

St. Vincent Pallotti College of Engineering & Technology, Nagpur

Department of Vocation (B. VOC) Teaching Scheme for B.VOC First Year 2025-26 SEMESTER I (CYBER SECURITY)

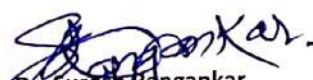
Sr. No.	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
			L	T	P		Continual Assessment	End Sem. Examination	Total
General Education Component (GEC)									
1	25BV101T	Business Communication Skills – I	3			3	40	60	100
2	25BV102T	Applied Computer Skills – I	3			3	40	60	100
3	25BV101P	Business Communication Skills – I Lab			3	3	25	25	50
4	25BV102P	Applied Computer Skills – I Lab			3	3	25	25	50
Total – GEC			6		6	12	130	170	300
Skill Education Component (SEC)									
5	25CY103S	Software Development (*)	4		8	12	50	100 (***)	150
6	25CY104S	Skill Development – I (**)			4	4	50	--	50
7	25CY105S	Fundamentals of 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 25BV101T/P, 25BV102T/P, Skill component 25CY104S, 25CY105S: By college,
 (*) **Software Development :-SSC/QP-SSC/Q0508 Junior Software Developer, NOS:SSC/N0506,SSC/N9001,SSC/N9002,SSC/N9003,SSC/N9004,SSC/N9005**
 (***) **Skill Development-I: E-Courses & Skill workshops**
 (***) **25CY103S Assessment by Sector Skill Council – IT-ITeS -NASSCOM**

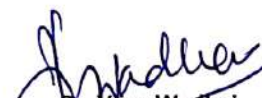
SEMESTER II (CYBER SECURITY)

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	25BV201T	Business Communication Skills – II	3			3	40	60	100
2	25BV202T	Applied Computer Skills – II	3			3	40	60	100
3	25BV201P	Business Communication Skills – II Lab			3	3	25	25	50
4	25BV202P	Applied Computer Skills – II Lab			3	3	25	25	50
Total – GEC			6		6	12	130	170	300
Skill Education Component (SEC)									
5	25CY203S	Web Development (*)	4		8	12	50	100 (***)	150
6	25CY204S	Skill Development – II (**)			4	4	50	--	50
7	25CY206S	Network 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 25BV201T/P, 25BV202T/P, Skill component 25CY204S, 25CY206S: By college,
 (*) **Web Development:- SSC/QP – SSC/Q0503 Web Developer, NOS: SSC/N0501, SSC/N9001, SSC/N9002, SSC/N9003, SSC/N9004, SSC/N9005**
 (***) **Skill Development-II: E-Courses & Skill workshops**
 (***) **25CY203S Assessment by Sector Skill Council – IT-ITeS -NASSCOM**


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


 Dr. Promod Lanjewar
 Dean (Academics)


 Dr. Vijay Wadhai
 Principal



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B.VOC. Scheme of Examination & Syllabus 2025-26

SOFTWARE DEVELOPMENT, CYBER SECURITY



SECOND SEMESTER

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
25BV201T	Business Communication Skills-II	3	--	--	3	40	60	100

Course Objectives	Course Outcomes
<ul style="list-style-type: none"> To develop students' foundational understanding of grammar, business communication, and teamwork for effective personal and professional interaction. To enhance students' skills in written, verbal, and visual communication through practical exercises in job writing, marketing content, and digital communication tools. 	<ol style="list-style-type: none"> Identify and apply correct grammatical structures, idioms, and phrases in professional and academic contexts Compose professional documents such as job applications, reports, and marketing content using appropriate format and tone. Analyze various communication mediums—including written, visual, and electronic—to evaluate their effectiveness in conveying messages. Demonstrate effective interpersonal communication, manage stress, and participate confidently in interviews and group discussions.
Unit I Revisiting Grammar	[10 HRS]
Revisiting Grammar: Modal Auxiliaries, Adverbs, Adverbial Phrases, Idioms & Phrases, Root words, Suffix & Prefix. Introduction to business communication, Introduction to effective writing. Team building: Introduction to teamwork, working in teams, personal attitude, conflicts and its resolutions	
Unit II Writing Skills	[10 HRS]
Writing Skills: Written Communication: Job Applications, resumes, Advertisements, Posters & Banners, Paragraphs, Columns, Articles & Reports. Introduction to Marketing, How to write Market Specific content. Story Writing. Visual Communication: Introduction to Photo Communication, Communication through Motion Photography. Introduction to E-Communication: YouTube Channels and Instagram Reels, WhatsApp, Social Media (Facebook, Twitter, LinkedIn etc.)	
Unit III Reading Skills	[10 HRS]
Reading Skills: Notes Taking, distinguishing between Facts & Beliefs, pinions & Polls. Tips for technical writing, Report Writing. Environmental Communication, Intercultural Communication.	
Unit IV Communications Skills 2.0	[15 HRS]
Communications Skills 2.0: Language Skills; Queries, Asking Information, Requests, Agreeing and Disagreeing, Compliments and responses. How to face personal interviews and group discussions. Stress Management: Concept of Stress, Causes of Stress, Recognizing your own stressors, Dimensions of Stress, Effects of Stress, Reactions to stress.	

