



ST. VINCENT PALLOTTI COLLEGE OF ENGINEERING AND TECHNOLOGY, NAGPUR

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

B.C.A Scheme of Examination and Syllabus 2026-27

BACHELOR OF COMPUTER APPLICATION

Annexure- I

CREDIT FRAMEWORK STRUCTURE (Honors)

Semester		I	II	III	IV	V	VI	VII	VIII	Total Credits
Basic Science Course	BSC/ESC	4	3	-	-	-	-	-	-	7
Program Core Course (PCC)	Program Courses	4	9	14	12	4	7	10	9	69
Program Elective Course (DSE)		-	-	-	4	6	3	3	3	19
Skill Enhancement Courses (SEC)	Skill Courses	6	5	2	4	4	4	1	3	29
Ability Enhancement Course (AEC)	Humanities Social Science and Management (HSSM)	2	1	2	-	-	2	2	-	9
Indian Knowledge System (IKS)		2	-	-	-	-	-	-	-	2
Value Added Course (VAC)		2	2	2	-	-	-	-	-	6
Research Methodology	Experiential Learning Courses	-	-	-	-	-	-	-	-	0
Projects		-	-	-	-	2	4	4	5	15
Internships		-	-	-	-	4	-	-	-	4
Total Credits		20	20	20	20	20	20	20	20	160

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BACHELOR OF COMPUTER APPLICATION

CREDIT FRAMEWORK STRUCTURE (Honors with Research)

Semester		I	II	III	IV	V	VI	VII	VIII	Total Credits
Basic Science Course	BSC/ESC	4	3	-	-	-	-	-	-	7
Program Core Course (PCC)	Program Courses	4	9	14	12	4	7	6	-	56
Program Elective Course (DSE)		-	-	-	4	6	3	-	-	13
Skill Enhancement Courses (SEC)	Skill Courses	6	5	2	4	4	4	-	-	25
Ability Enhancement Course (AEC)	Humanities Social Science and Management (HSSM)	2	1	2	-	-	2	2	-	9
Indian Knowledge System (IKS)		2	-	-	-	-	-	-	-	2
Value Added Course (VAC)		2	2	2	-	-	-	2	-	8
Research Methodology	Experiential Learning Courses	-	-	-	-	-	-	4	-	4
Projects		-	-	-	-	2	4	6	20	32
Internships		-	-	-	-	4	-	-	-	4
Total Credits		20	20	20	20	20	20	20	20	160

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FIRST SEMESTER

Sr. No.	Course Category	Course Code	Course Title	Hours per week			Credits	Maximum Marks				Min Marks	No. of Hours for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End-Sem Examination	Total Marks		
1	PCC	26BC101T	Foundations of Computing and Digital Logic	3	-	0	3	20	20	60	100	45	3
2	PCC	26BC101P	Foundations of Computing and Digital Logic Lab	0	-	2	1	-	25	25	50	23	-
3	BSC	26BC102T	Mathematical Foundations for Computer Science	3	-	0	3	20	20	60	100	45	3
4	BSC	26BC102P	Mathematical Foundations for Computer Science Lab	0	-	2	1	-	25	25	50	23	-
5	SEC	26BC103T	Programming Fundamentals with C	3	-	0	3	20	20	60	100	45	3
6	SEC	26BC103P	Programming Fundamentals with C Lab	0	-	2	1	-	25	25	50	23	-
7	IKS	26BC104T	Indian Knowledge System	2	-	0	2	10	10	30	50	23	1.5
8	SEC	26BC105P	Digital Productivity Tools (IT Skills Lab)	0	-	4	2	-	50	-	50	23	-
9	VAC	26BC106T	Environmental Sustainability	2	-	0	2	10	10	30	50	23	1.5
10	AEC	26BC107P	Professional English and Communication Skills	2	-	0	2	-	25	25	50	23	1.5
11	AEC	26BC108T	Indian/Foreign Language*	2	-	0	0	-	-	-	-	-	-
Total				17	-	10	20	80	230	340	650	-	-

