

ANNEXURE – I

St. Vincent Pallotti College of Engineering & Technology, Nagpur

Department of Vocation (B. VOC)

Teaching Scheme for B.VOC Second Year 2025-26

SEMESTER III (CYBER SECURITY)

Sr. No.	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
			L	T	P		Continual Assessment	End Sem. Examination	Total
General Education Component (GEC)									
1	25BV301T	Business Communication Skills – III	3			3	40	60	100
2	25BV302T	Applied Computer Skills – III	3			3	40	60	100
3	25BV301P	Business Communication Skills – III Lab			3	3	25	25	50
4	25BV302P	Applied Computer Skills – III Lab			3	3	25	25	50
Total – GEC			6		6	12	130	170	300
Skill Education Component (SEC)									
5	25CY303S	Software Testing (*)	4		8	12	50	100 (***)	150
6	25CY304S	Skill Development –III (**)			4	4	50	--	50
7	25CY305S	Operating systems for Cyber Security	2			2	50	--	50
Total – SEC			6		12	18	150	100	250
Grand Total			12	-	18	30	280	270	550

Assessment Competent Authority: General Education Component 25BV301T/P, 25BV302T, Skill component 25CY304S, 25CY305S: By college,
 (*) Software Testing:- NASSCOM QP-SSC/Q1301 Test Engineer-ITS, NOS:SSC/N1301, N1302,N1303, NOS:,SSC/N9001, SSC/N9002, SSC/N9003, SSC/N9004, SSC/N9005

(**) Skill Development-III: E – Courses & Skill workshops

(***) 25CY303S Assessment by Sector Skill Council – IT-ITeS -NASSCOM

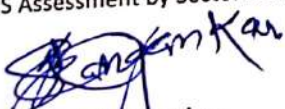
SEMESTER IV (CYBER SECURITY)


Sr. No.	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
			L	T	P		Continual Assessment	End Sem. Examination	Total
General Education Component (GEC)									
1	25BV401T	Business Communication Skills – IV	3			3	40	60	100
2	25BV402T	Employability Skills - I	3			3	40	60	100
3	25BV401P	Business Communication Skills – IV Lab			3	3	25	25	50
4	25BV402P	Employability Skills - I Lab			3	3	25	25	50
Total – GEC			6		6	12	130	170	300
Skill Education Component (SEC)									
5	25CY403S	Application Security (*)	4		8	12	50	100 (***)	150
6	25CY404S	Skill Development- IV (**)			4	4	50	--	50
7	25CY405S	Vulnerability Assessment	2			2	50	--	50
Total – SEC			6		12	18	150	100	250
Grand Total			12	-	18	30	280	270	550


Assessment Competent Authority: General Education Component 25BV401T/P, 25BV402T/P, Skill component 25CY404S, 25CY405S: By college,
 (*) Application Security:-SSC/QP – SSC/Q0903 Analyst Application Security, SSC/N909, N910, N911, NOS: SSC/N9001, SSC/N9002, SSC/N9003, SSC/N9004, SSC/N9005 (***) Skill Development-IV: E – Courses & Skill workshops

(**) Skill Development-IV: E – Courses & Skill workshops

(***) 25CY303S Assessment by Sector Skill Council – IT-ITeS -NASSCOM


 Dr. Suresh Rangankar
 BOS, Chairman (B.VOC)


 Dr. Promod Lanjewar
 Dean(Academics)


 Dr. Vijay Wadhwa
 Principal





FOURTH SEMESTER

COURSE CODE	COURSE NAME	TH	TU	PR	CREDITS	EVALUATION		
						CA	ESE	TOTAL
24BV401T	Business Communication Skills-IV	3	--	--	3	40	60	100

COURSE OBJECTIVES	COURSE OUTCOMES
<ul style="list-style-type: none"> To provide students with the skills and knowledge of communication relevant to a business environment. To enable students to apply effective communication strategies for academic, professional, and employability-related contexts, including presentations, interviews, and business writing. 	<ol style="list-style-type: none"> To explain and identify grammatical rules, vocabulary usage, and sentence structures used in competitive examinations. To apply communication skills in listening, reading, summarizing, group discussions, and technical presentations. To analyze and construct effective business documents such as letters, notices, circulars, agendas, and minutes of meetings. To create professional documents like resumes, cover letters, and prepare impactful responses for interviews and corporate communication scenarios.