Text Books

S.N	Title	Author	Edition	Publisher
1	Merchant English for Practical purpose	Z. N.Patil, B. S.Valke, Ashok Thorat	Revised	Macmillan
2	Foundation English	Dwivedi & Kumar	First	Macmillan
3	Grant English Conversational Practice	Taylor	First	Tata McGraw-Hill
4	Bhaskaran & Horsburgh	Strengthen your English	First	Oxford University Press (1 November 1997)

		July-2025	2	Applicable for 2025-26
Chairman - BoS	Dean - Academics	Date of Release	Version	



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SOFTWARE DEVELOPMENT, CYBER SECURITY

ARISE & SHINE

SECOND SEMESTER

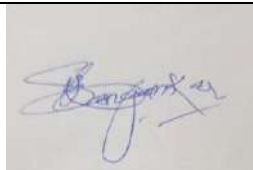
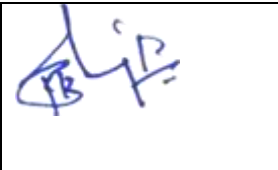
Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
25BV201P	Business Communication Skills-II Lab	--	--	3	3	25	25	50

Course Objectives	Course Outcomes
<ul style="list-style-type: none"> To develop students' foundational understanding of grammar, business communication, and teamwork for effective personal and professional interaction. To enhance students' skills in written, verbal, and visual communication through practical exercises in job writing, marketing content, and digital communication tools. 	<ol style="list-style-type: none"> Identify and apply correct grammatical structures, idioms, and phrases in professional and academic contexts Compose professional documents such as job applications, reports, and marketing content using appropriate format and tone. Analyze various communication mediums—including written, visual, and electronic—to evaluate their effectiveness in conveying messages. Demonstrate effective interpersonal communication, manage stress, and participate confidently in interviews and group discussions.

Practical No	Title of the Practical
1	Barriers to Communication
2	Situational Conversations (Speaking skills & Listening skills)
3	Non - verbal Communication (Body language)
4	Development of Word Power (Reading Skills)
5	Visual Communication (Writing Skills)
6	Mock Interview (Speaking, Listening Skills)
7	Extempore (Speaking, Listening Skills)
8	Group Discussion (Speaking, Listening Skills)

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S.N	Title	Authors	Edition	Publisher
1	Merchant English for Practical purpose	Z. N.Patil, B. S.Valke, Ashok Thorat	Revised	Macmillan
2	Foundation English	Dwivedi & Kumar	First	Macmillan
3	Grant English Conversational Practice	Taylor	First	Tata McGraw-Hill
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SOFTWARE DEVELOPMENT, CYBER SECURITY

SECOND SEMESTER

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
25BV202T	Applied Computer Skills-II	3	--	--	3	40	60	100

