

**MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WB**  
**(Formerly West Bengal University of Technology)**  
**Syllabus for B.Sc.in Data Science (Industry Induced)**  
 (Effective for Students Admitted in Academic Session 2019-2020)  
**PROGRAM STRUCTURE**

**1<sup>ST</sup> YEAR**

SL No	CODE	Paper	Contact Periods per week			Total Contact Hours	Credits
			L	T	P		
<b>SEMESTER I</b>							
<b>Theory</b>							
1	DSI-101	Fundamental of Computing	3	0	0	3	3
2	DSI-102	Mathematics for Data Scientists-I	3	1	0	4	4
3	DSI(HU)-103	English Communication	3	1	0	4	4
4	DSI-104	Introduction to Data Science	3	0	0	3	3
5	DSI-105	Computational Statistics-I	3	0	0	3	3
<b>Practical</b>							
1	DSI-191	Fundamental of Computing	0	0	2	2	1
2	DSI-192	Introduction to Data Science (with tool based excel Lab)	0	0	2	2	1
3	DSI-193	Computational Statistics-I (R-Lab)	0	0	2	2	1
<b>Total</b>			<b>20</b>				
<b>SEMESTER II</b>							
<b>Theory</b>							
1	DSI-201	Mathematics for Data Scientists-II	3	1	0	4	4
2	DSI-202	Data Structures and Algorithms	3	0	0	3	3
3	DSI(HU)-203	Environmental Science	3	1	0	4	4
4	DSI-204	Computational Statistics-II	3	0	0	3	3
5	DSI-205	Management Concepts & Marketing Research	3	1	0	4	4
<b>Practical</b>							
1	DSI-291	Data Structures and Algorithms	0	0	2	2	1
2	DSI-292	Computational Statistics-II (R-Lab)	0	0	2	2	1
<b>Total</b>			<b>20</b>				

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**2<sup>ND</sup> YEAR**

SL No	CODE	Paper	Contact Periods per week			Total Contact Hours	Credits
			L	T	P		
<b>SEMESTER III</b>							
<b>Theory</b>							
1	DSI-301	Database Management Systems & Data Manipulation (Using PL / SQL Programming)	3	0	0	3	3
2	DSI-302	Inferential Statistics	3	1	0	4	4
3	DSI-303	Operating System & system programming	3	0	0	3	3
4	DSI-304	Computer Networks & cryptography	3	0	0	3	3
5	DSI-305	Object Oriented Concepts	3	0	0	3	3
<b>Practical</b>							
1	DSI-391	Database Management Systems & Data Manipulation (Using PL / SQL Programming)	0	0	2	2	1
2	DSI-392	Operating System & system programming (LINUX)	0	0	2	2	1
3	DSI-393	Computer Networks & cryptography	0	0	2	2	1
4	DSI-394	Object Oriented Concepts (Java/R/Python)	0	0	2	2	1
<b>Total</b>			<b>20</b>				
<b>SEMESTER IV</b>							
<b>Theory</b>							
1	DSI-401	Times Series Analysis	3	0	0	3	3
2	DSI-402	Machine Learning Algorithms - I (Tool Based)	3	0	0	3	3
3	DSI-403	Artificial Intelligence	3	1	0	4	4
4	DSI-404	Software Engineering & software design with UML	3	0	0	3	3
5	DSI-405	Exploratory & Big Data Analytics	3	0	0	3	3
<b>Practical</b>							
1	DSI-491	Times Series Analysis	0	0	2	2	1
2	DSI-492	Machine Learning Algorithms - I (Tool Based)	0	0	2	2	1
3	DSI-493	Software Engineering & software design with UML	0	0	2	2	1
4	DSI-494	Exploratory & Big Data Analytics (Tool Based)	0	0	2	2	1
<b>Total</b>			<b>20</b>				

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**3<sup>RD</sup> YEAR**

SL No	CODE	Paper	Contact Periods per week			Total Contact Hours	Credits
			L	T	P		
<b>SEMESTER V</b>							
<b>Theory</b>							
1	DSI-501	Machine Learning Algorithms - II (with Data visualization--Tool Based)	3	0	0	3	3
2	DSI-502	Data Science Project Management & Industry use cases	3	1	0	4	4
3	DSI-503	Decision Support Systems and Actionable Intelligence	3	1	0	4	4
4	DSI(PE)-504A	Cognitive Science & Analytics	3	0	0	3	3
	DSI(PE)-504B	Social Web Analytics (or Web, Internet of Things, and Social Media Mining)					
	DSI(PE)-504C	Bioinformatics					
5	DSI(PE)-505A	Cloud Computing & Micro services	3	0	0	3	3
	DSI(PE)-505B	Soft Computing					
	DSI(PE)-505C	Image Processing & Pattern Recognition					
<b>Practical</b>							
1	DSI-591	Machine Learning Algorithms - II (with Data visualization--Tool Based)	0	0	2	2	1
2	DSI-592	Elective-1	0	0	2	2	1
3	DSI-593	Elective-2	0	0	2	2	1
<b>Total</b>						<b>20</b>	
<b>SEMESTER VI</b>							
1	DSI-601	Advanced Data Analytics (Stream, Sensor (IoT) and Spatio-temporal Analysis) & Real Time data Processing	3	0	0	3	3
2	DSI(PE)-602A	Advance Neural Networks & Deep Learning	3	1	0	4	4
	DSI(PE)-602B	Predictive Modelling (with SAS, SPSS)					
	DSI(PE)-602C	Data Mining & Data Warehouse					
<b>Practical</b>							
1	DSI-691	<b>Project</b>	0	0	24	24	12
2	DSI-692	Advanced Data Analytics (Stream, Sensor and Spatio-temporal Analysis) & Real Time data Processing	0	0	2	2	1
<b>Total</b>						<b>20</b>	

Total credits in the Program: 120 credits

Honours degree requirements: Additional 16 credits from MOOCS of the MOOCS basket