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SECOND SEMESTER

Sr. No.	Course Category	Course Code	Course Title	Hours per week			Credits	Maximum Marks				Min Marks	No. of Hours for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End-Sem Examination	Total Marks		
1	PCC	26BC201T	Data Structures	3	-	0	3	20	20	60	100	45	3
2	PCC	26BC201P	Data Structures Lab	0	-	2	1	-	25	25	50	23	-
3	BSC	26BC202T	Probability and Statistics	3	-	0	3	20	20	60	100	45	3
4	PCC	26BC203T	Operating Systems	4	-	0	4	20	20	60	100	23	3
5	PCC	26BC203P	Operating Systems Lab	0	-	2	1	-	25	25	50	45	-
6	SEC	26BC204T	Web Development	2	-	0	2	10	10	30	50	23	1.5
7	SEC	26BC204P	Web Development Lab	0	-	4	2	-	25	25	50	23	-
8	VAC	26BC205T	Constitution of India and Cyber Citizenship	2	-	0	2	10	10	30	50	23	1.5
9	SEC	26BC206P	Python Programming Lab	0	-	2	1	-	50	-	50	23	-
10	AEC	26BC207P	Communication Skills Lab	0	-	2	1	-	50	-	50	23	-
Total				14	-	12	20	80	255	315	650	-	-

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THIRD SEMESTER

Sr. No.	Course Category	Course Code	Course Title	Hours per week			Credits	Maximum Marks				Min Marks	No. of Hours for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End-Sem Examination	Total Marks		
1	PCC	26BC301T	Database Management Systems	4	-	0	4	20	20	60	100	45	3
2	PCC	26BC301P	Database Management Systems Lab	0	-	2	1	-	25	25	50	23	-
3	PCC	26BC302T	Introduction to Artificial Intelligence	2	-	0	2	10	10	30	50	23	1.5
4	PCC	26BC302P	Introduction to Artificial Intelligence Lab	0	-	2	1	-	25	25	50	23	-
5	PCC	26BC303T	Software Engineering	3	-	0	3	20	20	60	100	45	3
6	PCC	26BC304T	Introduction to Computer Architecture	3	-	0	3	20	20	60	100	45	3
7	SEC	26BC305P	Full Stack Development – Frontend (ReactJS)	0	-	4	2	-	25	25	50	23	-
8	AEC	26BC306T	Principles of Management	2	-	0	2	10	10	30	50	23	1.5
9	VAC	26BC307T	Cybersecurity Awareness and Digital Safety	2	-	0	2	10	10	30	50	23	1.5
Total				16	-	8	20	90	165	345	600	-	-

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FOURTH SEMESTER

Sr. No.	Course Category	Course Code	Course Title	Hours per week			Credits	Maximum Marks				Min Marks	No. of Hours for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End-Sem Examination	Total Marks		
1	PCC	26BC401T	Object-Oriented Programming	4	-	0	4	20	20	60	100	45	3
2	PCC	26BC401P	Object-Oriented Programming Lab	0	-	2	1	-	25	25	50	23	-
3	PCC	26BC402T	Computer Networks	3	-	0	3	20	20	60	100	45	3
4	PCC	26BC402P	Computer Networks Lab	0	-	2	1	-	25	25	50	23	-
5	PCC	26BC403T	Introduction to Cloud Computing	3	-	0	3	20	20	60	100	45	3
6	SEC	26BC404P	Data Visualization (Power BI / Tableau)	0	-	4	2	-	25	25	50	23	-
7	SEC	26BC405P	Full Stack Development – Backend (NodeJS/Django)	0	-	4	2	-	25	25	50	23	-
8	DSE	26BC406T	Program Elective – I	3	-	0	3	20	20	60	100	45	3
9	DSE	26BC406P	Program Elective – I Lab	0	-	2	1	-	25	25	50	23	-
Total				13	-	14	20	80	205	365	650	-	-

Note: At the end of the Fourth Semester every student shall undergo Internship / Capstone for Four Weeks in the industry/Research or Academic Institute. This component will be evaluated during the fifth semester.

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Sr. No.	Course Category	Course Code	Course Title	Hours per week			Credits	Maximum Marks				Min Marks	No. of Hours for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End-Sem Examination	Total Marks		
1	PCC	26BC501T	Design and Analysis of Algorithms	3	-	0	3	20	20	60	100	45	3
2	PCC	26BC501P	Design and Analysis of Algorithms Lab	0	-	2	1	-	25	25	50	23	-
3	DSE	26BC502T	Program Elective – II	3	-	0	3	20	20	60	100	45	3
4	DSE	26BC503T	Program Elective – III	3	-	0	3	20	20	60	100	45	3
5	SEC	26BC504T	Mobile App Development (Flutter/Android)	2	-	0	2	10	10	30	50	23	1.5
6	SEC	26BC504P	Mobile App Development (Flutter/Android) Lab	0	-	4	2	-	25	25	50	23	-
7	PROJ	26BC505P	Project - I	0	-	4	2	-	25	25	50	23	-
8	INTR	26BC506P	Internship/Capstone Project*	0	-	0	4	-	50	-	50	23	-
			Total	11	-	10	20	70	195	285	550	-	-

*Evaluation shall be based on the Internship / Capstone completed for a minimum of four weeks in an Industry/ Research Organization, or Academic Institution during the summer vacation after IV Semester.

