

**Department of Information Technology (In-house)**  
**Syllabus of B.Sc. in Information Technology (Data Science)**  
**(Effective from academic session 2019-20)**

**Curriculum Structure**

Semester I							
Sl. No.	CBCS Category	Course Code	Course Name	L	T	P	Credits
<b>Theory</b>							
1	C-1	BITDS101	Programming For Problem Solving	3	0	0	3
2	SEC-1	BITDS102	Electrical and Electronics Engineering	3	0	0	3
3	AECC-1	BITDS103	Soft Skills	3	0	0	3
4	GE-1	BITDS104	Mathematics for Computer Science	3	1	0	4
5	DSE-1	BITDS105	Introduction to AI & Machine Learning	3	1	0	4
6	C-2	BITDS106	Introduction to Data Science	3	1	0	4
<b>Practical</b>							
1		BITDS191	Programming For Problem Solving Lab	0	0	4	2
2		BITDS192	Electrical and Electronics Engineering Lab	0	0	4	2
3		BITDS193	Soft Skills Lab	0	0	2	1
<b>Total Credit</b>							26
Semester II							
Sl. No.		Course Code	Course Name	L	T	P	Credits
<b>Theory</b>							
1	C-3	BITDS201	Data Acquisition & Processing	3	0	0	3
2	C-4	BITDS202	Data Structure and Algorithm with Python	3	0	0	3
3	GE-2	BITDS203	Discrete Mathematics	3	1	0	4
4	AECC-2	BITDS204	Environmental Science	1	0	0	1
<b>Practical</b>							

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1		BITDS291	Data Acquisition & Processing Lab	0	0	4	2
2		BITDS292	Data Structure and Algorithm with Python Lab	0	0	4	2
3	SEC-2	BITDS293	Computer Aided Design and Drawing Lab	0	0	4	2
<b>Sessional</b>							
1		BITDS281	Project -I	0	0	2	1
<b>Total Credit</b>							18
<b>Semester III</b>							
<b>Sl. No.</b>	<b>CBCS Category</b>	<b>Course Code</b>	<b>Course Name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Credits</b>
<b>Theory</b>							
1	C-5	BITDS301	Operating System	3	0	0	3
2	C-6	BITDS302	Database Management System	3	0	0	3
3	GE-3	BITDS303	Probability & Statistics	3	1	0	4
4	C-7	BITDS304	Data Mining & Data Warehousing	3	1	0	4
5	SEC-3	BITDS305	Value & Ethics in Data Science	3	0	0	3
<b>Practical</b>							
1		BITDS391	Operating System Lab	0	0	4	2
2		BITDS392	Database Management System Lab	0	0	4	2
<b>Total Credit</b>							21

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Semester IV							
Sl. No.		Course Code	Course Name	L	T	P	Credits
<b>Theory</b>							
1	C-8	BITDS401	Machine Learning for Data Science in R	3	0	0	3
2	DSE-2	BITDS402	<b>Elective I</b>	3	0	0	3
			A. Descriptive Analytics				
			B. Deep Learning				
			C. Real Time Analytics				
3	C-9	BITDS403	Graphs-Algorithms and Mining	3	1	0	4
4	GE-4	BITDS404	Inferential Statistics	3	1	0	4
<b>Practical</b>							
1		BITDS491	Machine Learning for Data Science in R Lab	0	0	4	2
2		BITDS492	<b>Elective I</b>	0	0	4	2
			A. Descriptive Analytics Lab				
			B. Deep Learning Lab				
			C. Real Time Analytics Lab				
<b>Sessional</b>							
1	SEC-4	BITDS481	Technical Seminar and Communication Skill	0	0	2	1
2		BITDS482	Project -II	0	0	4	2
			<b>Total Credit</b>				<b>21</b>

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Semester V							
Sl. No.	CBCS Category	Course Code	Course Name	L	T	P	Credits
<b>Theory</b>							
1	C-10	BITDS501	Signal Processing	3	0	0	3
2	DSE-3	BITDS502	<b>Elective – II</b>	3	0	0	3
			A. Translational Bioinformatics				
			B. Cloud Computing				
			C. Predictive & Prognostic Analytics				
3	C-11	BITDS503	Information and Coding Theory	3	1	0	4
4	C-12	BITDS504	Optimisation Techniques in Data Analysis	3	1	0	4
<b>Practical</b>							
1		BITDS591	Signal Processing Lab	0	0	4	2
2		BITDS591	<b>Elective – II</b>	0	0	4	2
			A. Translational Bioinformatics Lab				
			B. Cloud Computing Lab				
			C. Predictive & Prognostic Analytics Lab				
<b>Sessional</b>							
1		BITDS581	Major Project- I	0	0	4	2
2		BITDS582	Industrial Training and Presentation	0	0	4	2
<b>Total Credit</b>							<b>22</b>

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Semester VI							
Sl. No.		Course Code	Course Name	L	T	P	Credits
<b>Theory</b>							
1	C-13	BITDS601	Big Data Analytics	3	0	0	3
2	C-14	BITDS602	Computer Vision & Image Processing	3	0	0	3
3	DSE-4	BITDS603	<b>Elective -III</b>	3	0	0	3
			A. Machine Learning for Financial Modelling and Forecasting				
			B. Applied Machine Learning for Medical Image Analysis				
			C. Data Warehousing				
4	C-15	BITDS604	Natural Language Processing	3	1	0	4
<b>Practical</b>							
1		BITDS691	Big Data Analytics Lab	0	0	4	2
2		BITDS692	Computer Vision & Image Processing Lab	0	0	4	2
<b>Sessional</b>							
5		BITDS681	Grand Viva Voce	0	0	2	1
6	DSE-5	BITDS682	Major Project -II	0	0	4	2
			<b>Total Credit</b>				20



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Semester	Credit
I	26
II	18
III	21
IV	21
V	22
VI	20
<b>TOTAL</b>	<b>128</b>

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CBCS Category	CODE
CORE COURSE	C
Ability Enhancement Compulsory Course	AECC
Skill Enhancement Course	SEC
Elective: Discipline Specific	DSE
Elective: Generic	GE