Course Objectives	Course Outcomes
<ul style="list-style-type: none"> To develop foundational knowledge of spreadsheet operations, database concepts, and SQL commands for effective data handling and analysis. To equip learners with practical skills in MS-Excel, MS-Access, and PostgreSQL for performing data manipulation, visualization, and database management tasks. 	<ol style="list-style-type: none"> To explain the basic features, functions, and tools of MS-Excel and MS-Access. To apply spreadsheet functions (mathematical, statistical, financial) and database tools (queries, filters, relations) to solve data-related problems. To analyze datasets using Goal Seek, auditing tools, advanced filters, and SQL queries including joins, sets, and aggregate functions. To design and develop databases, queries, charts, and SQL scripts to generate meaningful reports and data-driven solutions.
Unit I	[12 HRS]
Introduction To Ms-Excel, Navigating, Excel Toolbars and Operations, Formatting Features, Coping Data Between Worksheet; Entering and Editing Cell Entries, Creation of Chars, Editing and Formatting Charts	
Unit II	[10 HRS]
Goal Seek, Auditing, Linking, Workbook, Database in Excel(Auto Filter, Advanced Filter, Sort, Form), Mathematical, Statistical and Financial Functions in MS-Excel.	
Unit III	[11 HRS]
Overview Database , DBMS, DBMS vs RDBMS Overview of MS Access, Database Creation , Relation Creation in MS Access, Data Type, Add Attributes, Data in Relation in MS Access, Query Design, Query Wizard in MS Access, Built-In Functions in MS Access, Data Import in MS Access	
Unit IV	[12 HRS]
Evolution of Data Models, Entity Relationship Model, Development of ER Diagrams, Introduction to Postgre SQL : DBA & its role, DDL commands, DML commands, TCL Commands, DCL commands, Advance SQL Queries (Join, Set, Aggregate Function, Function Trigger), Advance SQL Queries (Join, Set, Aggregate Function, Function Trigger)	

Text Books

S.N	Title	Authors	Edition	Publisher
1	Data Base system, Concepts	A Silbers Chatz and Henry Korth	3rd	Mcgraw-Hill Ltd.New Delhi
2	Introduction to Data Base Management	Naveen prakash	3rd	Tata McGrawHill Ltd
3	An Introduction to Database Systems	Bipin C.Desai	Revised edition 2010	Galgotia Publications.
4	Data Base Management Systems	Raghu Ramkrishnan & Johannes Gerhke	Edition 2000	MC Graw Hill International

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SOFTWARE DEVELOPMENT, CYBER SECURITY

ARISE & SHINE

SECOND SEMESTER

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
25BV202P	Applied Computer Skills-II Lab	--	--	3	3	25	25	50

Course Objectives	Course Outcomes
<ul style="list-style-type: none"> To develop foundational knowledge of spreadsheet operations, database concepts, and SQL commands for effective data handling and analysis. To equip learners with practical skills in MS-Excel, MS-Access, and PostgreSQL for performing data manipulation, visualization, and database management tasks. 	<ol style="list-style-type: none"> To explain the basic features, functions, and tools of MS-Excel and MS-Access. To apply spreadsheet functions (mathematical, statistical, financial) and database tools (queries, filters, relations) to solve data-related problems. To analyze datasets using Goal Seek, auditing tools, advanced filters, and SQL queries including joins, sets, and aggregate functions. To design and develop databases, queries, charts, and SQL scripts to generate meaningful reports and data-driven solutions.

Practical No	Title of the Practical
1	Generating data series for conditional analysis.
2	Analysis of a randomly generated data series.
3	Generating Plots/charts for a given data series.
4	Minimizing shipping costs subjected to given constraints using Solver
5	To perform DML commands (Select, Insert, Update, Delete) on previous created relation.
6	To Implement Select query along with SQL aggregate functions.
7	To perform transaction control (TCL) using PostgreSQL commands.
8	To implement simple PL/SQL program in Postgres.

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1	Data Base system, Concepts	A Silbers Chatz and Henry Korth	3rd	Mcgraw-Hill Ltd.New Delhi
2	Introduction to Data Base Management	Naveen prakash	3rd	Tata McGrawHill ltd
3	An Introduction to Database Systems	Bipin C.Desai	Revised edition 2010	Galgotia Publications.
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CYBER SECURITY

SECOND SEMESTER

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
25CY203S	Web Development	4	--	8	12	50	100	150