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SIXTH SEMESTER

Sr. No.	Course Category	Course Code	Course Title	Hours per week			Credits	Maximum Marks				Min Marks	No. of Hours for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End-Sem Examination	Total Marks		
1	PCC	26BC601T	Big Data Analytics	3	-	0	3	20	20	60	100	45	3
2	PCC	26BC601P	Big Data Analytics Lab	0	-	2	1	-	25	25	50	23	-
3	PCC	26BC602T	Introduction to Blockchain Technology	3	-	0	3	20	20	60	100	45	3
4	SEC	26BC603T	UI/UX Design and Prototyping	2	-	0	2	10	10	30	50	23	1.5
5	SEC	26BC603P	UI/UX Design and Prototyping Lab	0	-	4	2	-	25	25	50	23	-
6	DSE	26BC604T	Program Elective – IV	3	-	0	3	20	20	60	100	45	3
7	PROJ	26BC605P	Project - II*	0	-	8	4	-	100	100	200	90	-
8	AEC	26BC606P	Professional Readiness and Portfolio Building	0	-	4	2	-	50	-	50	23	-
Total				11	-	18	20	70	270	360	700	-	-

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The Honors and Honors with Research pathways shall be offered subject to approval from competent authority and minimum number of eligible students opting for the same in a given academic year.

SEVENTH SEMESTER (Honors)

Sr. No.	Course Category	Course Code	Course Title	Hours per week			Credits	Maximum Marks				Min Marks	No. of Hours for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End-Sem Examination	Total Marks		
1	PCC	26BC701T	Introduction to IoT	4	-	0	4	20	20	60	100	45	3
2	PCC	26BC701P	Introduction to IoT Lab	0	-	2	1	-	25	25	50	23	-
3	PCC	26BC702T	NoSQL Databases	4	-	0	4	20	20	60	100	45	3
4	PCC	26BC702P	NoSQL Databases Lab	0	-	2	1	-	25	25	50	23	-
5	DSE	26BC703T	Program Elective – V	3	-	0	3	20	20	60	100	45	3
6	AEC	26BC704T	Financial Management	2	-	0	2	10	10	30	50	23	1.5
7	PROJ	26BC705P	Capstone Project - I*	0	-	8	4	-	100	100	200	90	-
8	SEC	26BC706P	Technical Seminar	0	-	2	1	-	50	-	50	23	-
Total				13	-	14	20	70	270	360	700	-	-

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EIGHT SEMESTER (HONORS) [OPTION 1]

Sr. No.	Course Category	Course Code	Course Title	Hours per week			Credits	Maximum Marks				Min Marks	No. of Hours for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End-Sem Examination	Total Marks		
1	PCC	26BC801T	Fog Computing and Edge Computing	4	-	0	4	20	20	60	100	45	3
2	PCC	26BC802T	Digital Image Processing	4	-	0	4	20	20	60	100	45	3
3	PCC	26BC802P	Digital Image Processing Lab	0	-	2	1	-	25	25	50	23	-
4	SEC	26BC803T	Digital Commerce	3	-	0	3	20	20	60	100	45	3
5	DSE	26BC804T	Program Elective – VI	3	-	0	3	20	20	60	100	45	3
6	PROJ	26BC805P	Capstone Project - II*	0	-	10	5	-	100	100	200	90	-
Total				14	-	12	20	80	205	365	650	-	-

Eighth Semester (Honors) [Option 2]

Sr. No.	Course Category	Course Code	Course Title	Hours per week			Credits	Maximum Marks				Min Marks	No. of Hours for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End-Sem Examination	Total Marks		
1	INTR	26BC806P	Full Semester Internship/ Research Internship	0	-	28	14	-	200	100	300	135	-
2	SEC	26BC807T	NPTEL Course - I*	0	-	0	3	-	40 [#]	60 ^{\$}	100	45	-
3	SEC	26BC808T	NPTEL Course - II*	0	-	0	3	-	40 [#]	60 ^{\$}	100	45	-
Total				0	-	28	20	0	280	220	500	-	-

* NPTEL courses as approved by the Head of the Department.

Continual Assessment shall be calculated as average of assignment scores obtained from NPTEL.

\$ End Semester Exam shall be conducted by the institute.

