



**SCHOOL OF ENGINEERING AND SCIENCES**

**B.Sc., (Hons) Integrative Biology**

**2023-27 Batch**

Category Wise Credit Distribution

Course Sub-category	Subcategory Credits	Category Credits	Learning hours
<b>Ability Enhancement Courses (AEC)</b>		8	240
University AEC	4		
School AEC	4		
<b>Value Added Courses (VAC)</b>		8	240
University VAC	4		
School VAC	4		
<b>Skill Enhancement Courses (SEC)</b>		15	450
School SEC	7		
Department SEC	8		
SEC Elective			
<b>Multidisciplinary/Interdisciplinary /Foundation (MIC)</b>		17	
School MIC	17		
Department MIC			
<b>Core + Core Elective inclu Specialization (CC)</b>		80	2400
Core		64	
<b>Core Elective (Inc Specialization)</b>		16	
<b>Minor (MC) + Open Elective (OE)</b>		15	450
<b>Research / Design / Internship/ Project (RDIP)</b>		17	510
Internship / Design Project / Startup / NGO		5	
Internship / Research / Thesis		12	
<b>Total</b>		160	4800

**Semester Wise Course Credit Distribution Under Various Categories**

Semester										
Category	S1	S2	S3	S4	S5	S6	S7	S8	Total	%age
Ability Enhancement Courses (AEC)	2	2	2	2					8	5
Value Added Courses (UG Common) (VAC)	2	2	4*	4*	4*	4			8	5
Skill Enhancement Courses (SEC)	3	2	2	2	3	3			15	9.4
Multidisciplinary / Interdisciplinary / Foundation Core (MIC)	11	6							17	10.6
Major Core + Specialization (CC)		8	12	16	16	16	12		80	50
Minor (MC) + Open Elective (OE)			3	3	3	3	3		15	9.38
Research / Design / Industrial Practice / Project (RDIP)						0	5	12	16	10
<b>Grand Total</b>	<b>18</b>	<b>20</b>	<b>19</b>	<b>23</b>	<b>22</b>	<b>26</b>	<b>20</b>	<b>12</b>	<b>160**</b>	<b>100</b>

## B.Sc. - Integrative Biology

<b>Semester-1</b>							
<b>Category</b>	<b>Sub-Category</b>	<b>Course Title</b>	<b>L</b>	<b>T/D</b>	<b>P/Pr</b>	<b>Credits</b>	<b>Learning Hours</b>
AEC1	University	Art of Listening, Speaking and Reading Skills	1	0	1	2	60
VAC1	University	Environmental Science	2	0	0	2	60
SEC	School	Analytical Reasoning and Aptitude Skills	1	1	1	3	90
FIC	School	Chemical Basis of Life	2	1	3	3	90
FIC	School	Mathematics for the Physical World	2	1	3	3	90
FIC	School FIC	Fundamentals of Computing	2	0	1	3	90
FIC	School	Emerging Technologies	2	0	0	2	60
<b>Semester Total</b>						<b>18</b>	<b>540</b>
<b>Semester-2</b>							
<b>Category</b>	<b>Sub-Category</b>	<b>Course Title</b>	<b>L</b>	<b>T/D</b>	<b>P/Pr</b>	<b>Credits</b>	<b>Learning Hours</b>
AEC2	University	Effective Writing and Presentation Skills	2	0	0	2	60
VAC2	University	Universal Human Values and Ethics	2	0	0	2	60
SEC2	School	Entrepreneurial Mindset	0	0	2	2	60
FIC	School FIC	Principles of Management	3	0	0	3	90
FIC	School FIC	Psychology for Everyday Living	3	0	0	3	90
Core	Department	Biomolecules	3	0	1	4	120
Core	Department	Basic concepts in Microbiology	3	0	1	4	120
<b>Semester Total</b>						<b>20</b>	<b>600</b>

