Catego Profess Electiv Open E	R - VIII e bry sional e Elective			Subject	Name of the Subjects PE-VI OE-V		L 3 3	T 0	P 0	S	3	Hours 3 3
SEN S. No 1 2 3	1ESTER Course Catego Profess Electiv Open F Open F	R - VIII e bry sional e Elective			Subject	Name of the Subjects PE-VI OE-V OE-VI		L 3 3 3	T 0 0 0	P 0 0 0 0	S	3 3 3 3	Hour 3 3 3 3
	1ESTER Course Catego Profess Electiv Open F Open F	R - VIII e bry sional e Elective			Subject	Name of the Subjects PE-VI OE-V OE-VI PFoject		L 3 3 3	T 0 0 0	P 0 0 0 0	S	3 3 3 4	Hour 3 3 3 8

Agenda Item 3. To consider and approve modification in M.Sc. Biotechnology Course curriculum.

- Dr Anil Kant presented the proposed changes in M.Sc. Biotechnology Course curriculum, for introduction of new modified course Molecular Diagnostics and Forensic Biology 3-0-0 in second semester and dropping of Course Seminar-I, 0-0-1
- Dr Anil Kant explained the rationale of including some topics of Forensic Biology and remaining of course as "Molecular Diagnostics and Forensic Biology". He also presented the detailed syllabus of the modified course.
- Dr TC Bhalla suggested adding electives related to Forensic Sciences in future for some interested students.
- Dr Saurabh suggested that name should be "Molecular Diagnostics and Forensic Sciences". It was clarified by Dr Anil Kant that only few topics of Forensic Biology are being added in the existing course rather than including the topics of forensic science like computational forensics, documentation, application of Physics and Chemistry. So it will be more appropriate to name it "Molecular Diagnostics and Forensic Biology"
- Dr. G.P.S.Raghava enquired about the need of adding content of Forensic Biology. Prof. Sudhir explained that jobs related to Forensic Sciences are on demand and these skills will help in students' progression.
- Dr. Udayabanu proposed two electives Omics Technologies & Data Analysis and Biopharmaceutical Technology in B.Tech Biotechnology VIII Semester
- Prof Sunil Khah suggested changing the name of Seminar-II in 3rd semester now to Seminar only as Seminar -I is dropped now, which was
 accepted by all the members.
- All the members including Prof TC Bhalla, Dr. GPS Raghav and Mr Aditya Sahni supported the proposal as well as content of the course and the proposal was approved as presented.

(Established by H.P. State Legislature vide Act No. 14 of 2002)

SEME	<u>STER -II</u>			
S.No.	New Code	Subject	L-T-P	Credits
1	20MS1BT211	Genetic Engineering	3-0-0	3
2	20MS1BT212	Immunology	3-0-0	3
3	20MS1BT213	Bioinformatics	2-0-0	2
4	20MS1BT214	Genomics and Proteomics	2-0-0	2
5	20MS1BT215	Molecular Diagnostics	2-0-0	2
6	20MS1BT216	Research Methodology and Scientific Communication Skills	2-0-0	2
7		Elective I	2-0-0	2
8	20MS9BT211	Seminar-I	-	1
9	20MS7BT271	Molecular Biology and Genetic Engineering Lab	0-0-8	4
10	20MS7BT272	Immunology Lab	0-0-6	3
		Total	30	24

Existing Courses in M.Sc Biotechnology II semester SEMESTER -II

Modified & Approved by BoS M.Sc Biotechnology II semester SEMESTER -II

S.No.	New Code	Subject	L-T-P	Credits
1	20MS1BT211	Genetic Engineering	3-0-0	3
2	20MS1BT212	Immunology	3-0-0	3
3	20MS1BT213	Bioinformatics	2-0-0	2
4	20MS1BT214	Genomics and Proteomics	2-0-0	2
5	XXXXXXXX	Molecular Diagnostics and Forensic Biology	3-0-0	3
6	20MS1BT216	Research Methodology and Scientific Communication Skills	2-0-0	2
7		Elective I	2-0-0	2
8	20MS7BT271	Molecular Biology and Genetic Engineering Lab	0-0-8	4
9	20MS7BT272	Immunology Lab	0-0-6	3
		Total	30	24

(Established by H.P. State Legislature vide Act No. 14 of 2002)

