



# ST. VINCENT PALLOTTI COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR

(An autonomous institution affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)

## B. Tech. Scheme of Examination & Syllabus 2024-25

### COMPUTER SCIENCE AND ENGINEERING (DATA SCIENCE)

#### ANNEXURE – I

#### Credit Structure for Undergraduate programs

Sr. No.	Category Code	Category	Credits
1	HSSM	Ability Enhancement Course (AEC), Indian Knowledge System (IKS), Value Education Course (VEC), Entrepreneurship/Economics/Management courses	10
2	BSC	Basic Science courses	14
3	ESC	Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc.	14*
4	PCC	Professional core courses	72*
5	PEC	Professional Elective courses relevant to chosen specialization/branch	
6	OE	Open subjects – Electives from other technical and /or emerging subjects	08
7	ELC	Project work, seminar and internship in industry or elsewhere, Industry Training and Skill Development, Capstone Course	20*
8	VSEC	Vocations Skill Courses (VSC) , Skill Enhancement Courses (SEC)	10
9	CC	Co-curricular Courses (CC) such as Health and Wellness, Yoga education sports, and fitness, Cultural Activities, NSS/NCC and Fine/ Applied/ Visual/ Performing Arts	04
10	MDM	Compulsory Multidisciplinary Minor	14
		TOTAL	166*

		July 2025	2.1	Applicable for 2025-26
Chairman - BoS	Dean – Academics	Date of Release	Version	



# ST. VINCENT PALLOTTI COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR

(An autonomous institution affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)

## B. Tech. Scheme of Examination & Syllabus 2024-25

### COMPUTER SCIENCE AND ENGINEERING (DATA SCIENCE)

#### GROUP I : SEMESTER I

	Course Category	CourseCode	Course Title	Hours per Week			Credits	Mid-Sem Examination	Maximum Marks			
				L	T	P			Continual Assessment	End Sem Examination	Total	
1.	BSC	24DS101T	Engineering Chemistry and Environmental Science	2	-	-	2	10	10	30	50	1.5
2.	BSC	24DS101P	Engineering Chemistry and Environmental Science Lab	-	-	2	1	-	25	25	50	-
3.	BSC	24DS102T	Linear Algebra and Calculus	3	1	-	4	20	20	60	100	3
4.	ESC	24DS103T	Logic building using C	3	-	-	3	20	20	60	100	3
5.	ESC	24DS103P	Logic building using C Lab	-	-	2	1	-	25	25	50	-
6.	ESC	24DS104T	Digital Electronics	3	-	-	3	20	20	60	100	3
7.	ESC	24DS104P	Digital Electronics Lab	-	-	2	1	-	25	25	50	-
8.	PCC	24DS105P	Data Science workshop – I	-	-	2	1	-	25	25	50	-
9.	AEC	24DS106P	Business Communication Skills I Lab	-	-	2	1	-	25	25	50	-
10.	IKS	24DS107T	Indian Knowledge Systems	2	-	-	2	10	10	30	50	1.5
11.	SEC	24DS141P	Career Development I	-	-	2	1	-	50	-	50	-
12.	CC	24DS108T	Co-curricular Courses - I	2	-	-	2	-	50	-	50	-
<b>Total</b>				<b>15</b>	<b>1</b>	<b>12</b>	<b>22</b>	<b>80</b>	<b>305</b>	<b>365</b>	<b>750</b>	

		July 2025	2.1	Applicable for 2025-26
Chairman - BoS	Dean – Academics	Date of Release	Version	



**ST. VINCENT PALLOTTI COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR**

(An autonomous institution affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)

