

# Tulsiramji Gaikwad-Patil College of Engineering & Technology, Nagpur

## SCHEME OF INSTRUCTION & SYLLABI

Programme: Data Science

Scheme of Instructions: Third Year B.Tech.in Data Science

Semester – V

Sr. No.	Course Category	CourseCode	Course Title	L	T	P	Contact Hrs./Wk	Credits	EXAM SCHEME				
									CT1	CT2	TA/CA	ESE	TOTAL
1	PCC	BDS3601	Software Engineering & Project Management	3	-	-	3	3	15	15	10	60	100
2	PCC	BDS3602	Software Engineering & Project Management Lab	-	-	2	2	1	-	-	25	25	50
3	PCC	BDS3503	Design & Analysis of Algorithms	3	-	-	3	3	15	15	10	60	100
4	PCC	BDS3504	Data Analytics	3	-	-	3	3	15	15	10	60	100
5	PCC	BDS3505	Data Analytics - Lab	-	-	2	2	1	-	-	25	25	50
6	PCC	BDS3506	Java Programming	-	-	2	2	1	-	-	25	25	50
7	PEC	BDS3507-10*	Program Elective-I	3	-	-	3	3	15	15	10	60	100
8	PEC	BDS35011-14*	Program Elective-II	3	-	-	3	3	15	15	10	60	100
9	OEC	B\$XX01-19#	Open Elective-I	4	-	-	4	4	15	15	10	60	100
10	MCC	BAU3505	Heritage	2	-	-	2	Audit	-	-	-	-	-
<b>Total</b>				<b>21</b>	<b>-</b>	<b>6</b>	<b>27</b>	<b>22</b>	<b>90</b>	<b>90</b>	<b>135</b>	<b>435</b>	<b>750</b>

L- Lecture    T-Tutorial    P-Practical    CT1- Class Test 1    CT2- Class Test 2    TA/CA- Teacher Assessment/Continuous Assessment

ESE- End Semester Examination (For Laboratory End Semester performance)

\* Indicates out of the four course codes each student has to select any one PEC from the list provided at the end of structure.

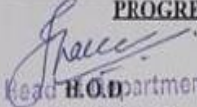
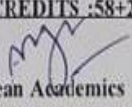
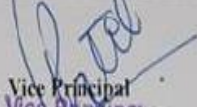
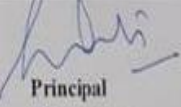
# Indicates out of the 19 course codes each student has to select any one OEC except BDSXX17, BDSXX18 & BDSXX19 from the list provided at the end of structure.

Course Category	HSMC (Hum., Soc. Sc, Mgmt.)	BSC (Basic Sc.)	ESC (Engg. Sc.)	PCC (Programme Core courses)	PEC (Programme Elective courses)	OEC (Open Elective courses from other discipline)	Project / Seminar / Industrial Training	MCC (Mandatory Courses)
Credits	--	--	-	12	06	04	01	Yes
Cumulative Sum	9	25	23	33	06	04	01	--

**PROGRESSIVE TOTAL CREDITS :79+22 =101**

Program Elective Courses								
Sr · No	Domain wise Cluster		PEC-I	PEC-II	PEC-III	PEC-IV	PEC-V	PEC-VI
			Semester-V		Semester-VI		Semester-VI	
1	Domain -1	Course Code	<b>BDS3507</b>	<b>BDS3511</b>	<b>BDS3606</b>	<b>BDS3610</b>	<b>BDS4706</b>	<b>BDS4710</b>
		Data visualization and system Design	Computer Graphics	Digital Image Processing	Computer Vision	Design patterns	Compiler Design	Data Warehousing & ETL
2	Domain -2	Course Code	<b>BDS3508</b>	<b>BDS3512</b>	<b>BDS3607</b>	<b>BDS3611</b>	<b>BDS4707</b>	<b>BDS4711</b>
		Network Security	Wireless Security	Ethical hacking	Security in Wireless Ad Hoc Networks	Cyber Law in India	Block chain Security	Business Intelligence
3	Domain -3	Course Code	<b>BDS3509</b>	<b>BDS3513</b>	<b>BDS3608</b>	<b>BDS3612</b>	<b>BDS4708</b>	<b>BDS4712</b>
		Neural Network and Computing techniques	Soft Computing	Mobile Computing	Convolution Neural network	Quantum Computing	Natural Language Processing	Artificial Neural Network
4	Domain -4	Course Code	<b>BDS35010</b>	<b>BDS3514</b>	<b>BDS3609</b>	<b>BDS3613</b>	<b>BDS4709</b>	<b>BDS4713</b>
		Programming Languages	Python for Data Science	Client Side Scripting-Java Script	Server Side Scripting-PHP	R Programming	No SQL	Data Mining

**PROGRESSIVE TOTAL CREDITS :58+21**

 <b>Head HOD</b> Department Data Science Tulsiramji Gaikwad Patil College Of Engineering & Technology, Nagpur	 <b>Dean Academics</b> Dean Academics Tulsiramji Gaikwad-Patil College Of Engineering and Technology, Nagpur	 <b>Vice Principal</b> Vice Principal Tulsiramji Gaikwad-Patil College Of Engineering & Technology, Nagpur	 <b>Principal</b> Principal Tulsiramji Gaikwad Patil College Of Engineering and Technology, Nagpur
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Program: Data Science  
**List of Open Electives Offered**

Sr. No.	Name of Host Programme	Open Elective Course Code	Title of the Course
1.	Computer Science & Engineering	BCSXX01	Cyber Law and Ethics
2.	Computer Science & Engineering	BCSXX02	Blockchain Technology
3.	Information Technology	BITXX03	Cyber Security
4.	Information Technology	BITXX04	Artificial Intelligence
5.	Electronics and Communication Engineering	BECXX05	Internet of Things
6.	Electronics and Communication Engineering	BECXX06	Embedded Systems
7.	Civil Engineering	BCEXX07	Introduction to Art and Aesthetics
8.	Civil Engineering	BCEXX08	Metro Systems and Engineering
9.	Mechanical Engineering	BMEXX09	Nanotechnology and Surface Engineering
10.	Mechanical Engineering	BMEXX10	Automobile Engineering
11.	Electrical Engineering	BEEXX11	Power Plant Engineering
12.	Electrical Engineering	BEEXX12	Electrical Materials
13.	Aeronautical Engineering	BAEXX13	Avionics
14.	Aeronautical Engineering	BAEXX14	Unmanned Aerial Vehicles
15.	Biotechnology	BBTXX15	Biomaterials
16.	Biotechnology	BBTXX16	Food and Nutrition Technology
17.	DATA SCIENCE	BDSXX17	Soft Computing Techniques
18.	DATA SCIENCE	BDSXX18	Machine Learning & Its Application
19.	DATA SCIENCE	BDSXX19	Introduction of Data Science