

## B.Tech Artificial Intelligence and Data Science – Curriculum & Syllabus

**REGULATIONS - 2020**  
**CHOICE BASED CREDIT SYSTEM**  
**B.Tech. ARTIFICIAL INTELLIGENCE AND DATA SCIENCE**  
**I TO VIII SEMESTERS CURRICULUM AND SYLLABUS**

<b>SEMESTER I</b>								
S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	TOTAL CONTACT PERIODS	PERIODS PER WEEK			CREDITS
					L	T	P	
<b>THEORY</b>								
1	UHS1151	Technical English - I	HS	3	3	0	0	3
2	UMA1151	Mathematics - I	BS	4	3	1	0	4
3	UPH1151	Engineering Physics - I	BS	3	3	0	0	3
4	UCY1151	Engineering Chemistry	BS	3	3	0	0	3
5	UGE1151	Python Programming and Problem Solving	ES	3	3	0	0	3
<b>THEORY CUM PRACTICAL</b>								
6	UBE1161	Basic Civil and Mechanical Engineering (Theory + Lab)	ES	5	3	0	2	4
<b>PRACTICALS</b>								
7	UBS1161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
8	UGE1161	Python Programming and Problem Solving Laboratory	ES	4	0	0	4	2
<b>TOTAL</b>				<b>29</b>	<b>18</b>	<b>1</b>	<b>10</b>	<b>24</b>
<b>SEMESTER II</b>								
S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	TOTAL CONTACT PERIODS	PERIODS PER WEEK			CREDITS
					L	T	P	
<b>THEORY</b>								
1	UHS1251	Technical English - II	HS	3	3	0	0	3
2	UMA1251	Mathematics - II	BS	4	3	1	0	4
3	UPH1251	Engineering Physics - II	BS	3	3	0	0	3
4	UGE1251	Environmental Science and Engineering	HS	3	3	0	0	3
5	UGE1252	C Programming	ES	3	3	0	0	3
6	UGE1253	Engineering Graphics	ES	5	1	0	4	3
7	UHS1252	Professional skills - I	EEC	2	0	0	2	1
<b>THEORY CUM PRACTICAL</b>								
8	UBE1261	Basic Electrical and Electronics Engineering (Theory + Lab)	ES	4	2	0	2	3
<b>PRACTICALS</b>								
9	UGE1261	C Programming Laboratory	ES	4	0	0	4	2
<b>TOTAL</b>				<b>31</b>	<b>18</b>	<b>1</b>	<b>12</b>	<b>25</b>

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SEMESTER III								
S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	TOTAL CONTACT PERIODS	PERIODS PER WEEK			CREDITS
					L	T	P	
<b>THEORY</b>								
1	UMA1353	Linear Algebra and Discrete Mathematics	BS	4	3	1	0	4
2	UEC1353	Analog and Digital Electronics	ES	3	3	0	0	3
3	UAD1301	Data Structures and Algorithm Analysis	PC	3	3	0	0	3
4	UAD1302	Computer Organization and Architecture	PC	3	3	0	0	3
5	UAD1303	Object Oriented Programming	PC	3	3	0	0	3
6	UAD1304	Data Analytics	PC	3	3	0	0	3
7	UHS1351	Professional Skills - II	EEC	2	0	0	2	1
<b>PRACTICALS</b>								
8	UEC1363	Analog and Digital Electronics Laboratory	ES	4	0	0	4	2
9	UAD1311	Data Structures and Algorithms Laboratory	PC	4	0	0	4	2
10	UAD1312	Object Oriented Programming Laboratory	PC	4	0	0	4	2
<b>TOTAL</b>				<b>33</b>	<b>18</b>	<b>1</b>	<b>14</b>	<b>26</b>
SEMESTER IV								
S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	TOTAL CONTACT PERIODS	PERIODS PER WEEK			CREDITS
					L	T	P	
<b>THEORY</b>								
1	UMA1456	Probability and Statistics	BS	4	3	1	0	4
2	UAD1401	Artificial Intelligence - I	PC	3	3	0	0	3
3	UAD1402	Operating System Concepts	PC	3	3	0	0	3
4	UCS1403	Software Engineering	PC	3	3	0	0	3
5	UAD1403	Database Design and Management	PC	3	3	0	0	3
6	UAD1404	Fundamentals of Data Science	PC	4	4	0	0	4
7	UHS1451	Professional Skills – III	EEC	2	0	0	2	1
<b>PRACTICALS</b>								
8	UAD1411	Fundamentals of Data Science Laboratory	PC	4	0	0	4	2
9	UAD1412	Database Design and Management Laboratory	PC	4	0	0	4	2
10	UHS1361	Interpersonal Skills Laboratory	HS	2	0	0	2	1
<b>TOTAL</b>				<b>32</b>	<b>19</b>	<b>1</b>	<b>12</b>	<b>26</b>