UNIT I: English for Competitive Exams [15 HRS]

Word Completion (Article, Preposition, Subject Verb Agreement, Adjectives, etc.), Sentence Completion, Error Identification, Passage Arrangement, Formal & Informal sentences (Idioms, Grammar, Active-Passive, Modal Auxiliaries, Jumbled Word sentences, One word substitution), Meanings (Synonyms, Antonyms)

UNIT II: Professional Communication [10 HRS]

Listening to Conversation and Summarizing, Integrated Writing – Read a short excerpt and write a response. Speaking – Group Discussion (Case studies, General, Abstract), Impactful Technical Presentation, Reading Comprehension.

UNIT III: Professional Correspondence [10 HRS]



Business Letter Writing, Circular and Notices, Agendas, Minutes of Meeting, Memos

UNIT IV: Employability Enhancement skills [10 HRS]

Cover letter, Resume, Mock Interviews, Personality Grooming for Corporate Life

TEXT/ REFERENCE BOOKS

S.N	Title	Authors	Edition	Publisher
1	Functional English for Technical Student	Dr. Pratibha Mahato and Dora Thompson	2020	Himalaya Publishing House
2.	Communication Skills for Engineer	C. Muralikrishna and Sunita Mishra	2022	Pearson
3.	Effective Technical Communication	Barun K Mitra	1	Oxford University Press
4.	Basic Business Communication	Lesikar, R. & Flatley	9	Tata McGraw Hill

		FEB-2023	1.0	APPLICABLE 2024-25
CHAIRMAN- BoS	DEAN (ACADEMICS)	DATE OF RELEASE	VERSION	



FOURTH SEMESTER

COURSE CODE	COURSE NAME	TH	TU	PR	CREDITS	EVALUATION		
						CA	ESE	TOTAL
24BV401P	Business Communication Skills-IV Lab	--	--	3	3	25	25	50



COURSE OBJECTIVES	COURSE OUTCOMES
<ul style="list-style-type: none"> • To provide students with the skills and knowledge of communication relevant to a business environment. • To enable students to apply effective communication strategies for academic, professional, and employability-related contexts, including presentations, interviews, and business writing. 	<ol style="list-style-type: none"> 1. To explain and identify grammatical rules, vocabulary usage, and sentence structures used in competitive examinations. 2. To apply communication skills in listening, reading, summarizing, group discussions, and technical presentations. 3. To analyze and construct effective business documents such as letters, notices, circulars, agendas, and minutes of meetings. 4. To create professional documents like resumes, cover letters, and prepare impactful responses for interviews and corporate communication scenarios.

List of Practicals / Activities:

<p>1. English for Competitive Exams:</p> <ol style="list-style-type: none"> a) Write 10 examples of Articles. b) Write 10 examples of MCQs of Prepositions. c) Write 10 examples of MCQs of Subject-Verb Agreement. d) Write 10 examples of MCQs of Adjectives. e) Write 10 examples of MCQs of Sentence Completion. f) Write 10 examples of MCQs of Error Identification. g) Write 10 examples of Passage Arrangement. h) Write 10 examples of MCQs of Idioms.
<p>2. Professional communication</p>
<p>3. Professional correspondence:</p> <ol style="list-style-type: none"> a) Business Letter writing b) Circular & Notices c) Agendas d) Minutes of Meeting e) Memos
<p>4. Employability Enhancement Skills.</p> <ol style="list-style-type: none"> i) Cover Letter ii) Resume iii) Mock Interviews

TEXT/ REFERENCE BOOKS

S.N	Title	Authors	Edition	Publisher
1	Functional English for Technical Student	Dr. Pratibha Mahato and Dora Thompson	2020	Himalaya Publishing House
2.	Communication Skills for Engineer	C. Muralikrishna and Sunita Mishra	2022	Pearson

