

**Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur**  
**Scheme of B.Tech.**  
**Four Year Course**

**Computer Science & Engineering (Data Science)**  
**B.Tech. III Sem Effective from Session 2022-23**

<b>B.Tech. Third semester CSE(DS)</b>									
Sr. No.	Subject	Teaching schemes			Evaluation Schemes			Credits	Category
		L	T	P	CA	UE	Total		
1	Mathematical foundations for Data Science	3	1	-	30	70	100	4	BSC
2	Object Oriented Programming	4	-	-	30	70	100	4	PCC-CS
3	Computer Architecture and Digital System	3	-	-	30	70	100	3	ESC
4	Operating System	3	1	-	30	70	100	4	PCC-CS
5	Ethics in IT	3	-	-	30	70	100	3	PCC-CS
6	Universal Human Values	2	-	-	15	35	50	2	HSMC
7	Object Oriented Programming-Lab	-	-	2	25	25	50	1	PCC-CS
8	Operating System-Lab	-	-	2	25	25	50	1	PCC-CS
9	Computer Workshop -I Lab	-	-	2	25	25	50	1	PCC-CS
10	Environment sciences (Audit Course)	2	-	-	-	-	-	Audit	HSMC
<b>Total</b>		<b>20</b>	<b>2</b>	<b>6</b>	<b>240</b>	<b>460</b>	<b>700</b>	<b>23</b>	

<b>B.Tech. Fourth semester CSE(DS)</b>									
Sr. No.	Subject	Teaching schemes			Evaluation Schemes			Credits	Category
		L	T	P	CA	UE	Total		
1	Discrete Mathematics and Graph Theory	3	1	-	30	70	100	4	BSC
2	Data Structure and Program Design	3	-	-	30	70	100	3	PCC-CS
3	Database Management System	3	-	-	30	70	100	3	PCC-CS
4	Computer Network	3	-	-	30	70	100	3	PCC-CS
5	Theory of Computations	3	1	-	30	70	100	4	PCC-CS
6	System Programming	3	-	-	30	70	100	3	PCC-CS
7	Data Structure and Program Design-Lab	-	-	2	25	25	50	1	PCC-CS
8	Database Management System- Lab	-	-	2	25	25	50	1	PCC-CS
9	Computer Network-Lab	-	-	2	25	25	50	1	PCC-CS
10	Consumer Affairs	2	-	-	-	-	-	Audit	MCC
11	Industry Internship(Minimum 4 Weeks)	-	-	2	50	-	50	1	PROJ-CS
<b>Total</b>		<b>20</b>	<b>2</b>	<b>8</b>	<b>305</b>	<b>495</b>	<b>800</b>	<b>24</b>	

*S.L. Harid*  
*Dr. V. P. Belpande*

*(Mrs. B. P. Dhawant)*

*M. Anilchandani*  
*M. Anilchandani*

*Dr. S.V. Sonelkar*  
 Chairman BOS

B.Tech. Fifth semester CSE(DS)									
Sr. No.	Subject	Teaching schemes			Evaluation Schemes			Credits	Category
		L	T	P	CA	UE	Total		
1	Software Engineering & Project Management	3	-	-	30	70	100	3	PCC-CS
2	Artificial Intelligence	3	-	-	30	70	100	3	PCC-CS
3	Language Processor	3	1	-	30	70	100	4	PCC-CS
4	Elective-I	3	-	-	30	70	100	3	PEC-CS
5	Software Engineering & Project Management-Lab	-	-	2	25	25	50	1	PCC-CS
6	Artificial Intelligence -Lab	-	-	2	25	25	50	1	PCC-CS
7	Language Processor-Lab	-	-	2	25	25	50	1	PCC-CS
8	Effective Technical Communication	2	-	-	15	35	50	2	HSMC
9	Micro Project	-	-	6	25	25	50	2	PROJ-CS
10	Essences of Indian Knowledge Tradition	3	-	-	50	-	-	Audit	MCC
<b>Total</b>		<b>17</b>	<b>1</b>	<b>12</b>	<b>285</b>	<b>415</b>	<b>650</b>	<b>20</b>	

**Elective-I :**

- i) Soft Computing                      ii) Digital Image Processing                      iii) Health Informatics