**B. Tech. Scheme of Examination & Syllabus 2024-25**

**COMPUTER SCIENCE AND ENGINEERING (DATA SCIENCE)**

**GROUP I : SEMESTER II**

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks				Duration
				L	T	P		Mid-Sem Examination	Continual Assessment	End Sem Examination	Total	
1	BSC	<b>24DS201T</b>	Engineering Physics and Materials Science	2	-	-	2	10	10	30	50	1.5
2	BSC	<b>24DS201P</b>	Engineering Physics and Materials Science Lab	-	-	2	1	-	25	25	50	-
3	BSC	<b>24DS202T</b>	Statistics and Probability	3	1	-	4	20	20	60	100	3
4	PCC	24DS203T	Data Structures	3	-	-	3	20	20	60	100	3
5	PCC	24DS203P	Data Structures Lab	-	-	2	1	-	25	25	50	-
6	PCC	24DS204T	Introduction to Data Science	3	-	-	3	20	20	60	100	3
7	PCC	24DS204P	Data Science workshop – II	-	-	4	2	-	25	25	50	-
8	AEC	<b>24DS206P</b>	Business Communication Skills – II Lab	-	-	2	1	-	25	25	50	-
9	SEC	<b>24DS241P</b>	Career Development – II	-	-	2	1	-	50	-	50	-
10	ESC	<b>24DS207T</b>	Design Thinking	2	-	-	2	10	10	30	50	1.5
11	CC	<b>24DS208T</b>	Co-curricular Courses – II	2	-	-	2	-	50	-	50	-
<b>Total</b>				<b>15</b>	<b>1</b>	<b>10</b>	<b>22</b>	<b>80</b>	<b>280</b>	<b>340</b>	<b>700</b>	

		July 2025	2.1	Applicable for 2025-26
Chairman - BoS	Dean – Academics	Date of Release	Version	



# ST. VINCENT PALLOTTI COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR

(An autonomous institution affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)

## B. Tech. Scheme of Examination & Syllabus 2024-25

### COMPUTER SCIENCE AND ENGINEERING (DATA SCIENCE)

#### SEMESTER III

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks				No. of Hrs for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End Sem Examination	Total	
1.	PCC	24DS301T	Mathematics for Data Science	3	-	-	3	20	20	60	100	3
2.	PCC	24DS302T	Computer Architecture & Organization	3	-	-	3	20	20	60	100	3
3.	PCC	24DS303T	Database Management Systems	3	-	-	3	20	20	60	100	3
4.	PCC	24DS303P	Database Management Systems Lab	-	-	2	1	-	25	25	50	-
5.	PCC	24DS304P	Data Acquisition & Internet of Things Lab	-	-	2	1	-	25	25	50	-
6.	PCC	24DS305P	Web Technology Lab	-	-	4	2	-	25	25	50	-
7.	OE	24DS306T	Data Science Workshop – III	-	-	4	2	-	25	25	50	-
8.	MDM	<b>24ES301T</b>	Value Education Course	3	-	-	3	20	20	60	100	3
9.	ELC	<b>24DS331M</b>	MDM-I	2	-	-	2	10	10	30	50	1.5
10.	<b>SEC</b>	<b>24DS341P</b>	Career Development III	-	-	2	1	-	50	-	50	-
11.	ELC	<b>24DS307P</b>	Micro Project I*	-	-	2	1	-	50	--	50	-
<b>Total</b>				14	-	16	22	90	390	370	750	

\* Field Project or Community engagement project in the major discipline

		July 2025	2.1	Applicable for 2025-26
Chairman - BoS	Dean – Academics	Date of Release	Version	



# ST. VINCENT PALLOTTI COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR

(An autonomous institution affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)

## B. Tech. Scheme of Examination & Syllabus 2024-25

### COMPUTER SCIENCE AND ENGINEERING (DATA SCIENCE)

#### SEMESTER IV

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks				No. of Hrs for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End Sem Examination	Total	
1.	PCC	24DS401T	Analysis of Algorithms	3	-	-	3	20	20	60	100	3
2.	PCC	24DS401P	Analysis of Algorithms Lab	-	-	2	1	-	25	25	50	-
3.	PCC	24DS402T	Object Oriented Programming	3	-	-	3	20	20	60	100	3
4.	PCC	24DS402P	Object Oriented Programming Lab	-	-	2	1	-	25	25	50	-
5.	PCC	24DS403P	Data Handling & Visualization Lab	-	-	2	1	-	25	25	50	-
6.	PCC	24DS404P	Data Science Workshop – IV (Data Analytics)	-	-	2	1	-	25	25	50	-
7.	MDM	24DS431M	MDM-II	3	-	-	3	20	20	60	100	3
8.	VSC	24DS406T	Technical Skill Development - I	2	-	-	2	-	50	-	50	-
9.	AEC	24ES401T	Economics. & Management	3	-	-	3	20	20	60	100	3
10.	SEC	24DS441P	Career Development - IV	-	-	2	1	-	50	-	50	-
11.	ELC	24DS405P	Micro Project II*	-	-	2	1	-	50	-	50	-
<b>Total</b>				<b>14</b>	<b>-</b>	<b>12</b>	<b>20</b>	<b>80</b>	<b>320</b>	<b>340</b>	<b>750</b>	<b>12</b>