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SEMESTER V								
S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	TOTAL CONTACT PERIODS	PERIODS PER WEEK			CREDITS
					L	T	P	
<b>THEORY</b>								
1	UAD1501	Artificial Intelligence - II	PC	3	3	0	0	3
2	UAD1502	Data Communications and Networking	PC	3	3	0	0	3
3	UAD1503	Optimization Techniques	PC	3	3	0	0	3
4	UAD1504	Data Mining and Visualization	PC	3	3	0	0	3
5	UAD1505	Machine Learning Techniques	PC	4	4	0	0	4
6		Professional Elective I	PE	3	3	0	0	3
7	UHS1551	Professional Skills – IV	EEC	2	0	0	2	1
<b>PRACTICALS</b>								
8	UAD1511	Machine Learning Techniques Laboratory	PC	4	0	0	4	2
9	UAD1512	Data Mining and Visualization Laboratory	PC	4	0	0	4	2
<b>MANDATORY COURSE</b>								
10	UAD1581	MOOC Certificate Course	MC	2	2	0	0	0
<b>TOTAL</b>				<b>31</b>	<b>21</b>	<b>0</b>	<b>10</b>	<b>24</b>
SEMESTER VI								
S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	TOTAL CONTACT PERIODS	PERIODS PER WEEK			CREDITS
					L	T	P	
<b>THEORY</b>								
1	UAD1601	Web Technology	PC	3	3	0	0	3
2	UAD1602	Big Data Technologies	PC	3	3	0	0	3
3	UAD1603	Computer Vision	PC	3	3	0	0	3
4	UAD1604	Data and Information Security	PC	3	3	0	0	3
5		Professional Elective – II	PE	3	3	0	0	3
6		Professional Elective – III	PE	3	3	0	0	3
<b>PRACTICALS</b>								
7	UAD1611	Web Technology Laboratory	PC	4	0	0	4	2
8	UAD1612	Big Data Technologies Laboratory	PC	4	0	0	4	2
9	UHS1561	Professional Communication Laboratory	HS	4	0	0	4	2
<b>MANDATORY COURSE</b>								
10	UAD1691	Yoga for Health Care	MC	2	0	0	2	0
<b>TOTAL</b>				<b>32</b>	<b>18</b>	<b>0</b>	<b>14</b>	<b>24</b>

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SEMESTER VII								
S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	TOTAL CONTACT PERIODS	PERIODS PER WEEK			CREDITS
					L	T	P	
<b>THEORY</b>								
1	UAD1701	Deep Learning Techniques	PC	4	4	0	0	4
2	UAD1702	Internet of Things	PC	3	3	0	0	3
3	UAD1703	Streaming Analytics	PC	3	3	0	0	3
4		Professional Elective – IV	PE	3	3	0	0	3
5		Open Elective – I	OE	3	3	0	0	3
<b>PRACTICALS</b>								
6	UAD1711	Deep Learning Techniques Laboratory	PC	4	0	0	4	2
7	UAD1712	Project Phase - I	EEC	8	0	0	8	4
<b>TOTAL</b>				<b>28</b>	<b>16</b>	<b>0</b>	<b>12</b>	<b>22</b>
<b>SEMESTER VIII</b>								
S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	TOTAL CONTACT PERIODS	PERIODS PER WEEK			CREDITS
					L	T	P	
<b>THEORY</b>								
1	UAD1801	Information Retrieval	PC	3	3	0	0	3
2		Professional Elective – V	PE	3	3	0	0	3
3		Open Elective – II	OE	3	3	0	0	3
<b>PRACTICALS</b>								
4	UAD1811	Project Phase - II	EEC	12	0	0	12	6
<b>TOTAL</b>				<b>21</b>	<b>9</b>	<b>0</b>	<b>12</b>	<b>15</b>

