



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

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

B. Tech. Scheme of Examination & Syllabus 2023-24**Computer Science & Engineering (Cyber Security)****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	16
4	PCC	Professional core courses	61
5	PEC	Professional Elective courses relevant to chosen specialization/branch	8
6	OE	Open subjects – Electives from other technical and /or emerging subjects	9
7	ELC	Project work, seminar and internship in industry or elsewhere, Industry Training and Skill Development, Capstone Course	22
8	VSEC	Vocations Skill Courses (VSC) , Skill Enhancement Courses(SEC)	10
9	MDM	Compulsory Multidisciplinary Minor	14
		TOTAL	164

		July 2023	1.0	Applicable for 2023-24
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Computer Science & Engineering (Cyber Security)

GROUP 1: SEMESTER I / GROUP 2: SEMESTER II

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
				L	T	P		Continual Assessment	End Sem Examination	Total
1	BSC	AS101T	Engineering Physics & Material Sciences	2	0	-	2	15	35	50
2	BSC	AS101P	Engineering Physics & Material Sciences Lab	-	-	2	1	25	25	50
3	BSC	AS102T	Applied Mathematics – I	4	-	-	4	30	70	100
4	ESC	AS103T	Engineering Practices-I (Electrical & Electronics)	3	-	-	3	30	70	100
5	ESC	AS103P	Engineering Practices-I Lab(Electrical & Electronics)	-	-	2	1	25	25	50
6	ESC	AS104T	Logic building with C	2	-	-	2	15	35	50
7	ESC	AS104P	Logic building with C Lab	-	-	2	1	25	25	50
8	AEC	AS105P	Business Communication Skills I Lab	-	-	2	1	25	25	50
9	IKS	AS106T	Indian Knowledge Systems	2	-	-	2	15	35	50
10	SEC	AS107P	Career Development I	-	-	2	1	50	-	50
11	PCC	CS101T	Program Foundation-I	2	-	-	2	15	35	50
12	CC	AS108T	Co-curricular course - I	-	-	-	2	50	-	50
Total				15	-	10	22	320	380	700

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Computer Science & Engineering (Cyber Security)

GROUP 1: SEMESTER II / GROUP 2: SEMESTER I

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
				L	T	P		Continual Assessment	End Sem Examination	Total
1	BSC	AS201T	Engineering Chemistry & Environmental Science	2	-	--	2	15	35	50
2	BSC	AS201P	Engineering Chemistry & Environmental Science Lab	-	-	2	1	25	25	50
3	BSC	AS202T	Applied Mathematics–II	4	-	-	4	30	70	100
4	ESC	AS203T	Engineering Practices-II (Civil & Mechanical)	3	-	-	3	30	70	100
5	ESC	AS203P	Engineering Practices-II Lab (Civil & Mechanical)	-	-	2	1	25	25	50
6	ESC	AS204T	Problem Solving with Python	2	-	-	2	15	35	50
7	ESC	AS204P	Problem Solving with Python Lab	-	-	2	1	25	25	50
8	AEC	AS205P	Business Communication Skills II Lab	-	-	2	1	25	25	50
9	SEC	AS206P	Career Development II	-	-	2	1	50	-	50
10	PCC	CS201T	Program Foundation-II	2	-	-	2	15	35	50
11	ESC	AS207T	Design Thinking	2	-	-	2	30	70	100
12	CC	AS208T	Co-curricular course - II	-	-	-	2	50	-	50
Total				15	-	10	22	245	405	750