B.Tech. Sixth semester CSE(DS)									
Sr. No.	Subject	Teaching schemes			Evaluation Schemes			Credits	Category
		L	T	P	CA	UE	Total		
1	Data Science	3	-	-	30	70	100	3	PCC-CS
2	Machine Learning	3	-	-	30	70	100	3	PCC-CS
3	Elective-II	3	-	-	30	70	100	3	PEC-CS
4	Elective-III	3	-	-	30	70	100	3	PEC-CS
5	Open Elective -I	3	-	-	30	70	100	3	OEC
6	Data Science- Lab	-	-	2	25	25	50	1	PCC-CS
7	Machine Learning -Lab	-	-	2	25	25	50	1	PCC-CS
8	Mini Project	-	-	6	25	25	50	2	PROJ-CS
9	Report Writing(Audit Course)	2	-	-	50	-	-	Audit	HSMC
<b>Total</b>		<b>17</b>	<b>0</b>	<b>10</b>	<b>275</b>	<b>425</b>	<b>650</b>	<b>19</b>	<b>0</b>

**Elective-II :**

- i) Principles of Cloud Computing                      ii) Computer Vision                      iii) Design Pattern

**Elective-III :**

- i) Advance Operating System                      ii) Advance Computer Network                      iii) Artificial Neural Network

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**B.Tech. Seventh Semester CSE(DS)**

Sr. No.	Subject	Teaching schemes			Evaluation Schemes			Credits	Category
		L	T	P	CA	UE	Total		
1	Data Analytics	3	-	-	30	70	100	3	PCC-CS
2	Data Mining and Visualization	3	-	-	30	70	100	3	PCC-CS
3	Elective-IV	3	-	-	30	70	100	3	PEC-CS
4	Elective-V	3	-	-	30	70	100	3	PEC-CS
5	Open Elective-II	3	-	-	30	70	100	3	PEC-CS
6	Machine learning and Data Analytics Lab	-	-	2	25	25	50	1	PCC-CS
7	Data Mining and Visualization lab	-	-	2	25	25	50	1	PCC-CS
8	Project	-	-	6	25	25	50	2	PROJ-CS
9	Research Methodology(Audit Course)	2	-	-	50	-		Audit	HSMC
	<b>Total</b>	<b>17</b>	<b>0</b>	<b>4</b>	<b>275</b>	<b>425</b>	<b>650</b>	<b>19</b>	

**Elective-II :**

- i) Deep Learning  
ii) Time Series Analysis and forecasting

- ii) Information Extraction and Retrieval

**Elective-III :**

- i) Big Data Analytics    ii) Data Modeling and Simulation    iii) Data Warehousing

**B.Tech. Eight semester CSE(DS)**

Sr. No.	Subject	Teaching schemes			Evaluation Schemes			Credits	Category
		L	T	P	CA	UE	Total		
1	Industry Project	-	-	16	75	75	150	8	PROJ-CS
2	MOOCS Course -1	-	-	-	-	-	-	3	OEC
3	MOOCS Course -2	-	-	-	-	-	-	3	OEC
	<b>Total</b>	<b>0</b>	<b>-</b>	<b>16</b>	<b>-</b>	<b>75</b>	<b>150</b>	<b>14</b>	

*[Handwritten signatures and initials]*

Summary of Semester wise credit CSE(DS)									
Sr. No.	Semester	Category							TOTAL
		BSC	ESC	HSMC	PCC	PEC	OEC	PROJ	
1	I	9	7	3	-	-	-	-	19
2	II	9	13	-	-	-	-	-	22
3	III	4	3	2	14	-	-	-	23
4	IV	4	-	-	19	-	-	1	24
5	V	-	-	2	13	3	-	2	20
6	VI	-	-	-	8	6	3	2	19
7	VII	-	-	-	8	6	3	2	19
8	VIII	-	-	-	-	-	6	8	14
	<b>Total</b>	<b>26</b>	<b>23</b>	<b>7</b>	<b>62</b>	<b>15</b>	<b>12</b>	<b>15</b>	<b>160</b>

Summary of Semester wise Total Marks (Theory/Practical)				
Sr. No.	Semester	Theory	Practical	TOTAL
1	I	600	150	750
2	II	600	150	750
3	III	550	150	700
4	IV	600	200	800
5	V	450	200	650
6	VI	500	150	650
7	VII	500	150	650
8	VIII	0	150	150
	<b>Total</b>	<b>3800</b>	<b>1300</b>	<b>5100</b>