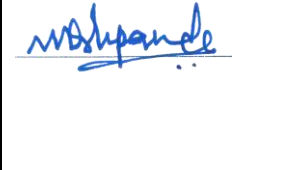
Course Objectives	Course Outcomes
<ul style="list-style-type: none"> To develop an understanding of web design concepts and development processes, including SDLC, planning, design principles, and evaluation of websites. To equip students with the skills to design and develop functional and secure web pages, including creating reusable content and basic JavaScript-based portfolio design. 	<ol style="list-style-type: none"> Explain the fundamentals of web design, SDLC, web development phases, and core principles of effective web design. Demonstrate the ability to plan and design websites by using structured web development processes and application development techniques. Apply and analyze methods for creating reusable website content, evaluating website performance, and ensuring web information security. Develop a basic portfolio website using JavaScript, applying web design and development concepts in a practical project.
Unit I Web Design Basics	[25 HRS]
Introduction to basics of Web Development, SDLC, Principles of Web Design, Phases of Web Development.	
Unit II Planning and Design	[25 HRS]
Planning for Web Development, The Web Designing Process, Introduction to Web Application Development, The Web Development Process	
Unit III Web Development Process	[25 HRS]
The Web Development Process, Developing Reusable Content, Evaluating the Website, Web information and security.	
Unit IV	[15 HRS]
Introduction to JavaScript, JavaScript for Interactive Web Pages, DOM (Document Object Model), Portfolio Design	

Text Books

S.N	Title	Authors	Edition	Publisher
1	HTML & CSS: Design and Build Web Sites	Jon Duckett	1 st	John Wiley & Sons Inc.
2	HTML & CSS-a Comprehensive guide	Jurgen wolf	1 st	EPUB
3	Eloquent JavaScript: A Modern Introduction to Programming	Marijn Haverbeke	2011	No Starch Press

Reference Books

S.N	Title	Authors	Edition	Publisher
1	Web Design and Development: A Beginner's Guide	Terry Felke-Morris	6 th	Pearson Education
	Web Development and Design Foundations with HTML5	John Duckett	1 st	Wiley

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SOFTWARE DEVELOPMENT, CYBER SECURITY

SECOND SEMESTER

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
25SD204S 25CY204S	Skill Development – II	--	--	4	4	50	--	50


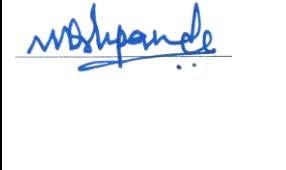
Course Objectives	Course Outcomes
<ul style="list-style-type: none"> To develop fundamental quantitative and analytical skills by introducing learners to numerical ability concepts such as percentages, profit & loss, interests, and installments. To enhance logical reasoning and problem-solving abilities through systematic exposure to coding–decoding, series, puzzles, clocks, calendars, and directional reasoning. To prepare students thoroughly for company-specific assessments, with special focus on the TCS Ignite Exam. 	<ol style="list-style-type: none"> To explain concepts related to percentages, profit–loss, discounts, simple and compound interest, EMIs, and basic logical reasoning patterns. To apply numerical formulas and reasoning rules to solve problems involving percentages, SI/CI, installments, and coding–decoding. To analyze alpha-numeric series, matrix codes, puzzles, clocks, and calendric patterns to determine logical sequences and relationships. To evaluate different problem-solving strategies and choose the most efficient methods to solve reasoning and quantitative aptitude problems within time constraints.
Unit I : Numerical Ability -V	[15 HRS]
Percentage, Cumulative Percentage Profit Loss, Discounts, Dishonest Sales,	
Unit II : Logical Reasoning - I	[15 HRS]
Alpha-numeric series, Analogy, Coding Decoding, Chinese Coding, Puzzle Code, Matrix Code	
Unit III: Numerical Ability -VI	[15 HRS]
Simple Interest and Compound Interest, Installments (EMIs)	
Unit IV : Logical Reasoning - II	[15 HRS]
Clock, Calendars, Distance and Directions, Input-Output	

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

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SECOND SEMESTER

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
25CY206S	Network Security	2	--	--	2	50	--	50

Course Objectives	Course Outcomes
<ul style="list-style-type: none"> To introduce learners to fundamental concepts of cyber security, including cyber-attacks, threat landscape, cryptography techniques, secure systems, and network security principles. To develop the ability to apply security mechanisms and risk management practices, enabling learners to design, implement, and evaluate secure solutions for systems, applications, and networks. 	<ol style="list-style-type: none"> To explain various cyber-attacks, threat trends, and the role of risk management in cyber security. To apply cryptographic algorithms and key management techniques to protect data confidentiality and integrity. To analyze security vulnerabilities in operating systems, web and mobile applications, and cloud environments using standard security frameworks. To evaluate network security controls, wireless security mechanisms, and organizational security policies to recommend effective security practices.