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 (An autonomous institution affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)
B.VOC. Scheme of Examination & Syllabus 2024-25
SOFTWARE DEVELOPMENT, CYBER SECURITY, VIRTUAL REALITY AND AUGMENTED REALITY

FOURTH SEMESTER

COURSE CODE	COURSE NAME	TH	TU	PR	CREDITS	EVALUATION		
						CA	ESE	TOTAL
24BV402T	Employability Skills-I	3	--	--	3	40	60	100

COURSE OBJECTIVES	COURSE OUTCOMES
<ul style="list-style-type: none"> To build strong foundational programming skills in C and C++ that help students solve logical and technical problems commonly asked in TCS ignite and other placement examinations. To develop the ability to design and implement structured and object-oriented solutions using C and C++, enabling students to meet industry expectations and perform well in TCS ignite coding assessments. 	<ol style="list-style-type: none"> To explain the basic concepts of C programming including data types, operators, control structures, and looping constructs. To apply arrays, strings, functions, and pointers to solve computational problems in C. To analyze and differentiate object-oriented concepts such as classes, objects, constructors, inheritance, and operator overloading in C++. To design and develop modular C and C++ programs using OOP concepts like polymorphism, overloading, overriding, and dynamic binding.

UNIT I: INTRODUCTION TO C PROGRAMMING [15 HRS]

Introduction to Computing, Overview of C, Constants, Variable and Data Types, Operators and Expressions, Control Structures, Decision Making and Branching, Decision Making and Looping.

UNIT II: INTRODUCTION TO ARRAYS AND STRINGS [15 HRS]

Arrays, Character Arrays and Strings, functions & Introduction to pointers, User-defined Functions, Pointers, Structures.

UNIT III: BASICS OF C++ [15 HRS]



OOPs Concepts, Functions, Object and Classes, Constructors & Destructors, Operator overloading

UNIT IV: FUNDAMENTALS OF C++ [15 HRS]

Inheritance, Overloading, Overriding, Pointers in C++, Polymorphism.

TEXT/ REFERENCE BOOKS

S.N	Title	Authors	Edition	Publisher
1	The complete reference C	Herbert shieldt	1	Tata McGraw Hill Publication.
2.	Object Oriented Programming in C++	Saurav Sahay	1	Oxford University Press.
3.	Object Oriented Programming in C++	Barun K Mitra	1	Techmedia Publication.
4.	Programming in ANSI C	E. Balaguruswamy	8th Edition, 2019	McGraw Hill Education
5	Let Us C	Yashavant P. Kanetkar	16th Edition, 2019	BPB Publications

		FEB-2023	1.0	APPLICABLE 2024-25
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SOFTWARE DEVELOPMENT, CYBER SECURITY, VIRTUAL REALITY AND AUGMENTED REALITY

FOURTH SEMESTER

COURSE CODE	COURSE NAME	TH	TU	PR	CREDITS	EVALUATION		
						CA	ESE	TOTAL
24BV402P	Employability Skills-I -Lab	--	--	3	3	25	25	50

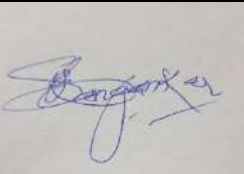

COURSE OBJECTIVES	COURSE OUTCOMES
<ul style="list-style-type: none">To build strong foundational programming skills in C and C++ that help students solve logical and technical problems commonly asked in TCS NQT and other placement examinations.To develop the ability to design and implement structured and object-oriented solutions using C and C++, enabling students to meet industry expectations and perform well in TCS NQT coding assessments.	<ol style="list-style-type: none">To explain the basic concepts of C programming including data types, operators, control structures, and looping constructs.To apply arrays, strings, functions, and pointers to solve computational problems in C.To analyze and differentiate object-oriented concepts such as classes, objects, constructors, inheritance, and operator overloading in C++.To design and develop modular C and C++ programs using OOP concepts like polymorphism, overloading, overriding, and dynamic binding.

