



ST. VINCENT PALLOTTI COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR

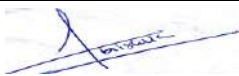

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B. Tech. Scheme of Examination & Syllabus 2024-25
Computer Science & Engineering(Cyber Security)

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.	8
4	PCC	Professional core courses	81
5	PEC	Professional Elective courses relevant to chosen specialization/branch	
6	OE	Open subjects – Electives from other technical and /or emerging subjects	8
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)	7
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*

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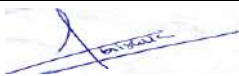

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GROUP 1(CE,IT,CS,DS,AI): SEMESTER I

Sr No	Course Code	Course Category	Course Title	Hours per Week			Credits	Maximum Marks			Total	No of Hrs for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End Sem Examination		
1	24AS101T	BSC	Chemistry (Chemistry, EVS, E-waste Management)	2	-	-	2	10	10	30	50	1.5
2	24AS101P	BSC	Chemistry Lab	-	-	2	1	-	25	25	50	-
3	24AS102T	BSC	Applied Mathematics – I (Linear Algebra)	3	1	-	4	20	20	60	100	3
4	24CS101T	PCC	Logic Building using C	3	1	-	4	20	20	60	100	3
5	24CS101P	PCC	Logic Building using C Lab	-	-	2	1	-	25	25	50	-
6	24CS102T	ESC	Basics of Computer Architecture	3	-	-	3	20	20	60	100	3
7	24CS103P	ESC	Computer Workshop-I			2	1	-	25	25	50	-
8	24AS103P	AEC	Business Communication Skills I Lab	-	-	2	1	-	25	25	50	-
9	24AS104T	IKS	Indian Knowledge Systems	2	-	-	2	10	10	30	50	1.5
10	24CS104P	SEC	Career Development I	-	-	2	1	-	50	-	50	-
11	24AS105T	CC	Co-curricular Courses – I	2	-	-	2	-	50	-	50	-
Total				15	2	10	22	80	280	340	700	12

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GROUP 1(CE,IT,CS,DS,AI): SEMESTER II

Sr No	Course Code	Course Category	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	24AS201T	BSC	Physics (Semiconductor Physics)	2	-	-	2	10	10	30	50	1.5
2	24AS201P	BSC	Physics Lab	-	-	2	1	-	25	25	50	-
3	24AS202T	BSC	Applied Mathematics – II (Discrete Mathematics)	3	1	-	4	20	20	60	100	3
4	24CS201T	PCC	Programming in Python	3	1	-	4	20	20	60	100	3
5	24CS201P	PCC	Programming in Python Lab	-	-	2	1	-	25	25	50	-
6	24CS202T	ESC	Introduction to Computer Network	3	-	-	3	20	20	60	100	3
7	24CS203P	ESC	Computer Workshop – II	-	-	2	1	-	25	25	50	-
8	24AS203P	AEC	Business Communication Skills II Lab	-	-	2	1	-	25	25	50	-
9	24CS204P	SEC	Career Development II	-	-	2	1	-	50	-	50	-
10	24CS205T	PEC	Design Thinking	2	-	-	2	10	10	30	50	1.5
11	24AS204T	CC	Co-curricular Courses – II	2	-	-	2	-	50	-	50	-
Total				15	2	10	22	80	280	340	700	12

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THIRD SEMESTER

Sr No	Course Code	Course Category	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	24CS301T	PCC	Mathematics for Cyber Security	3	-	-	3	20	20	60	100	1.5
2	24CS302T	PCC	Data Structures	4	-	-	4	20	20	60	100	3
3	24CS302P	PCC	Data Structures Lab	-	-	2	1	-	25	25	50	
4	24CS303T	PCC	Operating System	3	--	-	3	20	20	60	100	3
5	24CS303P	PCC	Operating System Lab	-	-	2	1	-	25	25	50	-
6	24CS304T	PCC	Information Security Fundamental	3	-	-	3	20	20	60	100	3
7	24CS305P	PCC	Computer Workshop-II	-	-	2	1	-	25	25	50	-
8	24CS306P	SEC	Career Development III	-	-	2	1	-	50	-	50	-
9	24AS301T	VEC	Value Education Course I	2	-	-	2	10	10	30	50	1.5
10	24CS307P	ELC	Micro Project I*	-	-	2	1	-	50	-	-	-
11	24CS331M	MDM-I	Multidisciplinary Minor (Refer MDM basket)	2	-	-	2	10	10	30	50	1.5
Total				17	-	10	22	100	275	375	700	