UNIT 1: INTRODUCTION TO CYBER SECURITY [6 HRS]

Definition And Importance Of Cyber Security: Introduction to the concept of cyber security, its importance and relevance in the current digital age and the various types of cyber-attacks.

Types Of Cyber Attacks: Various type of cyber-attacks that organizations face and their characteristics, such as malware, phishing, DDoS attacks, and social engineering attacks.

Threat Landscape: overview of the current cyber threat landscape, including the latest trends in cybercrime, the impact of emerging technologies on security, and the economic and geopolitical factors driving cyber-attacks.

Risk Management In Cyber Security: Principles of risk management in cyber security, including risk assessment, risk analysis, risk mitigation, and risk monitoring.

UNIT 2: CRYPTOGRAPHY [8 HRS]

Symmetric Key Cryptography: Introduction to the principles of symmetric key cryptography, including encryption and decryption techniques, the different types of symmetric key algorithms, and their strengths and weaknesses.

Asymmetric Key Cryptography: Introduction to the principles of asymmetric key cryptography, including the use of public and private keys, the various types of asymmetric key algorithms, and their applications.

Cryptographic Hash Functions: Introduction to the principles of cryptographic hash functions, their properties, and their use in securing data integrity, digital signatures, and authentication.

Key Management And Distribution: Introduction to the principles of key management and distribution, including key generation, key exchange, key storage, and key revocation.

UNIT 3: SECURE SYSTEMS AND APPLICATIONS [8 HRS]

Operating System Security: Principles of operating system security, including access control, authentication, authorization, secure booting, and secure coding.

Web Application Security: Principles of web application security, including the OWASP Top 10 vulnerabilities, secure coding practices, and security testing techniques.

Mobile Security: Principles of mobile security, including the security risks and threats associated with mobile devices, mobile app security, and secure mobile device management.

Cloud Security: Principles of cloud security, including the different types of cloud services, cloud security models, cloud security challenges, and best practices for securing cloud environments.

UNIT 4: NETWORK SECURITY**[8 HRS]**

Introduction To Network Security: Introduction the principles of network security, including the OSI model, network security protocols, and network security architectures.

Network Attacks And Threats: Introduce various types of network attacks and threats, including sniffing, spoofing, denial-of-service attacks, and network intrusion.

Wireless Network Security: Principles of wireless network security, including the security risks and threats associated with wireless networks, wireless security protocols, and best practices for securing wireless networks.

Security Policies And Procedures: Cover the importance of security policies and procedures, including the development, implementation, and enforcement of security policies and procedures in an organization.


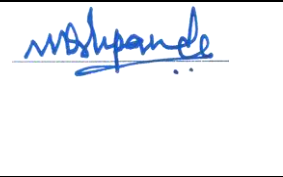
Legal And Ethical Issues In Network Security: Cover and introduce the legal and ethical issues associated with network security, including privacy laws, data protection regulations, and ethical considerations in network security.

Text Books

S.N	Title	Authors	Edition	Publisher
1	Cyber security engineering: a practical approach for systems and software assurance	Carol Woody and Nancy R. Mead	2017 (1 st)	Pearson Edition
2	Cryptography and Network Security: Principles and Practice	William Stallings	8th Edition	Pearson
3	Security in Computing	Charles P. Pfleeger, Shari Lawrence Pfleeger	6th Edition (latest)	Addison-Wesley Professional

Reference Books

S.N	Title	Authors	Edition	Publisher
1	Applied Cryptography: Protocols, Algorithms, and Source Code in C	Bruce Schneier	2nd Edition (commonly used)	Wiley (or similar technical publisher)
2	Principles of Information Security	Michael E. Whitman, Herbert J. Mattord	(various; commonly used edition)	Cengage / Course Technology

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