List of Practicals / Activities:

1. Programming based on different operators.
2. Coding Using Control structures.
3. Programming based on Functions.
4. Programming based on arrays (1D and multi-dimensional).
5. Programming based on different functions of Strings.
6. Programming based on classes and objects, Constructors & Destructors.
7. Programming based on types of inheritances and Polymorphism.
8. Programming based on Operator Overloading, Pointers and Virtual Classes

TEXT/ REFERENCE BOOKS

S.N	Title	Authors	Edition	Publisher
1	The complete reference C	Herbert shieldt	1	Tata McGraw Hill Publication.
2.	Object Oriented Programming in C++	Saurav Sahay	1	Oxford University Press.
3.	Object Oriented Programming in C++	Barun K Mitra	1	Techmedia Publication.

		FEB-2023	1.0	APPLICABLE 2024-25
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FORTH SEMESTER

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
24CY403S	Application Security	4	--	8	12	50	100	150

Course Objectives	Course Outcomes
<ul style="list-style-type: none"> To provide foundational and advanced knowledge of application security, including application threats, secure coding, threat modeling, risk assessment, and secure development lifecycle. To develop the ability to apply, analyze, and integrate security practices such as secure design, authentication, compliance, incident response, and cloud/mobile application security within real-world software development processes. 	<ol style="list-style-type: none"> To explain application security concepts, common vulnerabilities, threat modeling principles, and secure development lifecycle stages. To apply secure coding practices, risk assessment techniques, and security testing tools to identify and mitigate application vulnerabilities. To analyze application architectures, threat models, authentication mechanisms, and compliance requirements to assess security posture. To evaluate and recommend appropriate security controls, secure communication techniques, incident response measures, and cloud/mobile application security strategies.

<u>UNIT 1: FUNDAMENTALS OF APPLICATION SECURITY</u>	[15 HRS]
<ul style="list-style-type: none"> Overview of application security and its importance in the industry Common application security threats and vulnerabilities Secure coding practices and principles Introduction to security testing methodologies Web application security 	
<u>UNIT 2: THREAT MODELING AND RISK ASSESSMENT</u>	[15HRS]
<ul style="list-style-type: none"> Principles of threat modeling and risk assessment Techniques for identifying and prioritizing security risks Security requirements analysis Developing and implementing threat models Vulnerability assessment and penetration testing 	
<u>UNIT 3: SECURE DEVELOPMENT LIFECYCLE</u>	[15HRS]
<ul style="list-style-type: none"> Secure software development lifecycle (SDLC) Secure design and architecture principles Code review and testing techniques Security testing tools and techniques Integration of security testing into the SDLC Secure software deployment 	





UNIT 4: ADVANCED TOPICS IN APPLICATION SECURITY

[15HRS]

- Secure authentication and authorization techniques
- Secure communication protocols and encryption
- Security compliance and regulations (e.g., GDPR, HIPAA)
- Incident response and management
- Secure mobile application development
- Cloud application security

Text Books:

S.N	Title	Authors	Edition	Publisher
1	Application Security for android platform	jeff	1 st	orieey
2	The Web Application Hacker's Handbook: Finding and Exploiting Security Flaws	Dafydd Stuttard, Marcus Pinto	2 nd	Wiley
3	Software Security: Building Security In	Gary McGraw	1 st	Addison-Wesley Professional
		Feb-2023	1	Applicable for 2024-25
Chairman - BoS	Dean – Academics	Date of Release	Version	

**FOURTH SEMESTER**

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
24SD404S	Skill Development – IV	--	--	4	4	CA	ESE	Total
24CY404S						50	--	50
24VA404S								