\* Field Project or Community engagement project in the major discipline

		July 2025	2.1	Applicable for 2025-26
Chairman - BoS	Dean – Academics	Date of Release	Version	



# ST. VINCENT PALLOTTI COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR

(An autonomous institution affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)

## B. Tech. Scheme of Examination & Syllabus 2024-25

### COMPUTER SCIENCE AND ENGINEERING (DATA SCIENCE)

#### SEMESTER V

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks				No of Hours for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End Sem Examination	Total	
1.	PCC	24DS501T	Operating Systems	3	-	-	3	20	20	60	100	3
2.	PCC	24DS502T	Machine Learning	3	-	-	3	20	20	60	100	3
3.	PCC	24DS502P	Machine Learning Lab	-	-	2	1	-	25	25	50	-
4.	PCC	24DS503T	Software Engineering & Project Management	3	-	-	3	20	20	60	100	3
5.	PCC	24DS503P	Software Engineering & Project Management Lab	-	-	2	1	-	25	25	50	-
6.	PCC	24DS504P	Data Center & Cloud Computing Lab	-	-	2	1	-	25	25	50	-
7.	PCC	24DS505P	Data Science Workshop – V (Data Science Tools)	-	-	4	2	-	25	25	50	-
8.	MDM	24DS531M	MDM - III	3	-	-	3	20	20	60	100	3
9.	VSC	24DS506P	Technical Skill Development - II	2	-	-	2	-	50	-	50	-
10.	SEC	24DS541P	Career Development - V	-	-	2	1	-	50	-	50	-
<b>Total</b>				<b>14</b>	<b>-</b>	<b>12</b>	<b>20</b>	<b>80</b>	<b>280</b>	<b>340</b>	<b>700</b>	

		July 2025	2.1	Applicable for 2025-26
Chairman - BoS	Dean – Academics	Date of Release	Version	



**ST. VINCENT PALLOTTI COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR**

(An autonomous institution affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)

**B. Tech. Scheme of Examination & Syllabus 2024-25**

**COMPUTER SCIENCE AND ENGINEERING (DATA SCIENCE)**

**SEMESTER VI**

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks				No of Hours for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End Sem Examination	Total	
1.	PCC	24DS601T	Deep Learning	3	-	-	3	20	20	60	100	3
2.	PCC	24DS601T	Deep Learning Lab	-	-	2	1		25	25	50	-
3.	PCC	24DS602T	Theory of Computation	3	-	-	3	20	20	60	100	3
4.	PCC	24DS603T	Data Modeling	2	-	-	2	10	10	30	50	1.5
5.	PCC	24DS603P	Data Modeling Lab	-	-	2	1		25	25	50	-
6.	PCC	24DS604P	Data Science Workshop – VI	-	-	4	2		25	25	50	-
7.	MDM	<b>24xx631M</b>	MDM - IV	3	-	-	3	20	20	60	100	3
8.	OE	24DS561O	Open Elective - I	2	-	-	2	10	10	30	50	1.5
9.	ELC	<b>24DS605P</b>	Project - I	-	-	4	2	-	50	50	100	-
10.	SEC	<b>24DS641P</b>	Career Development - VI	-	-	2	1	-	50	-	50	-
<b>Total</b>				13	-	14	20	80	255	355	700	

Open Elective - I	
24DS561O	Data Analytics

		July 2025	2.1	Applicable for 2025-26
Chairman - BoS	Dean – Academics	Date of Release	Version	



**ST. VINCENT PALLOTTI COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR**

(An autonomous institution affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)

**B. Tech. Scheme of Examination & Syllabus 2024-25**

**COMPUTER SCIENCE AND ENGINEERING (DATA SCIENCE)**

**SEMESTER VII**

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks				No of Hours for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End Sem Examination	Total	
1.	PCC	24DS701T	Big Data & Business Intelligence	3	-	-	3	20	20	60	100	3
2.	PCC	24DS701P	Big Data & Business Intelligence Lab	-	-	2	1	-	25	25	50	-
3.	PCC	24DS702T	Professional Elective - I	3	-	-	3	20	20	60	100	3
4.	PCC	24DS703T	Professional Electives - II	3	-	-	3	20	20	60	100	3
5.	PCC	24DS703P	Professional Electives – II Lab	-	-	2	1	-	25	25	50	-
6.	PCC	24DS704P	Data Science Workshop – VII	-	-	2	1	-	25	25	50	-
7.	OE	24DS761O	Open Elective- II	3	-	-	3	20	20	60	100	3
8.	MDM	<b>24DS731M</b>	MDM-V	3	-	-	3	20	20	60	100	3
9.	ELC	<b>24DS705P</b>	Project - II	-	-	4	2	-	50	50	100	-
<b>Total</b>				<b>15</b>		<b>10</b>	<b>20</b>	<b>100</b>	<b>275</b>	<b>425</b>	<b>800</b>	