Semester-3							
			L	T/D	P/Pr	Credits	Learning Hours
Category	Sub-Category	Course Title					
AEC	School	Problem Solving Skill	1	0	1	2	60
VAC	School	Co-Curricular Activities	0	0	2	2*	0
VAC	School	Community Service and Social Responsibility	1	0	1	2*	0
SEC	School	Digital Literacy	1	0	1	2	60
Core	Department	Metabolism of Biomolecules	3	0	1	4	120
Core	Department	Cell Biology	3	0	1	4	120
Core	Department	Concepts of Genetics	3	0	1	4	120
Core	Department	Evolutionary Biology	3	0	1	4	120
Minor	School		3	0	0	3	90
<b>Semester Total</b>						23	<b>690</b>
Semester-4							
Category	Sub-Category	Course Title	L	T/D	P/Pr	Credits	Learning Hours
VAC	School VAC	Co-Curricular Activities	0	0	2	2*	0
VAC	School VAC	Community Service and Social Responsibility	1	0	1	2*	0
SEC	University	Career Skill-I: Resume Writing, Group Discussion, and Interview	3	0	0	3	90
AEC	School	Creativity and Critical thinking Skills	2	0	0	2	60
Core	Department	Concepts of Molecular Biology	3	0	1	4	120
Core	Department	Experimental Methods of Biology	3	0	1	4	120
Core	Department	Introductory Biophysics	3	0	1	4	120
Core							
Minor	School		3	0	0	3	90
<b>Semester Total</b>						20	<b>600</b>

Semester-5							
Category	Sub-Category	Course Title	L	T/D	P/Pr	Credits	Learning Hours
VAC	School VAC	Co-Curricular Activities	0	0	2	2*	0
VAC	School VAC	Community Service and Social Responsibility	1	0	1	2*	0
SEC5	School	Career Skill-II: Research Paper Writing	3	0	0	3	90
Core	Department	Introduction to developmental Biology	3	0	1	4	120
Core	Department	Genetic Engineering	3	0	1	4	120
Core	Department	Immunobiology	3	0	1	4	120
Core	Department	Plant and Animal physiology	3	0	1	4	120
Minor	School		3	0	0	3	90
<b>Semester Total</b>						<b>22</b>	<b>660</b>
Semester-6							
Category	Sub-Category	Course Title	L	T/D	P/Pr	Credits	Learning Hours
VAC	School VAC	Co-Curricular Activities	0	0	2	2	60
VAC	School VAC	Community Service and Social Responsibility	1	0	1	2	60
Core	Department	Introduction to Biotechnology	3	0	1	4	120
Core	Department	Fundamentals of Bioinformatics	3	0	1	4	120
Core	Department	Neurobiology	3	0	1	4	120
CE/SE	Department					4	
CE/SE	Department					4	
Minor	School		3	0	0	3	90
<b>Semester Total</b>						<b>27</b>	<b>810</b>

Semester-7							
Category	Sub-Category	Course Title	L	T/D	P/Pr	Credits	Learning Hours
CC	CE	Signal transduction	3	0	1	4	120
CC	CE	Introduction to Omics	3	0	1	4	120
CC	CE	Cancer and stem cell biology	3	0	1	4	120
RDIP		Mini Project	0	0	5	5	150
Minor	School		3	0	0	3	90
<b>Semester Total</b>						<b>19</b>	<b>600</b>
Semester-8							
Category	Sub-Category	Course Title	L	T/D	P/Pr	Credits	Learning Hours
RDIP		Project	0	0	12	12	360
<b>Semester Total</b>						<b>12</b>	<b>360</b>

<b>Core Electives</b>	
1	Signal transduction
2	Introduction to Omics
3	Cancer and stem cell biology
4	Enzymology
5	Biostatistics
6	Ecology
7	Population Genetics
8	Proteomics
9	Computational Biology
10	Bio nanotechnology



<b>Minor Program in Biological Sciences</b>	
1	Biochemical foundation of life
2	Cell biology
3	Human Physiology
4	Molecular Biology
5	Bioinformatics