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SEMESTER III

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
				L	T	P		Continual Assessment	End Sem Examination	Total
1	BSC	AS301T	Applied Mathematics – III	3	-	-	3	30	70	100
2	PCC	CS302T	Data Structures	4	-	-	4	30	70	100
3	PCC	CS302P	Data Structures Lab	-	-	2	1	25	25	50
4	PCC	CS303T	Digital Circuits and Fundamentals of Microprocessor	3	-	-	3	30	70	100
5	PCC	CS303P	Digital Circuits and Fundamentals of Microprocessor Lab	-	-	2	1	25	25	50
6	PCC	CS304T	Information Security Fundamental	4	-	-	4	30	70	100
7	SEC	CS305P	Career Development III	-	-	2	1	50	-	50
8	VEC	CS306T	Value Education Course I	2	-	-	2	15	35	50
9	ELC	CS307P	Micro Project I*	-	-	2	1	50	-	50
Total				16		8	20	285	365	650
10	MDM	CS308T	MDM-I	2	-	-	2	15	35	50
Total				18		8	22	300	400	700

* Field Project or Community engagement project in the major discipline

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SEMESTER IV

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
				L	T	P		Continual Assessment	End Sem Examination	Total
1	PCC	CS401T	Mathematics for Cyber Security	4	-	-	4	30	70	100
2	PCC	CS402T	Database management Systems	3	-	-	3	30	70	100
3	PCC	CS402P	Database management Systems Lab	-	-	2	1	25	25	50
4	PCC	CS403P	Computer lab -I	-	-	2	1	25	25	50
5	OE	CS404T	Open Elective - I	3	-	-	3	30	70	100
6	VSC	CS405T	Technical Skill Development - I	2	-	-	2	15	35	50
7	VEC	CS406T	Value Education Course II	2	-	-	2	50	-	50
8	SEC	CS407T	Career Development - IV	2	-	-	2	15	35	50
9	ELC	CS408P	Micro Project II*	-	-	2	1	50	-	50
Total				16	6	6	19	270	330	600
10	MDM	CS409T	MDM-II	3	-	-	3	30	70	100
Total				19	6	6	22	300	400	700

* Field Project or Community engagement project in the major discipline

Open Elective - I

CS404T(i)	Basics of Ethical Hacking
CS404T(ii)	Security in IOT
CS404T(iii)	Fundamentals of Cryptography

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SEMESTER V

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
				L	T	P		Continual Assessment	End Sem Examination	Total
1	PCC	CS501T	Network Vulnerability Analysis and Penetration Testing	3	-	-	3	30	70	100
2	PCC	CS501P	Network Vulnerability Analysis and Penetration Testing Lab	-	-	2	1	25	25	50
3	PCC	CS502T	Operating System	4	-	-	4	30	70	100
4	PCC	CS502P	Operating System Lab	-	-	2	1	25	25	50
5	PCC	CS503P	Computer Lab -II	-	-	2	1	25	25	50
6	PEC	CS504T	Professional Elective -I	3	-	-	3	15	35	50
7	OE	CS505T	Open Elective - II	3	-	-	3	30	70	100
8	VSC	CS506T	Technical Skill Development - II	2	-	-	2	50	-	50
9	SEC	CS507P	Career Development - V	-	-	2	1	50	-	50
Total				15		8	19	320	280	600
10	MDM	CS508T	MDM-III	3	-	-	3	30	70	100
Total				18		8	22	350	350	700

Professional Elective - I		Open Elective - I	
CS504T(i)	Cloud Computing	CS505T(i)	Intrusion Detection and Prevention System

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CS504T(ii)	Wireless Communication & Mobile Computing	CS505T(ii)	Vulnerability Assessment and Penetration Testing
CS504T(iii)	Internet of Things	CS505T(iii)	Cyber Law and Legal Issues in Cyber Security

SEMESTER VI

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
				L	T	P		Continual Assessment	End Sem Examination	Total
1	PCC	CS601T	Theory of Computation	3	-	-	3	30	70	100
2	PCC	CS602T	Digital Cyber Law	2	-	-	2	15	35	50
3	PCC	CS603T	Metasploit Framework Network	3	-	-	3	30	70	100
4	PCC	CS603P	Metasploit Framework Network Lab	-	-	2	1	25	25	50
5	PEC	CS604T	Professional Elective-II	2	-	-	2	15	35	50
6	AEC	AS601T	Economics. & Management	2	-	-	2	15	35	50
7	OE	CS605T	Open Elective- III	3	-	-	3	30	70	100
8	ELC	CS606P	Project - I	-	-	4	2	50	50	100
9	SEC	CS607P	Career Development - IV	-	-	2	1	50	-	50
Total				15		8	19	260	390	650
10	MDM	CS609T	MDM-IV	3	-	-	3	30	70	100
Total				18		8	22	290	460	750

