



॥ त्वं ज्ञानमयो विद्वानमयोऽसि ॥

## 2<sup>nd</sup> year B.Tech. Bioscience & Bio Engineering Program Structure For AY 2020-21

Cat	Course	LTP	CH	NC	GC	Cat	Course	LTP	CH	N C	GC
<b>I Semester</b>						<b>II Semester</b>					
IE	Engineering Mechanics	2-1-0	3	-	3	IE	Introduction to Electrical Engineering	3-0-2	5	-	4
IS	Chemistry	3-0-0	3	-	3	IE	Introduction to Computer Science	3-0-2	5	-	4
IS	Physics	3-0-0	3	-	3	IE	Introduction to Bioengineering	3-0-2	5	-	4
IS	Chemistry Lab	0-0-2	2	-	1						
IS	Physics Lab	0-0-2	2	-	1						
IS	Mathematics I	3-1-0	4	-	4	IS	Mathematics II	3-1-0	4	-	4
IE	Engineering Visualization	0-0-2	2	-	1	IE	Engineering Realization	0-0-2	1	-	1
NE	Engineering Design I	0-0-2	2	1	-	NE	Engineering Design II	0-0-2	2	1	-
NH	Communication Skill I	0-0-2	2	1	-	NH	Communication Skill II	0-0-2	2	1	-
NH	Social Connect and responsibilities I	0-0-1	1	0.5	-	NH	Social Connect and responsibilities II	0-0-1	1	0.5	-
NH	Performing Arts I /Sports I	0-0-1	1	0.5	-	NH	Performing Arts II/Sports II	0-0-1	1	0.5	-
<b>Total</b>		<b>11-2-12</b>	<b>25</b>	<b>3</b>	<b>16</b>	<b>Total</b>		<b>12-1-14</b>	<b>27</b>	<b>3</b>	<b>17</b>
<b>III Semester</b>						<b>IV Semester</b>					
LS	Probability, statistics and stochastic process	3-1-0	4	-	4	IE	Materials Science & Engineering F1: Materials selection, F2: Structure of materials, F3: Polymers	3 × (1-0-0)	3	-	3
IE	Signals and Systems	3-1-0	4	-	4	IE	Thermodynamics	3-1-0	4	-	4
IE	Introduction to Machine Learning	3-0-2	5	-	4	PC	Data Structure and Algorithm	3-0-2	5	-	4
PC	Biochemistry	3-0-0	3	-	3	PC	Concepts & Dynamics: Molecular Cell Biology	2-0-2	4	-	3
PC	Microbiology	3-0-2	5	-	4	PC		3-0-0	3	-	3

						PC	The Human Immune System: Mechanisms to Detect, Defend and Attack  Biochemistry Laboratory	0-0-2	2	-	1
LS	Nanoscience	3-0-0	3	-	3	IH	Humanities I	3-0-0	3	-	3
NE	Intro. To Profession	0-0-2	2	1							
<b>Total</b>		<b>18-2-6</b>	<b>26</b>	<b>1</b>	<b>22</b>	<b>Total</b>		<b>17-1-6</b>	<b>24</b>	<b>-</b>	<b>21</b>
<b>V Semester</b>						<b>VI Semester</b>					
PC	<b>Programme Compulsory</b>					PC	<b>Programme Compulsory</b>				
	Computational and System Biology	3-0-2	5	-	4		Introductory Omics	3-0-0	3	-	3
	The Human Machine for Engineers: Quantitative Physiology	3-0-0	3	-	3		Biomaterials Engineering	3-0-1	4	-	3.5
	Genetics and Gene Manipulation	3-0-2	5	-	4		Biophysics & Structural Biology	3-0-3	6	-	4.5
	Biosensors	3-0-2	5	-	4		Deep Learning	3-0-0	3	-	3
				-			Bioimaging				
	Program Elective -I	3-0-0	3		3						
IH	Humanities II	3-0-0	3	-	3	PE	Program Elective -II	3-0-0	3		3
NH	Professional Ethics I	0-1-0	1	1	-	NH	Professional Ethics II	0-1-0	1	1	-
<b>Total</b>		<b>18-1-6</b>	<b>25</b>	<b>1</b>	<b>21</b>	<b>Total</b>		<b>18-1-4</b>	<b>23</b>	<b>1</b>	<b>20</b>
<b>VII Semester</b>						<b>VIII Semester</b>					
PP	B. Tech. Project	0-0-6	6	-	3	IH	Humanities IV	3-0-0	3	-	3
PE/ OE	Programme Elective-III &IV	6-0-0	6	-	6	PE/ OE	Programme Elective 5&6	6-0-0	6	-	6
	Open Electives -I&II	6-0-0	6		6		Open Electives - III & IV	4-0-0	4		4
IH	Humanities III	3-0-0	3		3						
IS	Environmental Science	2-0-0	2	-	2						
<b>Total</b>		<b>17-0-6</b>	<b>23</b>	<b>-</b>	<b>20</b>	<b>Total</b>		<b>13-0-0</b>	<b>13</b>	<b>-</b>	<b>13</b>
<b>Total of graded and Non-Graded Credit</b>									<b>9</b>	<b>150</b>	
<b>Non-Graded Design Credits</b>									<b>6</b>	<b>-</b>	
<b>Grand Total</b>									<b>1</b>	<b>165</b>	<b>5</b>

**Note:** ES are proposed Engineering Science compulsory courses