**Open Elective - II**

24DS761O	<b>Business Intelligence</b>
----------	------------------------------

**Professional Elective - I**

24DS703T(i)	Soft Computing
24DS703T(ii)	Computer Network
24DS703T(iii)	BioInformatics

**Professional Elective - II**

24DS702T(i)	Data Warehousing and Mining
24DS702T(ii)	Cyber Security for Data Science

**Professional Elective – II Lab**

24DS702P(i)	Data Warehousing and Mining Lab
24DS702P(ii)	Cyber Security for Data Science Lab



Chairman - BoS



Dean – Academics

July 2025

Date of Release

2.1

Version

Applicable for  
2025-26



**ST. VINCENT PALLOTTI COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR**

(An autonomous institution affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)

**B. Tech. Scheme of Examination & Syllabus 2024-25**

**COMPUTER SCIENCE AND ENGINEERING (DATA SCIENCE)**

**SEMESTER VIII**

**Option A**

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks			No of Hours for ESE
				L	T	P		Continual Assessment	End Sem Examination	Total	
1	ELC	24DS801T	Research Methodology <sup>#</sup>	2			2	20	30	50	1.5
2	PEC	24DS802T	Professional Elective-III	3			3	40	60	100	3
3	OE	24DS803T	Open Elective - III	3			3	40	60	100	3
4	ELC	24DS804P(i)	Industry/Research Internship*	-	-	-	12	300	100	400	-
<b>Total</b>				<b>0</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>300</b>	<b>100</b>	<b>400</b>	

**Option B**

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks			No of Hours for ESE
				L	T	P		Continual Assessment	End Sem Examination	Total	
1	ELC	24DS801T	Research Methodology <sup>#</sup>	2			2	20	30	50	1.5
2	PEC	24DS802T	Professional Elective-III	3			3	40	60	100	3
3	OE	24DS803T	Open Elective - III	3			3	40	60	100	3
4	ELC	24DS804P(i)	Institutional Internship <sup>§</sup> & Project III	-	-	24	12	300	100	400	-
<b>Total</b>				<b>0</b>	<b>0</b>	<b>24</b>	<b>20</b>	<b>300</b>	<b>100</b>	<b>400</b>	

Option B is available to students only after recommendation of the concerned Head of the department. The project and internship should contribute towards career development plan of the students.

<sup>#</sup> Courses to be mapped with NPTEL/SWAYAM/MOOC offered course in that semester

\* Minimum 90 days internship in any industry and project is to be carried out during internship.

<sup>§</sup> Two NPTEL courses (as per choice of student) or Institutional Internship by IEDC, SVP CET.

<b>24DS803T</b>	<b>Open Elective - III</b>
24DS803T (i)	Android App Development

<b>24DS802T</b>	<b>Professional Elective-III</b>
24DS802T T(i)	Natural Language Processing
21DS703T(ii)	GenAI

		July 2025	2.1	Applicable for 2025-26
Chairman - BoS	Dean – Academics	Date of Release	Version	



# ST. VINCENT PALLOTTI COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR

(An autonomous institution affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)

## B. Tech. Scheme of Examination & Syllabus 2024-25

### COMPUTER SCIENCE AND ENGINEERING (DATA SCIENCE)

#### EXIT OPTIONS

Award of UG Certificate in Major with 40 credits and an additional 8 credits (After First Year)



EXIT COURSES			
S.N.	Course name	Mode of conduction	Credits
1.			
2.			
3.			

Award of UG Diploma in Major with \_\_\_\_ credits and an additional 8 credits (After Second Year)

EXIT COURSES			
S.N.	Course name	Mode of conduction	Credits
1.			
2.			
3.			

Award of UG Degree in Major with \_\_\_\_ credits and an additional 8 credits (After Third Year)

EXIT COURSES			
S.N.	Course name	Mode of conduction	Credits
1.			
2.			
3.			

		July 2025	2.1	Applicable for 2025-26
Chairman - BoS	Dean – Academics	Date of Release	Version	