Open Elective - III	
CS606T(i)	Mobile App Security Analysis
CS606T(ii)	Open Source and Open standards
CS606T(iii)	Operational Research

Professional Elective - II	
CS604T(i)	Software Engineering
CS604T(ii)	Block chain Technology
CS604T(iii)	Bio informatics

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SEMESTER VII

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
				L	T	P		Continual Assessment	End Sem Examination	Total
1	PCC	CS701T	Cyber Forensics	3	-	-	3	30	70	100
2	PCC	CS701P	Cyber Forensics Lab	-	-	2	1	25	25	50
3	PCC	CS702T	Machine Learning in Cyber Security	4	-	-	4	30	70	100
4	PEC	CS703T	Professional Elective-III	3	-	-	3	30	70	100
5	PCC	CS704P	Network Protocol engineering Lab	-	-	2	1	25	25	50
6	ELC	CS705P	Project - II	-	-	8	4	50	50	100
7	ELC	CS706P	Summer / Winter Internship*	-	-	-	2	50	--	50
Total				10		12	18	240	310	550
8	MDM	CS707T	MDM -V	3	-	-	3	30	70	100
Total				13		12	21	270	380	650

* Summer / Winter Internship (Evaluation of Four weeks Internship Completion till 6th Semester)

Professional Elective - III		Date of Release	Version	Applicable for 2023-24
CS703T(i)	Threats and Malware Analysis			
CS703T(ii)	Information Security Audit and Monitoring			
CS703T(iii)	Information Security Analysis and Compliance using Big Data			
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B. Tech. Scheme of Examination & Syllabus 2023-24**Computer Science & Engineering (Cyber Security)****SEMESTER VIII****Option A**

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
				L	T	P		Continual Assessment	End Sem Examination	Total
1	ELC	CS801P*	Project based on one semester internship in Industry/Research Institute/ National Laboratories/ Incubation Center	-	-	-	12	300	100	400
Total				0	0	0	12	300	100	400

*End semester examination will consist of evaluation of seminar & project report.

Option B

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
				L	T	P		Continual Assessment	End Sem Examination	Total
1	ELC	CS801P#	Institutional Internship	-	-	12	6	100	100	200
2	ELC	CS802P	Project – III	-	-	12	6	100	100	200
Total				0	0	0	12	300	100	400

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.

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

Two NPTEL courses (as per choice of student) or Institutional Internship by IEDC, SVP CET.

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EXIT OPTIONS

Award of UG Certificate in Major with 44 credits and an additional 8 credits (After First Year)



EXIT COURSES			
S.N.	Course name	Mode of conduction	Credits
1	Course on Computing Using Python	MOOC/Online/Internship	4
2	Course on programming using C++	MOOC/Online/Internship	4
3	Course on Open Source Software and Open standards	MOOC/Online/Internship	4

Award of UG Diploma in Major with 83 credits and an additional 8 credits (After Second Year)

EXIT COURSES			
S.N.	Course name	Mode of conduction	Credit
1	Course on programming In Java	MOOC/Online/Internship	4
2	Course on Software Testing	MOOC/Online/Internship	4
3	Course on Ethical Hacking	MOOC/Online/Internship	4

Award of UG Degree in Major with 121 credits and an additional 8 credits (After Third Year)

EXIT COURSES			
S.N.	Course name	Mode of conduction	Credits
1	Social Network Analysis	MOOC/Online/Internship	4
2	Blockchain Technology	MOOC/Online/Internship	4
3	Cyber Security & Privacy	MOOC/Online/Internship	4

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