* Field Project or Community engagement project in the major discipline

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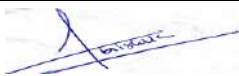

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SEMESTER IV

SrNo	Course Code	Course Category	Course Title	Hours per Week			Credits	Maximum Marks			Total	No of Hrs for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End Sem Examination		
1	24CS401T	PCC	Security Policies and Implementation	3	-	-	3	20	20	60	100	3
2	24CS402T	PCC	Database management Systems	3	-	-	3	20	20	60	100	3
3	24CS402P	PCC	Database management Systems Lab	-	-	2	1	-	25	25	50	-
4	24CS403P	PCC	Computer Network Security Lab	-	-	2	1	-	25	25	50	-
5	24CS404T	HSSM	Economics and Management	3	-	-	3	20	20	60	100	3
6	24CS405P	PCC	Technical Skill Development – I	-	-	4	2	-	50	-	50	-
7	24AS401T	VEC	Value Education Course II	2	-	-	2	10	10	30	50	1.5
8	24CS406P	SEC	Career Development – IV	-	-	2	1	-	50	-	50	-
9	24CS407P	ELC	Micro Project II*	-	-	2	1	-	50	-	50	-
10	24CS431M	MDM	Multidisciplinary Minor- II (Refer MDM basket)	3	-	-	3	10	10	30	50	1.5
Total				14		12	20	80	280	290	650	

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SEMESTER V

Sr No	Course Code	Course Category	Course Title	Hours per Week			Credits	Maximum Marks			Total	No of Hrs for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End Sem Examination		
1	24CS501T	PCC	Network Vulnerability Analysis and Penetration Testing	3	-	-	3	20	20	60	100	3
2	24CS501P	PCC	Network Vulnerability Analysis and Penetration Testing Lab	-	-	2	1	-	25	25	50	-
3	24CS502T	PCC	Computer Security	3	-	-	3	20	20	60	100	3
4	24CS502P	PCC	Computer Security Lab	-	-	2	1	-	25	25	50	-
5	24CS503T	PCC	Security strategies in Windows and Linux	3	-	-	3	20	20	60	100	3
6	24CS504P	PCC	Computer Lab -II	-	-	2	1	-	25	25	50	-
7	24CS505T	PCC	Introduction to Cloud Security	3	-	-	3	20	20	60	100	3
8	24CS531M	MDM	Multidisciplinary Minor-III (Refer MDM basket)	3	-	-	3	10	10	30	50	1.5
9	24CS506P	VSC	Technical Skill Development – II	-	-	2	1	-	50	-	50	-
10	24CS507P	SEC	Career Development – V	-	-	2	1	-	50	-	50	-
Total				15		10	20	90	265	345	700	

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SEMESTER VI

Sr No	Course Code	Course Category	Course Title	Hours per Week			Credits	Maximum Marks			Total	No of Hrs for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End Sem Examination		
1	24CS601T	PCC	Theory of Computation	3	-	-	3	20	20	60	100	3
2	24CS602T	PCC	Introduction to Cloud Security	3	-	-	3	20	20	60	100	3
3	24CS602P	PCC	Introduction to Cloud Security Lab	-	-	2	1	-	25	25	50	-
4	24CS603P	PCC	Artificial Intelligence & Cyber Security Lab	-	-	4	2	-	25	25	50	-
5	24CS604T	PEC	Professional Elective -I	3	-	-	3	20	20	60	100	3
6	24CS631M	MDM	Multidisciplinary Minor-IV (Refer MDM basket)	3	-	-	3	20	20	60	100	3
7	24CS605T	OE	Open Elective- I	2	-	-	2	20	20	60	100	3
8	24CS606P	ELC	Project – I	-	-	4	2	-	25	25	50	-
9	24CS507P	SEC	Career Development – IV	-	-	2	1	-	50	-	-	-
Total				14	-	12	20	100	225	375	650	

Open Elective- I:

Sr. No	Course Code	Course Name
1	24CS404T(i)	Basics of Ethical Hacking
2	24CS404T(ii)	Security in IOT
3	24CS404T(iii)	Fundamentals of Cryptography