Existing Courses in M.Sc Biotechnology IIIsemester SEMESTER -III

S.No.	Code	Subject	L-T-P	Cre dits
1	20MS1BT311	Bioprocess Engineering and Technology	3-0-0	3
2	20MS1BT312	Emerging Technologies	2-0-0	2
3	20MS9BT313	Review of Classical papers & Project Proposal Presentation	2-0-0	2
4	20MS1BT314	Bioentrepreneurship	2-0-0	2
5	20MS1BT315	Intellectual Property Rights, Biosafety and Bioethics	2-0-0	2
6	22MS1BT311	Food Biotechnology	2-0-0	2
7	20MS9BT311	Seminar-II	-	1
8	20MS7BT371	Bioprocess Engineering and Technology Lab	0-0-8	4
9	20MS7BT372	Bioinformatics Lab	0-0-4	2
10	20MS9BT391	Dissertation	-	4
		Total	21	24
M.Sc I	ied & Approved by Biotechnology III se ISTER -III			
M.Sc I	Biotechnology III se		L-T-P	Cre
M.Sc I SEME	Biotechnology III se STER -III	emester	L-T-P 3-0-0	dits
M.Sc I SEME S.No.	Biotechnology III se STER -III Code	smester Subject		dits
M.Sc I SEME S.No.	Biotechnology III se STER -III Code 20MS1BT311	Subject Bioprocess Engineering and Technology	3-0-0	dits
M.Sc I SEME S.No. 1 2	Biotechnology III se STER -III Code 20MS1BT311 20MS1BT312	Bioprocess Engineering and Technology Emerging Technologies	3-0-0	dits 2
M.Sc I SEME S.No. 1 2 3	Biotechnology III se STER -III Code 20MS1BT311 20MS1BT312 20MS9BT313	Subject Bioprocess Engineering and Technology Emerging Technologies Review of Classical papers & Project Proposal Presentation	3-0-0 2-0-0 2-0-0	dits 2 2 2
M.Sc I SEME S.No. 1 2 3 4	Biotechnology III se STER -III Code 20MS1BT311 20MS1BT312 20MS9BT313 20MS1BT314	Subject Bioprocess Engineering and Technology Emerging Technologies Review of Classical papers & Project Proposal Presentation Bioentrepreneurship	3-0-0 2-0-0 2-0-0 2-0-0	dits 2 2 2 2 2 2
M.Sc I SEME 5.No. 1 2 3 4 5	Biotechnology III se STER -III Code 20MS1BT311 20MS1BT312 20MS9BT313 20MS1BT314 20MS1BT315	Subject Bioprocess Engineering and Technology Emerging Technologies Review of Classical papers & Project Proposal Presentation Bioentrepreneurship Intellectual Property Rights, Biosafety and Bioethics	3-0-0 2-0-0 2-0-0 2-0-0 2-0-0	dits 3 2 2 2 2 2 2 2 2 2 2 2 2
M.Sc I SEME 3.No. 1 2 3 4 5 6	Biotechnology III se STER -III Code 20MS1BT311 20MS1BT312 20MS9BT313 20MS1BT314 20MS1BT315 22MS1BT311	Subject Bioprocess Engineering and Technology Emerging Technologies Review of Classical papers & Project Proposal Presentation Bioentrepreneurship Intellectual Property Rights, Biosafety and Bioethics Food Biotechnology	3-0-0 2-0-0 2-0-0 2-0-0 2-0-0 2-0-0 2-0-0	dits 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
M.Sc I SEME 3.No. 1 2 3 4 5 6 7	Biotechnology III set STER -III Code 20MS1BT311 20MS1BT312 20MS9BT313 20MS1BT314 20MS1BT315 22MS1BT311 20MS1BT313	Subject Bioprocess Engineering and Technology Emerging Technologies Review of Classical papers & Project Proposal Presentation Bioentrepreneurship Intellectual Property Rights, Biosafety and Bioethics Food Biotechnology Seminar	3-0-0 2-0-0 2-0-0 2-0-0 2-0-0 2-0-0 0-0-2	dits 2 2 2 2 2 2 2 2 2 2 2 2 1
M.Sc I SEME 5.No. 1 2 3 4 5 6 7 8	Biotechnology III set Code 20MS1BT311 20MS1BT312 20MS9BT313 20MS1BT314 20MS1BT315 22MS1BT311 20MS9BT313 20MS1BT314 20MS1BT315 22MS1BT311 20MS9BT311 20MS9BT311	Subject Bioprocess Engineering and Technology Emerging Technologies Review of Classical papers & Project Proposal Presentation Bioentrepreneurship Intellectual Property Rights, Biosafety and Bioethics Food Biotechnology Seminar Bioprocess Engineering and Technology Lab	3-0-0 2-0-0 2-0-0 2-0-0 2-0-0 2-0-0 0-0-2 0-0-8	dits 2 2 2 2 2 2 2 2 2 2 2 2 1

Agenda Item 4. To consider and approve modification in M.Sc. Microbiology Course curriculum

- Dr. Rahul Shrivastava presented the proposed changes in M.Sc. Microbiology Course curriculum, for introduction of new course 'Molecular Diagnostics and Forensic Biology' in the Second Semester and dropping of the Course (21MS1MB312) Diagnostic Microbiology and Vaccines being currently taught in the third semester.
- Dr. Rahul Shrivastava explained the rationale of including some topics of Forensic Biology to the Diagnostics Course, and removal of the Vaccine part which is already covered in the course (18MS1BT211) Immunology and Immunotechnology.
- Dr. Shrivastava proposed that the new course 'Molecular Diagnostics and Forensic Biology' would be taught to M.Sc. Microbiology and M.Sc. Biotechnology students together in the Second semester of the program, the course (21MS1MB212) Microbial Genetics and Physiology is being shifted to the Third Semester of M.Sc. Microbiology Program to balance the number of credits.
- All the members including Prof TC Bhalla, Dr. GPS Raghav and Mr Aditya Sahni supported the proposal as well as content of the course and the proposal was approved as presented.