Course Objectives	Course Outcomes
<ul style="list-style-type: none">To develop advanced quantitative aptitude skills by introducing learners to geometry, mensuration, logarithms, permutations, combinations, probability, and business mathematics concepts.To enhance logical and analytical reasoning abilities through structured practice in ranking, cubes & dice, inequalities, abstract reasoning, counting of figures, and data sufficiency.To prepare students thoroughly for company-specific assessments, with special focus on the TCS Ignite Exam.	<ol style="list-style-type: none">To explain mathematical principles related to geometry, mensuration, logarithms, permutations, combinations, probability, partnerships, and reasoning rules.To apply quantitative formulas and logical reasoning techniques to solve problems in mensuration, height & distance, ranking, cubes & dice, and inequalities.To analyze complex problems involving abstract reasoning, data sufficiency, order–ranking patterns, and figure counting to determine accurate solutions.To evaluate different problem-solving strategies and choose the most efficient methods to answer quantitative and reasoning questions within time constraints.
Unit I : Numerical Ability - IX	[15HRS]
Geometric Properties, Mensuration (2D and 3D Geometry), Logarithms, Height and Distance.	
Unit II : Logical Reasoning - V	[15 HRS]
Order and Rankin, Cube and Dices, Inequalities, Counting of Figures.	
Unit III : Numerical Ability - X	[15 HRS]
Permutation and Combination, Probability, Ages, Partnerships.	
Unit IV : Logical Reasoning -VI	[15 HRS]
Abstract Reasoning, Data Sufficiency, Eligibility Test.	

Text Books

S.N	Title	Authors	Edition	Publisher
1	Quantitative Aptitude	R.S Agarwal	Latest edition	S. Chand Publication
2	Quantitative Aptitude	Arun Sharma	4 th Edition	Mc Graw Hill

Reference Books

S.N	Title	Authors	Edition	Publisher
1	Quantitative aptitude and reasoning	R. Praveen	3rd	PHI
2	Objective Quantitative Aptitude	Oswal books	Latest	Oswal books

		Oct-2022	1	Applicable for 2024-25
Chairman - BoS	Dean – Academics	Date of Release	Version	



FORTH SEMESTER

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
24CY405S	Vulnerability Assessment	2	--	--	2	50	--	50

Course Objectives	Course Outcomes
<ul style="list-style-type: none">To provide foundational knowledge of vulnerability assessment, including frameworks, tools, and methodologies used to identify security weaknesses across networks, applications, and systems.To develop analytical and practical skills required to plan, conduct, and report vulnerability assessments, along with recommending remediation and mitigation strategies.	<ol style="list-style-type: none">To describe vulnerability assessment concepts, frameworks, phases, and commonly used tools.To apply information-gathering, scoping, and assessment techniques to identify vulnerabilities in networks, databases, applications, and wireless systems.To analyze assessment results to identify security weaknesses, categorize vulnerabilities, and determine their potential impact.To evaluate risks, prepare vulnerability reports, and recommend appropriate remediation and mitigation strategies for improving system security.

UNIT 1: INTRODUCTION TO VULNERABILITY ASSESSMENT

[10HRS]

- Overview of Vulnerability Assessment
- Importance of Vulnerability Assessment in Cybersecurity
- Vulnerability Assessment Frameworks
- Tools used for Vulnerability Assessment

UNIT 2: PRE-ASSESSMENT PHASE

[5 HRS]

- Information Gathering Techniques
- Vulnerability Assessment Scoping and Planning
- Establishing Rules of Engagement
- Developing a Vulnerability Assessment Plan

UNIT 3: ASSESSMENT PHASE

[8 HRS]

- Network Vulnerability Assessment Techniques
- Web Application Vulnerability Assessment Techniques
- Wireless Network Vulnerability Assessment Techniques
- Database Vulnerability Assessment Techniques
- Mobile Application Vulnerability Assessment Techniques

UNIT 4: POST-ASSESSMENT PHASE

[7 HRS]

- Reporting Vulnerabilities
- Risk Assessment and Prioritization
- Remediation and Mitigation Strategies
- Reassessment of the Network/System



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CYBER SECURITY

Text Books:

S.N	Title	Authors	Edition	Publisher
1	Guide to vulnerability analysis for computer networks and systems.	Simon parkinson	1ST	springer
2	Network vulnerability analysis	Packt Publishing	2018	Sagar Rahalkar

		Feb-2023	1	Applicable for 2024-25
Chairman - BoS	Dean – Academics	Date of Release	Version	