**TOTAL NO OF CREDITS: 186**

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### PROFESSIONAL ELECTIVE – I (SEMESTER V)

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	TOTAL CONTACT PERIODS	PERIODS PER WEEK			CREDITS
					L	T	P	
1	UAD1001	Advanced Python Programming	PE	3	3	0	0	3
2	UCS1003	R Language	PE	3	3	0	0	3
3	UAD1002	Mobile Application Development	PE	3	3	0	0	3
4	UMG1052	Total Quality Management	PE	3	3	0	0	3

### PROFESSIONAL ELECTIVE – II (SEMESTER VI)

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	TOTAL CONTACT PERIODS	PERIODS PER WEEK			CREDITS
					L	T	P	
1	UCS1011	Distributed System	PE	3	3	0	0	3
2	UCS1019	Soft Computing	PE	3	3	0	0	3
3	UAD1003	Pattern Recognition	PE	3	3	0	0	3
4	UAD1004	Theory of Computation	PE	3	3	0	0	3

### PROFESSIONAL ELECTIVE – III (SEMESTER VI)

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	TOTAL CONTACT PERIODS	PERIODS PER WEEK			CREDITS
					L	T	P	
1	UAD1005	Natural Language Processing	PE	3	3	0	0	3
2	UAD1006	Virtual Reality	PE	3	3	0	0	3
3	UMG1053	Principles of Management	PE	3	3	0	0	3
4	UAD1007	Social Network Analytics	PE	3	3	0	0	3

### PROFESSIONAL ELECTIVE – IV (SEMESTER VII)

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	TOTAL CONTACT PERIODS	PERIODS PER WEEK			CREDITS
					L	T	P	
1	UAD1008	Software Testing and Quality Assurance	PE	3	3	0	0	3
2	UMG1054	Professional Ethics in Engineering	PE	3	3	0	0	3
3	UAD1009	Cyber Security	PE	3	3	0	0	3
4	UCS1701	Cloud Computing	PE	3	3	0	0	3

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### PROFESSIONAL ELECTIVE – V (SEMESTER VIII)

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	TOTAL CONTACT PERIODS	PERIODS PER WEEK			CREDITS
					L	T	P	
1	UCS1704	Human Computer Interaction	PE	3	3	0	0	3
2	UAD1010	Predictive Analysis	PE	3	3	0	0	3
3	UCS1015	Quantum Computing	PE	3	3	0	0	3
4	UGE1051	Human Rights	PE	3	3	0	0	3

### OPEN ELECTIVE – I (SEMESTER VII)

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	TOTAL CONTACT PERIODS	PERIODS PER WEEK			CREDITS
					L	T	P	
1.	OEE1752	Microprocessors, Microcontrollers and Applications	OE	3	3	0	0	3
2.	OEC1754	Wireless Sensor Networks	OE	3	3	0	0	3
3.	OME1753	Industrial Safety Engineering	OE	3	3	0	0	3
4.	OEE1753	Fundamentals of Electric and Hybrid Vehicles	OE	3	3	0	0	3
5.	OMG1752	Intellectual Property Rights	OE	3	3	0	0	3

### OPEN ELECTIVE – II (SEMESTER VIII)

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	TOTAL CONTACT PERIODS	PERIODS PER WEEK			CREDITS
					L	T	P	
6	OIT1851	Block Chain	OE	3	3	0	0	3
7	OEC1852	Bio-Medical Electronics	OE	3	3	0	0	3
8	OME1852	Product Design and Development	OE	3	3	0	0	3
9	OME1853	Robotics	OE	3	3	0	0	3
10	OMG1856	Self Development and Entrepreneurship	OE	3	3	0	0	3

**HOD**

**Member Secretary**

**Academic Council Chairman**