

**SCHEME OF INSTRUCTION**

**Department/Cluster: BIOTECHNOLOGY/CHEMICAL**

**Program: BE**

**Semester: V**

Course Code										Course Title	Credit hours / week					Contact hrs	Marks		
											L	T	P	S	Total		CIE	SEE	Total
1	6	B	T	5	D	C	B	A	T	Bioanalytical Techniques	3	1	0	0	4	5	50	50	100
1	6	B	T	5	D	C	B	I	N	Bioinformatics	3	0	1	2	6	5	50	50	100
1	6	B	T	5	D	C	R	E	N	Reaction Engineering	2	1	0	0	3	4	50	50	100
1	6	B	T	5	D	C	G	E	N	Genetic Engineering	3	0	1	2	6	5	50	50	100
1	6	B	T	5	D	C	I	M	M	Immunotechnology	3	0	0	0	3	3	50	50	100
1	6	B	T	5	D	E	E	L	A	Elective-A	3	0	0	0	3	3	50	50	100
<b>Total</b>										<b>17</b>	<b>2</b>	<b>2</b>	<b>4</b>	<b>25</b>	<b>25</b>	<b>300</b>	<b>300</b>	<b>600</b>	

Elective A																			
Course Code										Course Title	Credit Hours/Week					Contact Hrs/wk	Marks		
											L	T	P	S	Total		CIE	SEE	Total
1	6	B	T	5	D	E	A	B	T	Animal Biotechnology	3	0	0	0	3	3	50	50	100
1	6	B	T	5	D	E	M	B	T	Microbial Biotechnology	3	0	0	0	3	3	50	50	100
1	6	B	T	5	D	E	H	P	H	Human Physiology	3	0	0	0	3	3	50	50	100
1	6	B	T	5	D	E	P	B	T	Plant Biotechnology	3	0	0	0	3	3	50	50	100

L-Lecture Hours/week, T-Tutorial Lecture Hours/week, P-Practical Lecture hours/week, S-Self-study  
 CIE-Continuous Internal Evaluation, SEE-Semester End Examination (of 3 Hours duration),

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Department/Cluster: BIOTECHNOLOGY/CHEMICAL

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Semester: VI

Course Code										Course Title	Credits/ hours per wk					Contact Hrs/ wk	Marks		
											L	T	P	S	Total		CIE	SEE	Total
1	6	B	T	6	D	C	B	P	T	Bioprocess Technology	3	0	1	2	6	5	50	50	100
1	6	B	T	6	D	C	E	T	K	Enzyme Technology & Kinetics	2	1	1	2	6	6	50	50	100
1	6	B	T	6	D	C	G	A	P	Genomics & Proteomics	3	0	0	0	3	3	50	50	100
1	6	B	T	6	D	C	P	B	T	Pharmaceutical Biotechnology	3	0	0	0	3	3	50	50	100
1	6	B	T	6	D	C	P	C	A	Process Control & Automation	2	1	1	0	4	6	50	50	100
1	6	B	T	6	D	E	E	L	B	Elective-B	3	0	0	0	3	3	50	50	100
<b>Total</b>										<b>16</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>25</b>	<b>26</b>	<b>300</b>	<b>300</b>	<b>600</b>	

Elective B																			
Course Code										Course Title	Credit Hours/Week					Contact Hrs/wk	Marks		
											L	T	P	S	Total		CIE	SEE	Total
1	6	B	T	6	D	E	M	T	E	Metabolic Engineering	3	0	0	0	3	3	50	50	100
1	6	B	T	6	D	E	B	I	B	Bioinstrumentation & Biosensors	3	0	0	0	3	3	50	50	100
1	6	B	T	6	D	E	G	I	N	Genome Informatics	3	0	0	0	3	3	50	50	100
1	6	B	T	6	D	E	F	B	T	Food Biotechnology	3	0	0	0	3	3	50	50	100

L-Lecture Hours/week; T-Tutorial Lecture Hours/week, P-Practical Lecture Hours/week, S- Self-study.  
 CIE-Continuous Internal Evaluation; SEE-Semester End Examination (of 3 Hours duration)