(Established by H.P. State Legislature vide Act No. 14 of 2002)

Existing Courses in M.Sc Microbiology - II SEMESTER

S.No.	New Code	Subject	L-T-P	Credits
1	18MS1BT211	Immunology and Immunotechnology	3-0-0	3
2	21MS1MB211	Enzymes and Bioprocess Technology	3-0-0	3
3	21MS1MB212	Microbial Genetics and Physiology	3-0-0	3
4	18MS1BT313	Recombinant DNA Technology	3-0-0	3
5	20MS1BT213	Bioinformatics	2-0-0	2
6	18MS7BT211	Immunology and Immunotechnology Lab	0-0-2	1
7	21MS7MB271	Enzymes and Bioprocess Technology Lab	0-0-2	1
8	18MS7BI214	Basic Bioinformatics Lab	0-0-2	1
9	18MS7BT373	Recombinant DNA Technology lab	0-0-4	2
10	18MS9BI211	Masters Research Review seminar	0-0-2	1
		Total	26	20

Existing Courses in M.Sc Microbiology - III SEMESTER

S.No.	Code	Subject	L-T-P	Credits
1	21MS1MB311	Environmental Microbiology	3-0-0	3
2	21MS1MB312	Diagnostic Microbiology and vaccines	3-0-0	3
3		Elective-I	3-0-0	3
4	21MS9MB311	Master's Dissertation & Thesis Part-I	0-0-16	8
		Total	25	17

Modified & Approved by BoS

Modified Courses in M.Sc Microbiology - II SEMESTER

S.No.	New Code	Subject	L-T-P	Credits
1	18MS1BT211	Immunology and Immunotechnology	3-0-0	3
2	21MS1MB211	Enzymes and Bioprocess Technology	3-0-0	3
3	XXXXXXXX	Molecular Diagnostics and Forensic Biology	3-0-0	3
4	18MS1BT313	Recombinant DNA Technology	3-0-0	3
5	20MS1BT213	Bioinformatics	2-0-0	2
6	18MS7BT211	Immunology and Immunotechnology Lab	0-0-2	1
7	21MS7MB271	Enzymes and Bioprocess Technology Lab	0-0-2	1
8	18MS7BI214	Basic Bioinformatics Lab	0-0-2	1
9	18MS7BT373	Recombinant DNA Technology lab	0-0-4	2
10	18MS9BI211	Masters Research Review seminar	0-0-2	1
		Total	26	20

Modified Courses in M.Sc Microbiology - IIIrd SEMESTER

S.No.	Code	Subject	L-T-P	Credits
1	21MS1MB311	Environmental Microbiology	3-0-0	3
2	21MS1MB212	Microbial Genetics and Physiology	3-0-0	3
3		Elective-I	3-0-0	3
4	21MS9MB311	Master's Dissertation & Thesis Part-I	0-0-16	8
		Total	25	17

(Established by H.P. State Legislature vide Act No. 14 of 2002)

ATTENDANCE SHEET: BoS meeting of Deptt of Biotechnology and Bioinformatics held on 17.06.2024

Name and Designation		Signature or consent by email
Prof. Sudhir Kumar, HOD, Department of BT and BI	Chairman	17 06 2024
Dr. Anil Kant, Associate Prof, Deptt of BT and BI	Member Secretary	Awl 17/6/2024
Prof. T.C. Bhalla Ex, Professor Emeritus Department of Biotechnology HPU Shimla	External Member BoS	Consent via Email
Prof. G .P. S. Raghava, Prof and Head, Deptt of Computational Biology, IIIT-Dehli, (External Member BoS)	External Member BoS	Consent via Email
Dr Jata Shankar, Professor, Deptt of BT and BI	Member	KILANCAL 12/012004
Prof. Sunil Kunmar Khar, Incharge IQAC, JUIT	Member	Sham D.6. 2014
Dr Tiratha Raj Singh, Professor, Deptt of BT and BI	Member	BE HOODA
Dr Udaybanu M, Associate Prof, Deptt of BT and BI	Member	Kg. Hamat 1716 124
Dr Poonam Sharma, Associate Prof, Deptt of BT and BI	Member	1 16/24
Dr Jiendra Vashistt, Associate Prof, Deptt of BT and BI	Member	Jitadoa
Mr. Aditya Sahni, JUIT Alumni, Founder of ELEM, India (JUIT alumni Member BoS)	External Member-3 (Alumni)	Consent via Email
Dr. Rahul Shrivastava- Dept. of BT & BI	Member Page 5 of 6	An. 7/6/24

(Established by H.P. State Legislature vide Act No. 14 of 2002)

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Dr. Anil Kant Associate Professor Member Secretary, BoS Department of Biotechnology JUIT Waknaghat

21/06/202

Prof. Sudhir Kumar Chairman BoS, HOD Department of Biotechnology, JUIT Waknaghat