Professional Elective-I

Sr. No	Course Code	Course Name
1	24CS604T	Introduction to Cloud Security
2	24CS604T	Managing Risk in Information System
3	24CS604T	Intrusion Detection and Prevention System

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SEMESTER VII

Sr No	Course Code	Course Category	Course Title	Hours per Week			Credits	Maximum Marks			Total	No of Hrs for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End Sem Examination		
1	24CS701T	PCC	Cyber Forensics	3	-	-	3	20	20	60	100	3
2	24CS701P	PCC	Cyber Forensics Lab	-	-	2	1	-	25	25	50	-
3	24CS702T	PCC	Machine Learning in Cyber Security	2	-	-	2	10	10	30	50	1.5
4	24CS702P	PCC	Machine Learning in Cyber Security Lab	-	-	2	1	-	25	25	50	-
5	24CS703T	PEC	Professional Elective-II	3	-	-	3	20	20	60	100	3
6	24CS704P	PCC	Blockchain security Lab	-	-	4	2	-	25	25	50	-
7	24CS761O	OE	Open Elective - II	3	-	-	3	20	20	60	100	3
8	24CS731M	MDM	MDM -V	3	-	-	3	20	20	60	100	3
9	24CS705P	ELC	Project – II	-	-	4	2	-	50	50	100	-
Total				16	-	8	20	80	255	315	650	15

Open Elective – II	
24CS731M	Intrusion Detection and Prevention System
24CS731M	Vulnerability Assessment and Penetration Testing
24CS731M	Cyber Law and Legal Issues in Cyber Security

Professional Elective – II	
24CS703T(i)	Threats and Malware Analysis
24CS703T(ii)	Information Security Audit and Monitoring
24CS703T(iii)	Information Security Analysis and Compliance using Big Data

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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	24CS801T	Research Methodology#	2			2	20	30	50	1.5
2	PEC	24CS802T	Professional Elective-III	3			3	40	60	100	3
3	OE	24CS803T	Open Elective - III#	3			3	40	60	100	3
4	ELC	24CS804P(i)	Industry/Research Internship*	-	-	-	12	300	100	400	-
Total				8	0	0	20	300	100	400	

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	24CS801T	Research Methodology#	2			2	20	30	50	1.5
2	PEC	24CS802T	Professional Elective-III	3			3	40	60	100	3
3	OE	24CS803T	Open Elective - III#	3			3	40	60	100	3
4	ELC	24CS804P(i)	Institutional Internship* & Project-III	-	-	24	12	300	100	400	-
Total				8	0	0	20	300	100	400	

Open Elective – III	
24CS606T(i)	Mobile App Security Analysis
24CS606T(ii)	Open Source and Open standards
24CS606T(iii)	Network and Web Security, Firewalls and VPN's

Professional Elective – III	
24CS802T	Web Security Analysis
24CS802T	IT data and application Security
24CS802T	Mobile Security

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.

Courses to be mapped with NPTEL/SWAYAM/MOOC/ Domain specific

* 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, Any Two)

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 86 credits and an additional 8 credits (After Second Year (Any Two)

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 126 credits and an additional 8 credits (After Third Year (Any Two)

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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Tracks of Multidisciplinary Minor

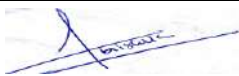

Sr. No	Track /Topic	Theory(TH)/Lab(Pr)	Semester	PSO
1	Fundamentals of Network Security	Theroy	III	1
2	MDM-II: Cyber Security tools and Operating System	Theroy	IV	1,2
3	Basics of Ethical Hacking	Theroy	V	1,2
4	Basics of Network Vulnerability and Penetration Testing	Theroy	VI	2
5	Web Security Analysis - I	Theroy	VII	1,2

Tracks of Open Elective

Sr. No	Track /Topic	Theory(TH)/Lab(Pr)	Semester	PSO
1	Fundamentals of Cryptography	Theroy	IV	1
2	Security Policies and Implementation	Theroy	V	1,2
3	Introduction to Cloud Security	Theroy	VI	1,2

Technical Skill Development Track

Sr. No	Track /Topic	Theory(TH)/Lab(Pr)	Semester	PSO
1	TSD-I: Network Security Fundamentals	TH	I	1
2	TSD- II: Cyber Security: Operating System and Tools	TH + Pr	II	1,2

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