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SEVENTH SEMESTER (HONORS WITH RESEARCH)

Sr. No.	Course Category	Course Code	Course Title	Hours per week			Credits	Maximum Marks				Min Marks	No. of Hours for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End-Sem Examination	Total Marks		
1	RM	26BC701T	Research Methodology	4	-	0	4	20	20	60	100	45	3
2	PCC	26BC702T	Advanced Data Analysis Tools	4	-	0	4	20	20	60	100	45	3
3	PCC	26BC702P	Advanced Data Analysis Tools Lab	0	-	4	2	-	25	25	50	23	-
4	VAC	26BC703T	Intellectual Property Rights	2	-	0	2	10	10	30	50	23	1.5
5	AEC	26BC704T	Ethics in Research	2	-	0	2	10	10	30	50	23	1.5
6	PROJ	26BC705P	Dissertation - I*	0	-	12	6	-	100	100	200	90	-
Total				12	-	16	20	60	185	305	550	-	-

* The Dissertation work will start from the beginning of fourth year of BC (Honors with Research) Program.

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EIGHT SEMESTER (HONORS WITH RESEARCH)

Sr. No.	Course Category	Course Code	Course Title	Hours per week			Credits	Maximum Marks				Min Marks	No. of Hours for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End-Sem Examination	Total Marks		
1	PROJ	26BC801P	Dissertation – II / Research Internship*	0	-	40	20	-	200	200	400	180	-
		Total		0	-	40	20	-	200	200	400	-	-

* Students of the Fourth Year shall be assessed based on their Dissertation Work or Research Internship Report and Viva-Voce. The assessment must include the publication of a paper based on the dissertation in a reputed conference or journal.

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LIST OF PROGRAM ELECTIVES

Track 1: Machine Learning and Predictive Analytics			
Sr. No.	Semester	Course Code	Professional Elective
1	IV	26BC406T(i)	Introduction to Machine Learning
2		26BC406T(ii)	Introduction to Data Engineering
3	V	26BC502T(i)	Artificial Neural Networks
4		26BC502T(ii)	Business Analytics Fundamentals
5		26BC503T(i)	Deep Learning
6		26BC503T(ii)	Statistical Data Analysis
7	VI	26BC604T(i)	Computer Vision
8		26BC604T(ii)	Database Administration and Optimization
9	VII	26BC703T(i)	Reinforcement Learning
10		26BC703T(ii)	Data Pipelines (Airflow/NiFi)
11	VIII	26BC804T(i)	Graph Neural Networks (GNNs)
12		26BC804T(ii)	Applied Forecasting and Decision Analytics

Track 2: Cybersecurity and Digital Forensics			
Sr. No.	Semester	Course Code	Professional Elective
1	IV	26BC406T(iii)	Fundamentals of Cybersecurity
2		26BC406T(iv)	Cryptography and Secure Systems
3	V	26BC502T(iii)	Ethical Hacking and PenTesting
4		26BC502T(iv)	Network Defense and Firewall Administration
5		26BC503T(iii)	Cyber Forensics and Incident Response
6		26BC503T(iv)	Secure Coding Practices
7	VI	26BC604T(iii)	Malware Analysis
8		26BC604T(iv)	SIEM and SOC Operations
9	VII	26BC703T(iii)	Advanced Pen Testing (VAPT)
10		26BC703T(iv)	Cyber Risk and Compliance Management
11	VIII	26BC804T(iii)	Advanced Threat Hunting and Cyber Intelligence
12		26BC804T(iv)	Advanced Crypto and Blockchain Security

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EXIT OPTIONS

Year of Completion	Minimum Credits Required	Exit Award	Description
After 1 st Year	40 Credits + Additional 04 Credits*	Certificate in Computer Applications	Awarded after successful completion of first-year courses. Eligible to re-enter in 2 nd year.
After 2 nd Year	80 Credits + Additional 04 Credits [#]	Diploma in Computer Applications	Awarded after completing two years with required credits. Eligible to re-enter in 3 rd year.
After 3 rd Year	120 Credits	Bachelor of Computer Applications (BCA)	Standard 3-year undergraduate degree.
After 4 th Year	160 Credits	BCA (Honors) or BCA (Honors with Research)	Honors: Additional coursework

Internship/Apprenticeship/Social Responsibility: A professional internship or apprenticeship program in a relevant field, with a minimum duration of 08 weeks, which will take place after the second semester or Active engagement with an NGO or community organization for a minimum duration of 08 weeks, focusing on real-world problem-solving, social responsibility, and community service.

#Capstone Project: Completion of a capstone project integrating the skills and knowledge gained during the first two years of the program, which can be an independent or group project.

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