## SCHEME OF INSTRUCTION

Department/Cluster: BIOTECHNOLOGY/CHEMICAL

Program: BE

Semester: VII

Course Code										Course Title	Credits/ hours per wk					Contact Hrs/ wk	Marks		
											L	T	P	S	Total		CIE	SEE	Total
1	7	B	T	7	O	I	E	L	1	Institutional Elective-I	3	0	0	0	3	3	50	50	100
1	7	B	T	7	D	C	E	Q	D	Bioprocess Equipment Design and CAED	2	1	1	0	4	6	50	50	100
1	7	B	T	7	D	C	P	P	E	Process Plant design & Economics	2	1	0	0	3	4	50	50	100
1	7	B	T	7	D	C	B	I	P	Bioethics, Biosafety and IPR	3	0	0	2	5	3	50	50	100
1	7	B	T	7	D	C	M	P	R	Mini project	0	0	4	0	4	4	50	50	100
1	7	B	T	7	D	E	E	L	C	Elective-C	3	0	0	0	3	3	50	50	100
1	7	B	T	7	D	C	B	F	S	Biotechnology for society	1	0	0	2	3	1	50	50	100
<b>Total</b>										<b>14</b>	<b>2</b>	<b>5</b>	<b>4</b>	<b>25</b>	<b>24</b>	<b>300</b>	<b>300</b>	<b>600</b>	

### Elective C

Course Code										Course Title	Credit Hours/Week					Contact Hrs/wk	Marks		
											L	T	P	S	Total		CIE	SEE	Total
1	7	B	T	7	D	E	I	B	T	Industrial Biotechnology	3	0	0	0	3	3	50	50	100
1	7	B	T	7	D	E	A	M	T	Aqua & Marine BT	3	0	0	0	3	3	50	50	100
1	7	B	T	7	D	E	B	T	E	Biomaterials & Tissue Engineering	3	0	0	0	3	3	50	50	100
1	7	B	T	7	D	E	C	D	M	Clinical Data Management	3	0	0	0	3	3	50	50	100

L-Lecture Hours/week; T-Tutorial Lecture Hours/week; P-Practical Lecture Hours/week, S-Self-study  
 CIE-Continuous Internal Evaluation; SEE-Semester End Examination (of 3 Hours duration)

**SCHEME OF INSTRUCTION**

**Department/Cluster: BIOTECHNOLOGY/CHEMICAL**

**Program: BE**

**Semester: VIII**

Course Code											Course Title											Credit Hours/Week					Contact Hrs/week	Marks		
																						L	T	P	S	Total		CIE	SEE	Total
1	7	B	T	8	O	I	E	L	2		Institutional Elective-II	3	0	0	0	3	3	50	50	100										
1	7	B	T	8	D	C	P	M	F		Project management and Finance (HSS Core)	3	0	0	0	3	3	50	50	100										
1	7	B	T	8	D	E	E	L	D		Elective D	3	0	0	0	3	3	50	50	100										
1	7	B	T	8	D	C	P	R	W		Project work	0	0	10	0	10	10	50	50	100										
											HSS elective - MOOC/NSS/NCC/foreign language/yoga	2	0	0	0	2	2	50	50	100										
											Soft Skill	2	0	0	0	2	2	50	50	100										
											Internship/Industrial Training/technical seminar	0	0	2	0	2	2	50	50	100										
<b>Total</b>											<b>13</b>	<b>0</b>	<b>12</b>	<b>0</b>	<b>25</b>	<b>25</b>	<b>350</b>	<b>350</b>	<b>700</b>											

**Elective D**

Course Code											Course Title											Credit Hours/Week					Contact Hrs/wk	Marks		
																						L	T	P	Total		CIE	SEE	Total	
1	7	B	T	8	D	E	T	R	P		Transport Phenomena	3	0	0	3	3	50	50	100											
1	7	B	T	8	D	E	N	B	T		Nano-Biotechnology	3	0	0	3	3	50	50	100											
1	7	B	T	8	D	E	D	A	N		Data Analytics	3	0	0	3	3	50	50	100											
1	7	B	T	8	D	E	A	P	G		Advanced Programming	3	0	0	3	3	50	50	100											

**L**-Lecture Hours/week; **T**-Tutorial Lecture Hours/week; **P**-Practical Lecture Hours/week, **S**-Self-study

**CIE**-Continuous Internal Evaluation; **SEE**-Semester End Examination (of 3 Hours duration)